

APSOPRS-APAO 1 – Oculoplastics

10 June 2006, Saturday, 0920-0945 Hrs

Room 301-302, Level 3

F1001

ESTIMATION OF TRANSVERSE TENSION IN TRAUMATIC BLEPHAROPTOSIS USING DISTRACTION TESTS

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Purpose: Repair of traumatic blepharoptosis is usually aimed only at the levator complex (levator aponeurosis and Müller's muscle). However, it is difficult to sufficiently elevate the upper eyelid with just less transverse tension on the upper eyelid. We here reported 3 traumatic blepharoptoses cases in which the transverse supporters as well as the levator complex were successfully repaired.

Method: We examined whether the lateral or the medial canthal supporters were attenuated in 3 traumatic blepharoptoses eyelids by conducting lateral or medial distraction tests, respectively. With positive findings from the distraction tests, we repaired the transverse tension in addition to the levator resection.

Results: We confirmed definite lacerations in the wounds, and by performing the distraction tests we were also able to ascertain lateral or medial canthal lacerations. Thus, a medial tarsal strip procedure was performed in one case, a lateral tarsal strip procedure in another, and lateral tarsal strip procedure and medial canthal fixation with the fascia lata was performed in the third case; after which levator resection was undertaken. The findings showed that the patients improved postoperatively and that the upper eyelids opened sufficiently.

Conclusion: Lateral or medial canthal lacerations sometimes occur with the traumatic blepharoptosis, in which case the transverse tension needs to be examined using distraction tests.

F1002

AN ALTERNATIVE TO WRIGHT NEEDLE FOR FRONTALIS SUSPENSION IN CHILDREN WITH CONGENITAL PTOSIS

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Purpose: The Wright Needle is widely used in the performance of frontalis suspension in children with congenital ptosis. However, its size (diameter of 2 mm) may cause significant postoperative swelling and surgical scars in the patients. We like to propose the

use of a G18 intravenous catheter (venflon) needle (diameter less than 1.3 mm) in place of Wright needle.

Method: 9 lids in 6 children with congenital ptosis underwent frontalis suspension were included in the study 2/0 prolene sutures were treaded through the lumen of the G18 needle using the Fox method.

Results: Smaller wounds were created in all the patients with reduced swelling.

Conclusion: The G18 intravenous catheter (Venflon) needle is an excellent disposable substitute to Wright needle for frontalis suspension by creating a smaller wound.

F1003

PUTATIVE MARKERS IN OCULAR ADNEXAL LYMPHOPROLIFERATIVE LESIONS

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Purpose: To study the molecular markers in Ocular adnexal lymphoproliferative lesions using fluorescent based capillary electrophoresis (CE) polymerase chain reaction (PCR) and to carry out a cytomegalovirus (CMV) and Epstein-Barr virus (EBV) DNA analysis in such lesions.

Method: DNA extracted from 15 paraffin block specimens of LPD taken from ocular adnexa of 11 patients between 1995 and 2005 was subjected to fluorescent based CE PCR to detect immunoglobulin heavy chain (IgH) and T-cell receptor (TCR) g and b rearrangement and a comparison was made with the histological diagnosis established earlier. In addition, we looked for the presence of DNA of CMV and EBV in these specimens.

Result: IgH monoclonality was only found in one out of 5 cases of B-cell lymphoma diagnosed earlier by immunophenotypic analysis (IPA). TCR g monoclonality was found in 3 specimens taken from a patient with T-cell lymphoma. One of the specimens was from lacrimal sac wall which showed therapy related changes, but no malignancy by histopathology. TCR b was positive in 5 specimens, 3 from the B-cell lymphoma patients and one each of reactive lymphoid hyperplasia and an atypical lymphoid proliferation. CMV was absent in all specimens, whereas EBV DNA was positive in a third of the specimens one each of B-cell lymphoma, reactive lymphoid hyperplasia, atypical lymphoid proliferation and two specimens from the same patient with T-cell lymphoma.

Conclusion: IgH rearrangement does not appear to be a very sensitive test for B-cell malignancy of OAL, but appears to be very specific for diagnostic confirmation and therefore may be of use in future cases with borderline changes. While TCR g seems to be specific for T-cell lymphoma in the ocular adnexa, TCR b monoclonality is present in a significant number of B-cell lymphomas as

well as benign lymphoproliferative disorders indicating that specific, reactive T-cell clones are present in the milieu of adnexal lymphoproliferative lesions. These should not be mistaken as proof of malignancy. Detecting clonal populations is valuable, but negative results have to be treated with caution and interpreted in the light of other investigations. EBV can be associated with all types of adnexal LPD. It is not possible to ascertain if this is a causative agent, or simply an epiphenomenon. CMV does not appear to play any role in LPD.

F1004**COMBINATION OF INTRALESIONAL TRIAMCINOLONE ACETONIDE AND BETAMETHASONE INJECTION FOR CAPILLARY HEMANGIOMA**

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Purpose: To evaluate the management of capillary hemangioma patients who had received combination of intralesional triamcinolone acetonide and betamethasone injection.

Method: This is a case series consisting of sixteen children who had been treated with intralesional triamcinolone acetonide and betamethasone injection in Dr. Sardjito Hospital and Dr. Yap Eye Hospital Yogyakarta from 1997-2005.

Results: The intralesional triamcinolone acetonide and betamethasone injection in sixteen children resulted in measurable size reductions of the hemangiomas. Recurrence had occurred on one subject. No side effects were noted.

Conclusion: The combination of intralesional triamcinolone acetonide and betamethasone injection can be an additional alternative for managing capillary hemangiomas and to prevent visual impairment due to amblyopia.

APSOPRS-APAO 2 – Lacrimal

10 June 2006, Saturday, 1130-1200 Hrs

Room 301-302, Level 3

F1006**DIODE LASER PUNCTOPLASTY IN DRY EYE PATIENTS**

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Purpose: To share the experience with Diode Laser as a modality of punctal closure in the management of dry eye patients.

Method: Retrospective review of 8 patients who had undergone bilateral lower, upper or both upper and lower punctal closure as

an adjuvant procedure in patients with moderate to severe dry eyes with persistent symptoms despite maximally tolerated medical therapy. Each patient had undergone extensive preoperative evaluation for primary and secondary causes of dry eyes, ocular surface evaluation and had the procedure performed under regional infiltrative anesthesia.

Results: 7 of 8 patients had complete anatomical closure of the treated lacrimal puncta with demonstrated increased tear meniscus and subjective improvement. 6/8 patients had discontinued regular use of ocular lubricants. 2/8 patients continued to use lubricants 1-2/day on a regular basis. 1 of 8 patients had a patent yet stenotic puncta however with subjective and objective improvement of dry eye symptoms.

Conclusion: Diode laser punctoplasty is an effective method of punctal closure and may be considered as an alternative modality of punctal closure in patients with intractable dry eyes and may improve the quality of the ocular surface and life.

F1007**PERIOPERATIVE GELFOAM SPLINT AND INTRANASAL TRIAMCINOLONE FOR ENDOSCOPIC MECHANICAL DACRYOCYSTORHINOSTOMY**

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Purpose: To study the use of gelfoam splint and intranasal triamcinolone (inTA) on surgical outcome and granulation tissue formation in endoscopic mechanical dacryocystorhinostomy (EMDCR).

Method: This was a retrospective comparative interventional case series involving 30 patients who underwent EMDCR with gelfoam packing inserted through bicanalicular silicone stent placed over the rhinostomy site as a mechanical splint. 14 patients in the treatment group received inTA using 40 mg (1 mL) of triamcinolone applied to gelfoam while plain gelfoam were used in 16 patients as control. Gelfoam was left to dissolve without any nasal douching postoperatively. Surgical success was defined by patency on lacrimal irrigation, positive functional endoscopic dye test (FEDT) and relief of epiphora.

Results: Mean (\pm SD) age of subjects was 65 (\pm 16) and 23 of them were female. Mean (\pm SD) duration before stent removal was 6 (\pm 2.4) weeks. After 23 (\pm 7.7) weeks of follow-up, 6 (out of 14) patients in the treatment group (43%) developed granulation tissue at 11.8 (\pm 7.5) week postoperatively while 5 out of 16 (31%) patients in the control group were found to have granulation tissue at 6 (\pm 1.2) week postoperatively ($p=0.78$, chi-squared test with Yates continuity correction). Presence of granulation tissue was associated with 3.5 risk of surgical failure. Surgical success

was 92.8% in the treatment group and 87.5% in the control group ($p=0.55$, 1-sided Fisher exact test).

Conclusion: Although placement of gelfoam over the rhinostomy site may act as a mechanical splint during secondary intention of healing in EMDCR, granulation tissue formation was common and associated with an increased risk of rhinostomy closure. The use of gelfoam appeared to offset any beneficial effect of inTA. Therefore alternative means of drug delivery should be considered in future study of inTA.

F1008 SCLERAL PATCH GRAFT IN PROBLEMATIC DACROCYSTO RHINOSTOMY

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Purpose: The study was undertaken to compare the compatibility, and effectivity of donor banked scleral patch graft as a bridging material between lacrimal sac and nasal mucus membrane in problematic dacrocysto rhinostomy (DCR).

Method: In cases of DCR, where either the nasal mucus was very friable or the nasal mucus membrane and lacrimal sac flaps too wide apart for them to be apposed together. A 30 mm x 30 mm patch of banked donor sclera was harvested which was then resized according to the individual case requirement. The flap was fixed to the nasal mucus membrane with 2 or 3 interrupted sutures; the other side was fixed to the anterior flap of lacrimal sac like a hanging bridge. The overlying wound was closed as routine in two layers. A control group was also taken up, where DCR was performed as we do routinely by suturing only the upper flap of the lacrimal sac directly to the nasal mucus membrane.

Results: Of 64 eyes selected for this study, 32 cases underwent this scleral patch graft while the rest 32 patients (the control group) underwent direct closure. Out of which 25 (86.2%) were female and 4 (13.8%) were male. The follow-up period ranged from 6 months to 24 months. Compatibility was assessed on the basis of localized tissue reaction, which was the same as observed in routine DCR. The effectivity was judged on the patency of the lacrimal system at 6 months follow-up. 26 (81.25%) cases with scleral bridging graft and 27 (84.37%) with direct closure were patent respectively. 2 cases had canalicular stricture and 4 cases had regurgitation from opposite punctum.

Conclusion: The commonest cause of a failed DCR is the sagging down of the upper flap. Banked sclera in itself is very stiff and inert, thus the failure rate decreases dramatically.

F1009 CLINICAL AND DACRYOSCINTIGRAPHIC RESULTS OF SILICONE TUBE INTUBATION FOR FUNCTIONAL EPIPHORA

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Purpose: The types of dacryoscintigraphic findings were classified and the clinical and dacryoscintigraphic results of silicone tube intubation were analyzed in patients with functional epiphora.

Method: The results of dacryoscintigraphy performed in 126 eyes of 72 patients with functional epiphora were classified by types of obstruction into the followings; pre-lacrimal sac type, proximal nasolacrimal duct type, and distal nasolacrimal duct type. Punctoplasty accompanied by silicone tube intubation was conducted selectively.

Results: Improvement of symptom and dacryoscintigraphic finding was observed in all 25 cases of distal nasolacrimal duct type (100%), 49 of 57 proximal nasolacrimal duct type (85.9%), and 35 of 44 pre-lacrimal sac type (79.5%).

Conclusion: Dacryoscintigraphy of patients with functional epiphora may be classified to predict postoperative results of silicone tube intubation. Silicone tube intubation was effective especially in distal and proximal nasolacrimal duct type, but relatively less effective in pre-lacrimal sac type of functional epiphora.

F1010 DOES MITOMYCIN-C IMPROVE THE SUCCESS OF ENDOSCOPIC DACRYOCYSTORHINOSTOMY?

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Purpose: To compare the success rates of endoscopic dacryocystorhinostomy with lacrimal stenting (EDCR-LS) in Asian patients with and without mitomycin C (MMC).

Method: Prospective, non-randomized study. Thirty patients (33 sides: 11 right, 22 left; 6 revisions, 27 non-revisions) with naso-lacrimal duct obstruction underwent EDCR-LS by the 2 senior authors. All sides had epiphora/ discharge, increased tear meniscus, delayed dye disappearance test and increased resistance on lacrimal irrigation. Evaluation parameters included patients' demographics, anatomical success (AS) and functional success (FS) rates. AS was defined as visualization of the common canalicular opening on nasal endoscopy, with patency confirmed on probing or irrigation. FS was defined as symptomatic relief of epiphora or discharge.

Results: The study population had a mean age of 57.6 ± 15.6

years (range 27 to 84), with more females (90%) and Chinese (76.7%). Twelve sides (36.4%) received MMC (Group 1) and 21 sides (63.6%) did not (Group 2). The 2 groups were comparable in terms of age ($p=0.885$), sex ($p=0.570$), race ($p=0.566$) and incidence of septoplasty ($p=0.328$). The overall AS and FS rates for EDCR-LS were 84.8% and 81.8% respectively. Group 1 had a higher AS rate (97%) than Group 2 (81%); and a higher FS rate (91.7% versus 76.2%). The difference in AS and FS rates between the 2 groups was however not statistically significant ($p=0.630$, $p=0.379$ respectively).

Conclusion: Endoscopic dacryocystorhinostomy with lacrimal stenting has a good success rate. The use of MMC did not seem to improve the success rate. Further studies with larger sample sizes are needed to validate the study findings.

APSOPRS-APAO 3 – Orbit

10 June 2006, Saturday, 1425-1455 Hrs

Room 301-302, Level 3

F1011

REVIEW OF ORBITAL INFECTIONS IN A TERTIARY REFERRAL CENTRE IN PAKISTAN

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Purpose: To evaluate different types of orbital infections in tertiary referral centre in Pakistan.

Method: Interventional case series.

Results: Retrospective review of 200 orbital cases in our department from 2001-2005 showed 30 cases of orbital infections. Out of these 7 cases were of ethmoidal mucoceles, 3 of frontal mucoceles, 12 cases of orbital cellulitis, 3 cases of panophthalmitis with orbital spread, 3 cases of Mucormycosis, 3 cases of fungal infection other than mucor, 4 of orbital tuberculosis and 1 hydatid cyst. Ethmoidal mucoceles were all involving the orbit and producing subperiosteal abscess. One Frontal mucocele was producing frontal lobe abscess. All except pre-septal and certain orbital cellulitis needed surgical drainage or biopsy. Ethmoiditis and Frontal mucoceles were co-managed with ENT surgeon. 2 patients refused treatment. There was one fatality due to advanced stage of mucormycosis. All responded to varying degree to intravenous or oral antibiotics. There was recurrence of fungal ethmoiditis.

Conclusion: Orbital infections need to be diagnosed on urgent basis. Once a clinical or histological diagnosis is established then only the appropriate treatment should be initiated.

F1012

PROGNOSIS OF VISUAL ACUITY IN THE ORBITO-CRANIAL MENINGIOMA

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Purpose: To evaluate the visual acuity prognosis of the orbito-cranial meningioma in the temporoparietal region and fronto-temporoparietal location after transfrontal orbitotomy in Dr. Sardjito Hospital Yogyakarta.

Method: Seventy one patients with orbito cranial meningioma who underwent craniotomy, orbital tumor extirpation and radiotherapy in Dr. Sardjito Hospital during January 1998 to Desember 2005 were reviewed retrospectively.

Results: There were 71 orbito-cranial meningioma consist of 30 (42.25%) men and 41 (57.75%) women with range of 13 to 61 years of age, mean 24 years of age. From 41 women patients, 13 (31.71%) using hormonal contraception and 32 (78.05%) had history of pregnancy. Craniotomy, orbital tumor extirpation and radiotherapy were carried out at 43 patients with temporoparietal and 27 patients with frontotemporoparietal location. There were significance differences between temporoparietal location and frontotemporoparietal location of the visual acuity after therapy ($p=0.002$, RR 0.2). In six months follow-up there were seven (9.86%) of 71 patients died and all of the patients showed malignant and meningotheliomatous meningioma.

Conclusion: The visual prognosis of orbito cranial meningioma in the temporoparietal region is better than frontotemporoparietal location. Malignant meningioma and meningotheliomatous meningioma showed the worst prognosis.

F1013

IDIOPATHIC ORBITAL INFLAMMATION – A CLINICAL AND PATHOLOGICAL REVIEW

PETER MCLEOD KYLE¹

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Purpose: Idiopathic orbital inflammation (previously known as pseudo tumour) remains a clinical and pathological enigma. An orbital service has been provided in the Southern General Hospital for over 20 years. The aim of the study was to review known cases of IOA and to compare the pathological and radiological findings with the long-term clinical outcome.

Method: A retrospective analysis of all patients with a pathological diagnosis of IOA over a 20 year period was undertaken. Data was obtained from the pathology files. The case notes were reviewed for clinical presentation, investigation, treatment, follow-

up and outcome. In addition, the radiological features were reviewed. 53 cases were identified. Of these 21 had adequate and intact records and results. The 21 cases represented the whole spectrum of idiopathic orbital inflammatory disease, both in terms of the range of pathological types and the radiological features.

Results: The main presenting symptom was proptosis, with half of the cases complaining of double vision. CT scanning revealed that the masses were relatively evenly distributed throughout the orbit. The pathological features were variable with the inflammatory response varying between mild and severe and fibrosis being diffuse in 15 cases and patchy in two. All the patients were treated with oral steroids. Three patterns of behaviour were observed. Nine of the patients had a relatively short course of the disease. Four patients had a relapsing form of the disease and in eight there were multiple recurrences with a poor response to treatment.

Conclusion: It was possible to correlate certain pathological features with clinical behaviour, for example the degree of inflammation correlated well with the response to steroid. The presence of plasma cells and areas of necrosis were associated with poor outcome. The radiological features did not correlate well with the clinical outcome.

**F1014
ANALYSIS OF THE CAUSES OF PYOGENIC
GRANULOMA IN HYDROXYAPATITE ORBITAL IMPLANTS**

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Purpose: To study the causes and therapy of the development of pyogenic granuloma in hydroxyapatite (HA) orbital implants.

Method: 250 cases of HA orbital implants in our hospital (68 pegged implants) and 1 case in other hospital were reviewed retrospectively, all patients follow-up from 18 months to 10 years.

Results: 6 of 251 cases of HA orbital implants developed pyogenic granuloma. Pyogenic granuloma occurred in 1 unpegged implants patients and 5 patients after pegging and drilling of HA implantation over 4~7 years. The pyogenic granuloma can not be controlled by medical therapy effectively. Implants should be removed in all 6 cases that developed pyogenic granuloma.

Conclusion: Pyogenic granuloma was a serious complication that occurred after HA orbital implants. Partial vascularization, implant exposure, preserved sclera implant, pegging and drilling of HA implantation are factors that affect development of pyogenic granuloma. Pyogenic granuloma denotes the potential implant infection, and all implants should be removed finally.

**Free Paper 1 – Keratorefractive
Surgery**

**10 June 2006, Saturday, 1400-1600 Hrs
Room 311, Level 3**

**F1015
CUSTOM Q – A NEW FRONTIER FOR NEAR VISION
CORRECTION**

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Purpose: To evaluate efficacy, predictability, stability and safety of Asphericity Adjusted LASIK using Custom Q software of the Alegretto wave EyeQ for the correction of presbyopia in patients with Ametropia who are above forty years of age.

Method: 112 eyes of 56 patients with a mean age of 49.3 years had Custom Q LASIK which is an advanced wavefront optimised ablation with the ability to adjust the asphericity to give a postoperative “global optimum” shape that allows patients to have an increased depth of focus and better reading ability without compromising distant vision. Visual quality was assessed by routine methods together with contrast sensitivity, wavefront measurement and corneal topography. Follow-up was up to 9 months to one year.

Results: Mean postoperative SER was $+4.1 \pm 1.7$ D in Hyperopes (86 eyes) and -6.7 ± 2.1 D in Myopes (26 eyes). Postoperatively, mean SER at 9 months was within ± 0.5 D from target refraction in 86% of cases and within ± 1.0 D in 95% of cases. Uncorrected visual acuity was 20/20 or better in 85% of cases with 23% of eyes gaining one or more lines of their preoperative best corrected VA. No lines were lost from their preoperative best spectacle corrected VA. Patient satisfaction was better in hyperopes than myopes. Contrast sensitivity was better than preoperative values.

Conclusion: Asphericity adjusted LASIK offers a new hope for the correction of presbyopia together with ametropia. Hyperopes benefit more than myopes because of the induced negative asphericity. No loss of distant vision or quality of vision was reported and patient satisfaction was great. Improvement of the algorithm and modification of the nomogram is needed for better results in emmetropes and myopes.

FREE PAPERS

F1016

COMPARISON OF LASEK VS EPI-LASIK TO CORRECT LOW TO MODERATE MYOPIA

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Purpose: To compare the clinical visual results and complications of laser-assisted subepithelial keratectomy (LASEK) and epipolis laser in situ keratomileusis (Epi-LASIK).

Method: A retrospective analysis of a case series of eyes treated with LASEK or Epi-LASIK with a follow-up of 6 months was performed. Twenty-five eyes were treated by LASEK to correct a manifest spherocylindrical refractive error (MSRE) of -2.25 to -7.88D (mean -5.12D, cylinder range 0.0 to 1.75D) [Group I]. Twenty-one eyes were treated by Epi-LASIK to correct a MSRE of -3.13 to -7.38D (mean -4.96D, cylinder range 0.0 to 1.75D) [Group II]. The main outcome measures were uncorrected visual acuity (UCVA), manifest refraction, best spectacle-corrected visual acuity (BSCVA), and complications.

Results: At 1 week UCVA was 0.68 ± 0.22 in group I, and 0.53 ± 0.23 in group II. At 1 month UCVA was 0.90 ± 0.18 in group I, and 0.82 ± 0.24 in group II. At 3 month UCVA was 0.95 ± 0.10 in group I, and 0.91 ± 0.14 in group II. At 6 month UCVA was 0.93 ± 0.18 in group I, and 0.88 ± 0.22 in group II. The mean postoperative spherical equivalent (SE) was -0.45D at 1 month, -0.63D at 3 month, and -0.41D at 6 month for the group I and -0.11D at 1 month, -0.58D at 3 month, and -0.80D at 6month for the group II. Seven eyes in group I and 2 eyes in group II showed persistent epithelial erosion at 1 week. One eye in group I showed newly developed corneal opacity, which remained on the last visit.

Conclusion: Both LASEK and Epi-LASIK showed compatible clinical visual results. Postoperative epithelial healing was accomplished early in Epi-LASIK group.

F1017

CLINICAL OUTCOMES OF MULTIFOCAL TREATMENT FOR HYPEROPIC PRESBYOPIA

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Purpose: To evaluate the efficacy of multifocal treatment with wavefront-guided LASIK for presbyopia.

Method: The uncorrected distance and near visual acuity (UCVA), distance corrected visual acuity, spherical equivalent (SE), contrast sensitivity and total high order aberrations (HOA) were

measured before and after 1 day, 1 week, 1 month, 2 months and 6 months in 60 eyes of 30 patients. All patients were treated using VISX Custom VueTM System (VISX, Sunnyvale, CA, U.S.A).

Results: After operation, all eyes achieved 20/20 or better at distance and 83 % of eyes was showed J3 or better at near visual acuity. The mean sphere and cylinder were improved from +0.11 D and -0.53 D before operation to +1.54 D and -0.55 D after operation, respectively. The total HOA (RMS) were improved from 0.27 before operation to 0.23 after operation.

Conclusion: Clinical outcomes of multifocal wavefront-guided LASIK for hyperopic presbyopes using VISX Custom VueTM System showed a stable improvement in both distance and near visual acuity.

F1018

EFFECTIVENESS OF LIMBAL EYE TRACKING OVER PUPIL EYE TRACKING IN REFRACTIVE SURGERY

PAUL VAN SARLOOS¹, TARAK ASHOK PUJARA¹

*Customvis, Perth, Australia*¹

Purpose: Pupil based eye trackers need to image the pupil through the dry treated corneal surface. In addition, plume and laser flashes could affect the accuracy of such eye trackers. The solid state Pulzar Z1 laser uses a limbal based eye tracker. This study is to determine if a limbal based eye tracker provides an improved accuracy in tracking the eye.

Method: Individual frames for the limbal eye tracker were manually measured and compared with the eye tracker output. The pupil based tracker data were taken from previous clinical trials.

Results: Pupil based eye tracker had an accuracy of 0.06 mm for an intact cornea and 0.1 mm for a cornea with a flap removed. Limbal eye tracker had an accuracy of 0.02 mm during surgery.

Conclusion: In this preliminary study limbal tracking proved to be more accurate than pupil based eye tracking. Accuracy may be more important parameter to assess eye trackers than latency.

F1019

REDEFINING VISUAL QUALITY EXPECTATIONS FOR HIGHER MYOPES WITH WAVEFRONT-DRIVEN CUSTOM ABLATIONS — CLINICAL RESULTS FROM THE US IDE CLINICAL TRIAL

TERRENCE O'BRIEN¹

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Purpose: To determine the visual improvement with treatment for higher myopia using customized wavefront-guided ablations with the VISX CustomVue platform.

Method: 184 eyes of 94 subjects were treated with wavefront-guided LASIK to treat myopia up to -11.0 D, with cylinder up to -6.0 D, and MRSE between -6.0 and -14.0 D at the spectacle plane, or myopic astigmatism less than -6.0 D MRSE, with cylinder between -3.0 D and -6.0 D as measured at the spectacle plane. Parameters for effectiveness included UCVA, refractive stability and predictability. FDA Approval was received on August 30, 2005 for the reduction or elimination of myopia and myopic astigmatism from -6.00 to -11.00 D MRSE, with cylinder between 0.00 and -3.00 D.

Results: At six months postoperatively, 84 percent of eyes achieved uncorrected visual acuity of 20/20 or better. Seventy-five percent of eyes had the same or better postoperative UCVA compared to preoperative BSCVA, and 96 percent of eyes were treated within 1.0 D of intended correction. Most patients reported subjective satisfaction with vision at night compared to preoperative status.

Conclusion: Wavefront-guided customized bilateral LASIK with the CustomVue platform resulted in excellent uncorrected visual acuity and improved visual quality with subjective visual satisfaction for patients with higher myopia.

F1020
U.S. NAVY STUDY — WAVEFRONT-GUIDED PRK VS. WAVEFRONT-GUIDED LASIK

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Purpose: To compare the safety and efficacy of wavefront-guided surface ablation (PRK) and wavefront-guided LASIK for the treatment of patients with myopia up to -6D and astigmatism up to 3D.

Method: Study compares visual results of 80 eyes of 40 patients who received wavefront-guided PRK to 40 eyes of 20 patients who received wavefront-guided LASIK using the Fourier-based system for the treatment of low to moderate myopia with or without astigmatism. Visual performance was assessed using clinical outcome measures of refraction, acuity and contrast sensitivity.

Results: Study results showed wavefront-guided PRK appears to be safe and effective for the treatment of low to moderate myopia. Comparative results to wavefront-guided LASIK will be presented. Benefits to PRK include predictable clinical outcomes and no flap-related complications. However, benefits to LASIK include equivalent clinical performance and quicker visual recovery compared to PRK, with less induced pain and haze.

Conclusion: Fourier-based wavefront-guided PRK and LASIK remain safe and effective in the correction of low to moderate myopia with or without astigmatism.

F1021
TWO YEAR RESULTS OF MULTIZONE PRESBYOPIC LASIK IN INDIAN EYES

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Purpose: To assess the efficacy, safety and long term stability of a new innovative multizone presbyopic LASIK for correction of ametropia along with presbyopia in presbyopic age group. To analyse the post presbyopic LASIK corneal profile and offer a possible explanation of pseudo-accommodation.

Method: This prospective clinical study comprises of 68 eyes of 34 consecutive patients aged 45-55 years who underwent multizone presbyopic LASIK during January - October 2004. All patients with associated ocular or systemic disease contraindicated for LASIK were excluded as also those with scotopic pupil of less than 4 mm. A personal modification of PAC software (A. Talendro) was used on EC5000 CX2 (Nidek, Japan). Follow-up on day 2 and week 1, 3 and 6 included vision and refraction for distance and near topography was done on week 6 and 6 month visit. Visual satisfaction was measured on a score 1 - 10.

Results: Multi zone presbyopic LASIK is safe and has excellent visual outcome in hyperopic presbyopes. A pseudo-accomodative corneal profile is produced which is like a profile of younger non-presbyopes. There is an enhancement rate of 30% but the results are excellent after enhancement.

Conclusion: Multizone Presbyopic LASIK is safe on long term and is efficacious with excellent visual outcome. Enhancements are possible and results after enhancement are encouraging.

F1022
EFFECTS OF COMPENSATING FOR CYCLOTORSIONAL EYE MOVEMENT AND PUPIL CENTROID SHIFT IN WAVEFRONT-GUIDED LASER REFRACTIVE PROCEDURES

MARGUERITE MCDONALD¹
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Purpose: To refute or support international findings that the addition of automated iris registration technology to the CustomVue wavefront-guided refractive surgery platform improves visual outcomes.

Method: A prospective multicenter U.S. study focused on issues related to treatment centration, including iris registration with and without a fixation ring, and pupil centroid shift in various lighting conditions.

Results: As pupil size changes between the stages of a laser refractive procedure, the pupil centroid may not remain stationary

relative to the outer iris boundary. Published studies have shown an average nasal displacement of 0.25 mm, with shifts up to 0.6 mm. Ignoring the pupil centroid shift may lead to suboptimal results. CustomVue automated iris registration compensates for pupil centroid shift by referencing to the outer iris boundary and consistently centering ablations on the pupil centroid as measured by the wavefront aberrometer.

Conclusion: Results of the study and the clinical implications of iris registration technology will be discussed.

F1023

THERAPEUTIC WAVEFRONT-DRIVEN ABLATIONS — CLINICAL RESULTS AND PEARLS

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Purpose: To demonstrate how surface ablations (PRKs) based on Fourier wavefront reconstruction are effective for treating previously operated, highly aberrated eyes (post-LASIK, post-RK, etc).

Method: Results from clinical studies of Fourier-based therapeutic ablations will be presented.

Results: Fourier reconstruction provides more detailed shapes in the representation of optical aberrations than do Zernike polynomials. Postoperatively, Fourier-based outcomes include much improved clinical outcomes, including better UCVA and lower RMS higher-order aberration values. For example, at three months post-op, eight highly-aberrated post-RK patients who had received Fourier-based LASEK achieved a 44% mean decrease in HOAs, 64% mean decrease in coma, 38% mean decrease in trefoil and a 100% mean decrease in spherical aberrations. Their UCVA improved from a mean of 20/50 (20/20 to 20/100) to 20/16 (20/16 to 20/20).

Conclusion: For guiding treatments of previously operated, highly aberrated eyes, Fourier transforms are highly effective, especially when the treatments are surface ablations. Ablation accuracy and visual outcomes are improved.

F1024

COMPARISON OF EPI-LASIK WITH EPITHELIAL FLAP REPLACEMENT VS NON-REPLACEMENT IN CONTRALATERAL EYES WITH THE MORIA EPI-K MICROKERATOME

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Purpose: To compare the characteristics of pain and uncorrected distance visual acuity (UCDVA) in patients having the epithelial flap

replaced in one eye and not replaced in the other after epi-LASIK with Moria Epi-K.

Method: A prospective randomized masked contralateral eye study was performed with fourteen volunteer patients that underwent Epi-LASIK with Moria Epi-K Microkeratome and Alcon LADARVision. Each patient had one eye randomly assigned to not replacing the epithelial flap. UCDVA (with BCL in place) and the level of pain in each eye was measured as more, less or the same as the other eye at one, three and, five days and one month post-op.

Results: At one day post-op, UCDVA was the same or better in 79% of the eyes that had the flap replaced with pain the same or better in 93% of these eyes. From day three onward, the level of pain was minimal in both eyes and showed no statistically significant difference. UCDVA showed no statistically significant difference at post-op day five but was the same or better at one month in the eye that did not have the epithelial flap replaced in 79% of the patients.

Conclusion: Epi-LASIK with the Moria Epi-K Microkeratome produces a sharp delineation of normal epithelium in the periphery and the denuded central area. This may be why Epi-LASIK patients heal well regardless of whether or not the epithelial flap is replaced. Flap replacement appears to ameliorate some of the post-op pain and improve UCDVA early after surgery. UCDVA appears to be better in the eyes that did not have the flap replaced at the one month visit, and has a high correlation with the overall clarity of the epithelium at the slit lamp at that visit.

F1025

COMPARISON OF OPPONENT, YELLOW-BLUE, COLOR CONTRAST SENSITIVITY BEFORE AND AFTER THE LASIK

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Purpose: optical aberration that induced by glasses and LASIK may reduce the quality of vision. Contrast sensitivity is one of the most important psych-physical test that could evaluate the retinal image quality. Refractive state of the eye could affect the retinal image and contrast sensitivity. Opponent yellow-blue contrast sensitivity may be more suitable.

Method: Thirty myopic eyes were tested with Pattern Generator™ system. Opponent yellow-blue contrast sensitivity could be tested by Pattern Generator™ system. Contrast sensitivity with glasses, before LASIK, and without any glasses or lenses after LASIK, was tested in the same situation.

Results: After LASIK, there was a significant ($p < 0.001$) improvement in contrast sensitivity. In fact, conventional glasses decrease the contrast sensitivity more prominently.

Conclusion: Opponent yellow-blue color contrast sensitivity shows the optical state of the eye. The better contrast sensitivity shows the better optical quality of the eye. LASIK surgery may increase the aberrations of the eyes, but, suitable patient selection, calibrated systems and surgeon experiences may improve the optical qualities of the eye, in comparison of conventional glasses.

Free Paper 2 – Cornea & Ocular Surface

10 June 2006, Saturday, 1400-1545 Hrs
Room 312, Level 3

F1026

DEEP LAMELLAR KERATOPLASTY WITH AND WITHOUT BARING OF THE DESCMET'S MEMBRANE – A COMPARATIVE STUDY

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Purpose: Deep lamellar keratoplasty (DLKP) is a corneal transplantation technique for stromal disorders which allows total of the recipient corneal stroma, whilst retaining recipient Descemet's membrane (DM) and endothelium, and has advantages in terms of reduction of allograft rejection and non-entry into the eye. We describe the visual outcomes of DLKP in our series with baring of Descemet's Membrane (Group I) and without baring of DM (Group II).

Method: DLKP was performed in 32 eyes, 17 with a modified Anwar technique with dissection up to the DM and 15 manual DLK without the baring of the DM. The pathological stroma was partially trephined with a Hanna Trephine and the first layer of dissection completed with a 2.25 mm crescent blade. In the modified Anwar method the remaining stroma is then separated from the DM with the injection of an air bubble and then removed while another layer of manual dissection was performed in Group II. The donor stroma is then sutured on the recipient bed.

Results: Preoperative VA was ranged from CF-6/18 in both groups. The commonest indications for surgery were corneal scar followed by keratoconus in both groups. The average follow-up was 5.8 months in group I and 22.8 months in group II. BCVA of 6/6 was achieved in 50% of the group I compared to just 7% of Group II. BCVA of 6/24 or better was seen in 93% in group I vs 73% in the second group. Complications included 2 intraoperative perforations in group I and 1 re-graft in group II. Resuturing of the graft was done in three patients in group I.

Conclusion: DLKP with dissection upto the DM gives significantly better VA outcomes in patients due to the absence of an optical interface and is the preferred method for lamellar corneal surgery.

F1028

THE DIAGNOSTIC ROLE OF IMPRESSION CYTOLOGY IN OCULAR SURFACE NEOPLASIA

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*Department of Pathology/Chiang Mai University, Chiang Mai, Thailand*²

Purpose: To study the accuracy of impression cytology in diagnosing of ocular surface neoplasia compared with tissue histology.

Method: Patients with the diagnosis of ocular surface neoplasia from Maharaj Nakorn Chiang Mai Hospital and the private practices were reviewed. Impression cytology and tissue biopsy were undergone in all patients. The results of both methods were compared.

Results: There were 55 patients (33 male and 22 female) with age range 12-99 years (mean 51). Twenty patients had lesions in the right eye and 35 in the left. The most common histologic reports was conjunctival-corneal intraepithelial neoplasia (45.5%), followed by squamous cell carcinoma (SCC) [34.5%], pterygia with or without non-neoplastic changes of squamous epithelia (10.9%), conjunctival nevi (7.27%), and malignant melanoma (1.82%). Whereas the findings on impression cytology included dysplasia (45.5%), SCC (21.8%), normal epithelia (18.2%), non-neoplastic changes of squamous epithelia (12.7%) and malignant melanoma (1.82%). When compared with histologic findings, the sensitivity and specificity of impression cytology was 84% and 91%, respectively. The limitations of this technique included keratinizing dysplasias and SCC of the ocular surface may yield very few or even no dysplastic cells on imprinted specimens. In addition, impression cytology did not distinguish in situ from minimally invasive disease.

Conclusion: This study demonstrated that impression cytology had a useful role to play in the diagnosis of ocular surface neoplasm. There were some limitations in the accurate diagnosis for squamous neoplasia.

F1029

DISTRIBUTION AND EMERGING FLUOROQUINOLONES RESISTANCE IN BACTERIAL KERATITIS – A 4-YEAR REVIEW, 2001-2004

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*Beijing Institute of Ophthalmology, Beijing, China*¹

Purpose: To study the distribution of bacteria isolates from the keratitis in North China and susceptibility to fluoroquinolones.

Method: 1985 corneal isolates from patients of bacterial keratitis

between January 2001 and December 2004 were analyzed retrospectively.

Results: Out of 1985 isolates, 279 of isolates were positive bacterial culture (151 male and 128 female; mean age, 45.14 years). Gram positive cocci and Gram negative bacilli represented 42.65% (119/270) and 35.13% (98/279) respectively. *Pseudomonas sp.* was the most common pathogen (20.07%). Resistance of the bacteria from the keratitis to ofloxacin, ciprofloxacin, levofloxacin and tobramycin was 20.2%, 35.9%, 15.5% and 29.4% respectively. *Staphylococcus sp.* showed significant resistance to ciprofloxacin and *Streptococcus sp.* to tobramycin. The resistance of Gram negative bacilli to ciprofloxacin was higher than ofloxacin and levofloxacin ($\chi^2=7.486, 11.932; p<0.01$). The resistance of isolates in the elder people (≥ 60 y) to ciprofloxacin, levofloxacin and tobramycin was higher than that in the adult (>14 to 59 years) [$\chi^2=14.744, 5.835, 19.709; p<0.05$].

Conclusion: *Pseudomonas sp.* and *Staphylococcus sp.* were the most common pathogens in the bacterial keratitis. The increased fluoroquinolones resistance presented an important therapeutic challenge for bacterial keratitis.

F1030

THE EXPERIMENTAL STUDY OF INTRASTROMAL IMPLANTATION OF HUMAN AMNIOTIC MEMBRANE IN THE TREATMENT OF RABBIT BULLOUS KERATOPATHY

SHIJING DENG¹

Beijing Institute of Ophthalmology, Beijing, China¹

Purpose: To study the feasibility of intrastromal implantation of human amniotic membrane (AM) in the treatment of rabbit bullous keratopathy (BK).

Method: BK was produced using 25 New Zealand White rabbits by anterior chamber irrigation with 0.05% benzalkonium bromide solution. 12 days later, all rabbits were randomly divided into 4 groups and received intrastromal amniotic membrane implantation (group 1), superficial amniotic membrane transplantation (group 2), and lamellar corneal incision (group 2), group 4 as control. The central thickness, opacity, epithelial bullae, healing of the endothelial cell, and histopathological examination of the cornea was performed at selected time.

Results: All corneas treated with BAKB became cloudy and edematous with epithelial bullation, without endothelium being observed on the denuded descemet's membrane. The difference of the central corneal thickness of group 1 and the other groups was significant during the first 2 weeks after AMT ($p<0.01$). From 4 to 12 weeks, the central corneal thickness of group 1 was significantly different from that of the group 3 and 4 ($p<0.01$). The corneal opacity of group 1 was significantly relieved 4 weeks after

AMT compared with that of other groups ($p<0.01$). The epithelial bullae were completely absorbed 2 weeks after AMT in group 1, while it was not absorbed in group 3 and 4 at the 12th week. The endothelial cell appeared in the central area of cornea in group 1 and 2 4 weeks after AMT, and the endothelial wounds area almost closed at the 12th week, while it was obvious in group 3 and 4. Histology slices indicated that AM implanted into the stroma remained at the 12th week with no absorption and obvious infiltration of lymphocytes and polymorphonuclear, while AM of group 3 had completely disappeared.

Conclusion: Amniotic membrane implanted into the deep stroma could be remained relatively longer than those transplanted onto the surface of BK cornea, which could be advantageous for the AM to play the role of barrier and anti-scarring. AM could facilitate the wound healing of rabbit endothelial cell.

F1031

PROPHYLACTIC EFFECT OF ORAL ACYCLOVIR ON OUTCOMES OF OPTICAL GRAFTS FOR LEUCOMAS SECONDARY TO HERPETIC KERATITIS

SANDEEP ARORA¹, ASHISH NAGPAL¹

Retina Foundation, Ahmedabad, India¹

Purpose: To determine prophylactic effect of oral Acyclovir on preventing recurrence of herpetic disease and thus graft survival after penetrating keratoplasty for herpetic keratitis.

Method: 17 patients having clinical history of herpetic keratouveitis requiring corneal grafts were recruited. All were examined for signs of immunosuppression or acyclovir hypersensitivity. At baseline BCVA, quadrants of vascularization, corneal sensation, vital staining were recorded. Patients were explained risk-benefit of long term acyclovir therapy. Postoperatively all were prescribed systemic acyclovir 400 mg thrice daily. An event was defined as any clinically suspicious rejection, HED recurrence, or a combination of two.

Results: Patients were younger (mean age 48.8 [SD 12.92] years). Mean duration of disease was 9.98 (SD 5.4) yrs. Mean duration of last recurrence was 15.54 (SD 9.64) months. All patients have altered corneal sensation with 72.7% having almost absent and 27.3% have decreased corneal sensation. There were fewer eyes without corneal neovascularisation with 36.4% having less than 2 quadrants, and 27.3% having greater than 3 quadrants vascularization. The more advanced central corneal scarring observed in individuals with HSK was also evidenced by their poorer preoperative corrected visual acuities 0.02 (0.16). Consistent with the preoperative situation, postoperative data revealed a higher incidence of epithelial defects in immediate postoperative period (63.6%). One case had dendrogeographic ulcer, whereas other case had necrotizing stromal keratitis with eventual loss of the graft.

Overall survival of grafts on long term acyclovir appears to be good with 72.7% grafts remaining clear and with no further activation of HED. Postoperative visual acuity 0.23 (0.16), which is statically significant ($p < .004$).

Conclusion: Significant reduction of HSV related events were detected when oral acyclovir 400mg thrice daily was administered.

F1032

MANAGEMENT OF TRAUMATIC CORNEAL SCARRING, APHAKIA, AND ANIRIDIA

RUSSELL PHILLIPS¹

Ophthalmology Department, Flinders Medical Centre, Adelaide, Australia¹

Purpose: To provide a system for the clinical management of severe eye trauma involving corneal opacity, aniridia, and aphakia.

Method: Observations from the management of a number of these cases over several years have been condensed to suggest guidelines for optimising the visual rehabilitation of these challenging cases. Examples of case studies are presented.

Results: The first priority in all cases is to repair the globe, prevent infection, and treat inflammation. The next priority is to assess the posterior segment. In cases where direct visualisation is impossible, serial ultrasonography should be performed. The posterior segment should be stabilised prior to definitive anterior segment surgery. This may require early vitrectomy, and in cases where corneal opacity is severe it may be necessary to use a temporary keratoprosthesis followed by a corneal graft. Definitive anterior segment surgery should be planned only once inflammation has resolved. Several surgical procedures undertaken in stages are often required to obtain the best results. Patience is required by both the patient and the surgeon, as it may take up to two years to rehabilitate these eyes.

Conclusion: Severely traumatised eyes can achieve surprisingly good visual outcomes with appropriate timing and choice of surgery. The patient's visual requirements and occupation need to be balanced with realistic expectations. In many cases several surgical procedures may be required.

F1033

A MULTIFACETED THERAPY FOR ALLERGIC CONJUNCTIVITIS

PETE SMITH¹

Bond University, Queensland, Australia¹

Purpose: Review the immunology and multiple points of actions of Olopatadine with respect to allergic conjunctivitis.

Method: Extensive literature review.

Results: Olopatadine is a selective and effective H1 receptor antagonist. This drug has rapid onset and has a slow rate of dissociation from the H1 receptor and consequently it is effective for twice daily dosing. In addition to the direct antihistamine effects, Olopatadine reduces arachidonic acid release from membrane phospholipids, inhibiting the release of leukotrienes, thromboxane and PAF from eosinophils. Olopatadine directly and indirectly has effects on inhibiting histamine-mediated release of cytokines such as IL-6 and IL-8. Olopatadine also reduces the up regulation of adhesion molecules such as ICAM-1 and E-selectin, and oral administration models have demonstrated efficacy in reducing vascular leak. One of the more novel and potentially beneficial actions of this agent is the capacity to inhibit pre-junctional stimulation of peripheral sensory nerves by tachykinins. Tachykinins such as Substance P and Neurokinin A are present in mucosal tissue and exogenous administration simulates allergic inflammation. Functionally these multiple actions result in effective inhibition of both the allergic and late phase responses to allergen challenge and this is evident in the drugs clinical efficacy.

Conclusion: Olopatadine has multiple points of impact on allergic inflammation and from current evidence is the safest and most effective agent for the treatment of allergic conjunctivitis.

F1035

A CASE SERIES OF 14 PATIENTS WITH CONTACT LENS-ASSOCIATED FUNGAL KERATITIS

KHOR WEI BOON¹, LIM LI¹, DONALD TAN¹

Singapore National Eye Centre, Singapore¹

Purpose: To report on the contact lens usage, predisposing risk factors, microbiology, and management of patients with contact lens-associated fungal keratitis, seen at a tertiary-level subspecialty ophthalmology institute in Singapore.

Method: The case records of all patients admitted by the Singapore National Eye Centre (SNEC) for inpatient management of contact lens-associated infective keratitis during the period September 2004 to mid-January 2006 (14.5 months) were reviewed. All patients with culture-proven fungal keratitis were included in this study. Relevant study data were obtained from the case records, as well as telephone and clinic interviews, where possible.

Results: A total of 14 patients were included in the study, ranging in ages from 16 to 44 years old. All wore soft, 2-weekly- or monthly-disposable contact lens, and used multipurpose solution to clean and store their lenses. Most reported poor contact lens practices, which included sleeping with lens (sometimes overnight), and the use of lenses past the planned replacement date. Two had previously received treatment for contact lens-related bacterial keratitis,

and one patient had a prior history of herpetic keratitis. Only 4 of our cases had received steroid eyedrops prior to treatment at SNEC. All had *Fusarium* species isolated from corneal cultures. The final best-corrected visual acuity ranged from 6/6 to 6/60, with 2 cases requiring penetrating keratoplasty.

Conclusion: There appears to be an increased incidence of contact-lens associated fungal keratitis, with 14 cases seen over a short period of 14.5 months, and all from *Fusarium* infections. The associations with soft, disposable contact lens use, use of multipurpose solutions, and certain predisposing risk factors are discussed. Management of these infections continues to be challenging, and surgical treatment is still required in some of these cases.

APSOPRS-APAO 4 – Aesthetic

10 June 2006, Saturday, 1705-1710 Hrs

Room 301-302, Level 3

F1036

SUB-BROW INCISION BLEPHAROPLASTY

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Purpose: To present an alternative way to correct dermatochalasis in very old patients.

Method: A prospective, descriptive study was carried out in Ramathibodi Hospital from September 2003 through September 2005. The patients more than 65 years old with excess skin and bulging preaponeurotic fat of both upper eyelids were operated with this technique by one surgeon. The surgical technique included incision making at sub-brow region, then removed preaponeurotic fat. Excess skin was estimated and removed before suturing the wound.

Results: Seven patients were operated with this technique (5 females, 2 males). The mean age was 77.81 years (range 65-92 years). The operations were successful in all patients without intraoperative complication. Blood losses during surgery were minimal in all patients so the operative time were shorten. Follow up times were at 5 days postoperative and then at 1st, 3rd, 6th, 12th months. No overcorrection, ptosis and lagophthalmos was noted. All patients were satisfied with therapeutic and cosmetic result without long term complication such as keloid or hypertrophic scar.

Conclusion: Sub-brow incision blepharoplasty has provided good functional and cosmetic result in dermatochalasis correction for old patients. The sub-brow approach was to remove only the excess skin and preaponeurotic fat without operation on levator aponeurosis and eyelid crease so minimized the complication and preserved the natural eyelid crease of the patients.

Free Paper 3 – Cataract & Intraocular Refractive Surgery

10 June 2006, Saturday, 1600-1810 Hrs

Room 311, Level 3

F1037

FOLDABLE IRIS-FIXATED PHAKIC INTRAOCULAR LENS FOR THE CORRECTION OF MYOPIA – 1-YEAR RESULTS OF A MULTICENTER STUDY

BURKHARD DICK¹

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Purpose: To evaluate safety, efficacy, predictability, stability, complications, and patient satisfaction after implantation of foldable iris-fixated intraocular lenses (FPIOLs) for the correction of myopia.

Method: Prospective, nonrandomized, comparative (self-controlled) multicenter trial. 338 eyes underwent implantation of a silicone FPIOL with an optical zone of 6.0 mm. The mean dioptric power of the FPIOL was -8.0 D, mean anterior chamber depth valued 3.7 mm. MAIN OUTCOME MEASURES: The main parameters assessed were best spectacle-corrected visual acuity (BSCVA), uncorrected visual acuity (UCVA), refraction, endothelial cell count (ECC), intraocular pressure, slit-lamp biomicroscopy, indirect ophthalmoscopy, subjective complaints, and patient satisfaction.

Results: Predictability: 97.2% achieved correction within 1.0 D, 87.0% achieved correction within 0.5 D of intended refraction. Mean postoperative refraction was -0.13 D at 1 year. Efficacy: 97% of eyes achieved an UCVA of 0.5 or better at 1 year postop. The efficacy index was 0.99, the safety index 1.08. Complications: Non pigment precipitates were observed in 2.2%, pigment precipitates in 6.5%, glare or halos in 8.2% of eyes. Mean ECC valued 2701 cells per square millimeter preoperatively and 2675 after 1 year. Overall patient satisfaction was very high.

Conclusion: 1-year clinical trial results demonstrate that implantation of the foldable PIOL safely, predictably, and effectively reduced or eliminated high myopia.

F1038

REFRACTIVE LENSECTOMY WITH THE TECNIS ZM DIFFRACTIVE IOL

FRANK GOES¹

*Goes Eye Centre, Antwerp, Belgium*¹

Purpose: To prospectively study the Clinical outcomes, the Safety and Optical quality after implantation of the Aspheric Tecnis Multifocal diffractive IOL in Hyperopic and Presbyopic eyes.

Method: The optical performance of the IOL was studied for varying pupil sizes in a physiological model. Ninety Four presbyopic

eyes (mean age 55 ± 8 years) with medium to high hyperopia (mean sf.eq. $+4.1D \pm 1.6$) implanted with the IOL were analysed at 3 month. A questionnaire on spectacle independence and on patient satisfaction was used. Ucva, Bcva, Reading capability at intermediate distance and Wavefront analysis with the Wasca analyzer was done.

Results: 1. The multifocal Tecnis IOL showed two clearly defined focal points and MTF results that are independent of pupil size. 2. With eventual distance correction only, all but seven eyes could read J1. The preferred reading distance was 13 inch. At intermediate distance (22 inch) all eyes could read J3 with eventual distance correction. 3. No important (13% had minor side effects) side effects were noticed and 12 eyes gained 2 lines. No patient lost lines of vision, 4. Not one patient needed reading glasses. 5. Wavefront data showed a decrease of the spherical aberration after surgery in all eyes. 6. The degree of satisfaction for the patient was either excellent (78 eyes) or good (16 eyes).

Conclusion: 1. The Tecnis Multifocal IOL, corrected for the average spherical aberration of the human cornea, shows a pupil-size-independent optical performance. 2. The Tecnis is an excellent and safe IOL for Refractive Lensectomy in Hyperopia and Presbyopia. 3. Uncorrected distance and reading performance was excellent.

F1039 IMPLANTABLE CONTACT LENS IN HIGH MYOPIC ASIAN EYES

JOHN CHANG¹

Hong Kong Sanatorium and Hospital, Hong Kong¹

Purpose: To evaluate the safety and efficacy of the Implantable Contact Lenses (ICL™) in the correction of high myopia in Asian eyes.

Method: This is a prospective study of 61 eyes with mean preoperative manifest spherical equivalent of 14.73 ± 3.50 D in 40 Chinese patients who had the ICL implanted from May 2002 to December 2004. The results of 38 eyes that underwent simultaneous limbal relaxing incision for preoperative cylinder correction were assessed. The anatomical differences between Asian and Caucasian eyes were compared.

Results: The mean follow-up time was 13.67 ± 8.51 months (range 1 to 32 months). Predictability of the manifest spherical equivalent to within ± 1.0 D was achieved in 88 % of eyes. The mean 0.74 D with 97 % of \pm postoperative manifest spherical equivalent was -0.10 eyes maintaining or gaining 1 or more lines of best-corrected visual acuity. Two eyes lost one line of BCVA. Retinal detachment developed in one eye 15 months after initial surgery. Because of the statistical differences in anterior chamber depths (ACD) and white-to-white (WTW) between Caucasian and Chinese eyes, the

ICL size was more accurate if the calculation was modified so that 0.5 mm was added to the WTW if the ACD was less than or equal to 3.0 mm and 1.0 mm to the WTW if the ACD was more than 3.0 mm.

Conclusion: Our results show that the implantation of ICL is safe and effective in correcting highly myopic Asian eyes. Proper sizing of the ICL is important and varies slightly in Asian eyes.

F1040 CLINICAL STUDY OF THE IRIS-CLAW PHAKIC ARTISAN/VERISYSE LENS FOR TREATMENT OF HIGH MYOPIA

GUO HAIKE¹, HONGYANG ZHANG¹, ZENG JIN¹, HAI-YING JIN¹
Guangdong Provincial Peoples Hospital, Guangzhou, China¹

Purpose: Objective To evaluate the clinical studys in eyes implanted with the iris-claw phakic Artisan/Verisyse lens for treatment of high myopia.

Method: The Artisan/Verisyse lens was implanted in 72 (40 patients) eyes between October 2004 and October 2005. The patients were not suitable for accepting Laser in situ keratomileusis (LASIK) or clear lens extraction with intraocular lens implantation. The power of the lenses ranged from 8.0 to 23.0 diopters (D). The diopter of myopia before surgery was from -6.75~-29.0D. The preoperative mean best spectacle-corrected visual acuity (BSCVA) was 0.76 ± 0.30 (SD). Follow-up examinations were performed at 1, 3, 6 and 12 months after surgery and recorded vision, percentage change in endothelial cell count and complications during or after surgery. Outcome analyses of endothelial cell count measurements were based on those obtained before surgery.

Results: A UCVA of 20/40 or better was observed in 90.3% (n=65) of eyes regardless of the postoperative goal. All eyes remained stable throughout the follow-up. 84.7% (61 eyes) gained or more the preoperative mean best spectacle-corrected visual acuity (BSCVA). 55.6% (40 eyes) gained 2 or more lines of BSCVA. The mean preoperative endothelial cell count was 3190 ± 202 cells / mm². The mean endothelial cell density change was 4.5% at 3 months, 1.6% at 6 months, 1.2% at 1 year. The endothelial cell loss rate was higher (loss of cell density more than 10%) among patients who had shallow anterior chamber during the surgery. 1 eye was operated with the secondary surgical for repositioning of the lens because of poor initial placement. No lens exchange or extraction. Glare effects during night light were the main complication and were related to slightly poor placement or large pupils in young patients.

F1041

U.S. FDA CLINICAL TRIAL OF THE TORIC IMPLANTABLE COLLAMER LENS FOR MODERATE TO HIGH MYOPIC ASTIGMATISM
JOHN ALLAN VUKICH¹
University of Wisconsin, Madison, United States¹

Purpose: To assess the safety and efficacy of the Toric Implantable Collamer Lens (ICLTM) to treat moderate to high myopic astigmatism.

Method: Design: Prospective Non-Randomized Clinical Trial. Participants: 207 eyes of 123 patients with between 2.38 and 19.5 D of myopia and 1 to 4 D of astigmatism participating in the U.S. FDA clinical trial of the Toric ICLTM. Intervention: Implantation of the Toric ICLTM. Main Outcome Measures: Uncorrected acuity (UCVA), refraction, best spectacle corrected visual acuity (BSCVA), adverse events and postoperative complications.

Results: At 1 year postoperative, 84% had 20/20 or better UCVA compared to 81% with preoperative BSCVA 20/20 or better. 0.84 at baseline \pm +The mean manifest refractive cylinder dropped from 2.05 D (0.46) postoperatively, a 77% decrease in astigmatism. While only \pm to 0.48 D (20% of eyes had 1 D refractive cylinder preoperatively (none less), 93% of cases had 1D or less of cylinder postoperatively. Furthermore, 67% had ≤ 0.5 D and 45% had ≤ 0.25 D of refractive cylinder postoperatively. The mean MRSE improved from -9.3 D (± 2.6) preoperatively to 0.1 D (± 0.5) postoperatively. Postoperatively, 37% of eyes had a BSCVA of 20/12.5 or better; compared to a preoperative level of 4%. Furthermore, BSCVA 20/20 or better occurred in 99% postoperatively compared to 81% preoperatively. The mean improvement in BSCVA was 0.88 lines; there were no cases that lost ≥ 2 lines of BSCVA after 3 months postoperative while 3 % of cases improved by >2 lines and an additional 25% improved by exactly 2 lines. A total of 78% of cases gained ≥ 1 line of BSCVA while only 5% of cases lost the equivalent amount. Three ICL removals were performed without significant loss of BSCVA and no clinically significant lens opacities were observed.

Conclusion: The results support the safety, efficacy and predictability of Toric ICL implantation to treat moderate to high myopic astigmatism.

F1042

PHAKIC IRIS CLAW VERISYSE INTRAOCULAR LENS FOR CORRECTION OF HIGH MYOPIA
HAN ZHENG¹, FEI QING CHEN¹, SHUANG XU¹
Tide Eye Hospital, ChongQing, China¹

Purpose: To evaluate the clinical effects of Phakic Iris Claw Verisyse Intraocular Lens for Correction of High Myopia.

Method: The study included 39 eyes that received a Verisyse lens to correct high myopia. Preoperative and postoperative visual acuity and refractive error and endothelial cell density and iris and Intraocular pressure and the crystalline lens were recorded. Intraoperative and postoperative complication were observed. Follow-up was 1~8 months.

Results: Best corrected visual acuity improved more than 1line over 90.9% gained one or more lines of eyes postoperation. Mean endothelial cell loss at 3 months was from 5.67% to 15.77%. In 28 eyes (72.4%), postoperation residual refraction was within ± 1.00 D. At 1 month, 2 eyes gained retinal detachment. At 1 day, anterior chamber of 2 eyes was shallow. At 1 month, Iris Claw Verisyse Intraocular Lens dislocated in 2 eyes because of trauma. We encountered no major complications.

Conclusion: It is safe and effective for Correction of High Myopia to implant a Iris Claw Verisyse Intraocular Lens.

F1043

PHAKIC IOL'S – OUR EXPERIENCE IN 99 EYES
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Purpose: To analyse the results of phakic iris fixation IOL implantation in patients with high myopia with limited corneal thickness and in high hyperopia.

Method: The study was conducted in a private tertiary eye care, refractive surgery centre between Jan 2003 to Oct. 2005, 99 eyes of 68 patients in the age group between 17 to 48 years were included, of which 93 eyes(65 patients) had myopia and 6 eyes (3 patients) had hyperopia. Follow up period ranged from 3 – 33 months. All the eyes received a Verisyse iris fixation lens and we implanted lenses with powers ranging from -5.50 to -21.00 D for myopia and +12 D for hyperopia. Verisyse iris fixation phakic IOL is an all PMMA lens which has an overall length of 8.5 mm with the optic size of 5 or 6 mm. It has got 2 haptics and each haptic has got 2 arms which are separated by a thin gap for iris fixation. Its optic has convex – concave configuration. We selected those high myopes with thin cornea and high hyperopes having anterior chamber depth of more than 3 mm and without any ocular pathologieliike glaucoma, cataract, iritis etc. Preoperatively all the eyes underwent a thorough ophthalmic evaluation including refraction, best corrected visual acuity, slit lamp examination, pachymetry, specular microscopy, keratometry to obtain mean 'k' value and AC depth from epithelial surface to the anterior capsule. YAG PI was done in all the cases a week prior to the surgery. These data were filled in the data sheet and sent to the company to get a custom made lens. The procedure was done under Peribulbar Anesthesia through a sclero corneal tunnel. Pupil is constricted before the surgery and the anterior chamber is filled with high

molecular weight Viscoelastic substance after the AC entry is made. The Verisyse phakic IOL was then introduced into the eye and rotated and centered over the pupil. Special enclavation instrument is used to raise a fold of iris tissue into the gap between the distal ends of the haptic in both the sides. All the visco elastic substance was aspirated and the patients are put on topical steroids 6 times a day for a month and topical antibiotics for a week. All the cases were reviewed on the 1st day, 7th day, 6 weeks and 3 months.

Results: There was significant improvement in the best corrected visual acuity (BCVA) after Phakic IOL implantation. Almost 28 cases (28.3%) had improvement of one or more lines and in 67 cases (67.7%) the BCVA was maintained. 4 patients(4%) had a drop in visual acuity. 1 case had persistent glare and one had unilateral diplopia which required reenclavation. Decentration was noticed in 2 cases. 8 cases had postoperative raised IOP, it became alright after 3 weeks of antiglaucoma medications. Preoperative and 6weeks postoperative endothelial cell count were analyzed and found to have no significance. Pigment deposition on the phakic lens was noticed in 26 eyes and persisted even after 3 months. It had no visual significance. Ovalization of the pupil was noticed in 8eyes and had no visual significance.

Conclusion: Iris fixation Phakic IOL's provide good quality vision in high refractive error cases with preservation of accommodation and corneal sphericity. It provides excellent Refractive accuracy with stable refraction due to predictable healing. Larger corrections are possible and can be considered as the ideal refractive procedure in treating a high myope with limited corneal thickness or a high hyperope.

F1044
ACHIEVING EMMETROPIA FOLLOWING REFRACTIVE LENS EXCHANGE

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Purpose: To examine techniques and compare the visual outcomes after astigmatism and spherical end point adjustment following cataract surgery.

Method: Visual quality assessment of patients undergoing cataract extraction implanted with standard and multifocal intraocular lenses were compared following different management strategies to achieve emmetropia. Pre-existing astigmatism was treated with intraoperative limbal relaxing incisions. Postoperative residual refractive errors were treated with wavefront guided and standard LASIK to achieve emmetropia.

Results: Limbal relaxing incisions reduced pre-existing astigmatism but were highly variable when compared to wavefront guided custom LASIK.

Conclusion: Wavefront guided custom LASIK enhancement

following cataract surgery with both standard and multifocal implants is an efficacious method to achieve emmetropia with a high level of patient satisfaction.

F1045
WOULD VITREOUS SURGERY INDUCE INTRAOCULAR LENS LUXATION?

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Purpose: We experienced cases of intraocular lens (IOL) luxation following vitrectomy in patients with giant tear retinal detachment, proliferative retinopathy, and atopic retinal detachment. This is a study of the relationship between vitrectomy and IOL luxation.

Method: Case 1: 66-year-old female. Vitrectomy was performed for giant tear retinal detachment. After the retina was repositioned using perfluorodecalin, silicone oil replacement was conducted, followed 1 year later by phacoemulsification/aspiration + IOL implantation. The silicone oil was removed 1 year after this, and the patient's course was observed. She was found to have suffered IOL luxation 5 years after the initial surgery. Case 2: 63-year-old male. Vitrectomy + phacoemulsification/aspiration + IOL implantation was performed due to diagnosis of retinal detachment by another ophthalmologist, and because of redetachment, the patient underwent vitrectomy + silicone oil replacement, but as proliferative changes progressed under the silicone oil, 1 year after initial surgery, he underwent silicone oil removal and surgery for proliferative vitreoretinopathy. The postoperative course was favorable, but 1 year after surgery, the patient suddenly suffered luxation of the IOL. Case 3: 30-year-old female. Referred to us on diagnosis of atopic retinal detachment by another ophthalmologist. Because of the complication of proliferative vitreoretinopathy, surgery was performed to remedy this condition. Although the postoperative course was favorable, 6 months after surgery, the patient suddenly suffered luxation of the IOL. Patient was in her 9th year following cataract surgery. Method: The luxated IOL was fixed with formalin to conduct superficial observations using a stereoscopic microscope and a phase-contrast microscope.

Results: All the extracted IOLs made of PMMA were fixed in the capsule. IOL luxation occurred in 2 to 9 years after cataract surgery. Persistent inflammation was observed.

Conclusion: Persistent inflammation following vitreous surgery in particular is thought to be a possible cause of intracapsular IOL luxation.

F1046

IN SITU PHACOEMULSIFICATION — A NEW INNOVATION FOR PHACO TRAINEE

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Purpose: To simplify and Minimise the steps of Phacoemulsification and to avoid complications (difficulties) occur due to hydrodissection and rotation of nucleus prior to nucleus management during Phacoemulsification.

Method: Stop and Chop Technique, hydrodeleniation [if possible], no hydrodissection, no rotation of nucleus, nucleus management at its normal anatomical position i.e. In Situ Phacoemulsification, I/A -foldable IOL. 816 cases of cataract in the year 2004 with conventional way of hydrodissection and rotation of nucleus; prior to nucleus management (group-a) and 857 cases of cataract in 2005 with In Situ Phacoemulsification (group-b) in all types of cataract were studied at Navneet Hospital, India. In group-a, 268 cases were performed by 18 trainees and In group-b, 272 cases were performed by 23 trainees. Duration for learning the Phacoemulsification and complications (difficulties) occurred were noted and analyzed statistically.

Results: In a trainee group-a the average duration for learning Phacoemulsification was 6.7 days while it was 3.6 days in a trainee group-b, which is highly significant. In group-a trainees, visual hindrance was observed in 32% cases while in trainee group-b it was in 3% cases. In group-a the difficulty for trenching was observed in 38% cases (due to mobile nucleus) while in group-b it was 5%. In group-a trainees, zonular dehiscence and capsular rupture was observed in 7% cases while it was 2% in group-b trainees.

Conclusion: Phaco In SITU is most simplified approach of Phaco which will be definitely helpful not only for Phaco trainees but also for the all Phaco practitioner.

F1047

TORSIONAL ULTRASOUND EXTRACTION OF HYPER MATURE CATARACTS IN CHINA

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Purpose: Evaluate effectiveness and clinical outcomes of the new lens removal modality.

Method: Hyper mature cataracts were extracted utilizing conventional phacoemulsification technology and the new torsional ultrasound. Investigators subjectively evaluated appearance of the

incision following lens removal, and degree of edema during the first 24 hours following operation. Necessity to suture incisions and any abnormalities associated with the cataract extraction were also evaluated.

Results: There were no adverse events associated with the Torsional technology noted in any of the cataract removal cases. All incisions were sealed very well with this technology.

Conclusion: Torsional ultrasound represents a significant improvement in phacoemulsification, especially for challenging cases with hyper mature cataracts.

F1048

A COMPARISON OF ABSOLUTE PHACO TIME BETWEEN DUAL LINEAR CONTROL-MICROFLOW PHACONEEDLE TECHNIQUE AND SINGLE LINEAR CONTROL-STANDARD PHACONEEDLE TECHNIQUE

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Purpose: To compare total ultrasound energy (Absolute phaco time, APT) used during performing phacoemulsification, between two controlling techniques in Mellininium-Storz phacomachine: Dual linear control-microflow phaconeedle (Dual linear) and Single linear control-standard phaconeedle (Single linear).

Method: Retrospective Study performed in single surgeon's uncomplicated 306 phacoemulsification operative records. Absolute phaco time of 153 consecutive cases done by Dual linear control-microflow phaconeedle technique and 153 consecutive cases done by Single linear control- standard phaconeedle technique was compare according to five grades of cataract nuclear color density, grade 5 is the hardest level. Every of the operation use continuous phacopower delivery. All of the parameter setting were subject to be optimum for each individual case. The bottle height range between 90-100 cm.

Results: Number of cases enrolled in each nuclear density grading: from grade one to five are 28, 45, 90, 106 and 37 cases. Mean APT for Dual linear technique in cataract density grade one to five are 0, 0.9, 2.8, 7.98 and 20.4 seconds respectively, mean APT for single linear technique in cataract density grade one to five are 1.25, 3.4, 4.2, 13.6 and 30.2 seconds. Over all mean APT for Dual linear technique and for Single technique is 6.73 and 9.66 seconds. Dual linear mean APT is highly statistically significantly lower than Single linear APT in all nuclear density group ($p < 0.001$).

Conclusion: APT effectively reduced by using Dual linear control and microflow phaconeedle in all nuclear density group, because this technique enable us to use higher aspiration level, ease of ultrasound control that can be deliver at any aspiration point and maintaining stable anterior chamber. The technique in some

situation give me a sense of safely ultrasound on demand phacoaspiration.

F1049

NEW TRICKS FOR INTRAOPERATIVE FLOPPY IRIS SYNDROME

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Purpose: The demonstration of new techniques for the extraction of cataracts in cases with intraoperative floppy iris syndrome (IFIS).

Method: New maneuvers that facilitate phacoemulsification of cataracts in patients with IFIS, secondary to Flomax use, will be demonstrated. These include techniques for soft cataracts, very shallow anterior chambers, and the inability to perform either hydrodissection or hydrodelineation.

Results: The use of the techniques demonstrated led to an absence of complication and no iris damage in this group of patients. Postoperative views of the perfect-looking irides and pupils will be demonstrated.

Conclusion: Utilizing these techniques, cataracts can be removed safely and efficaciously, with little or no complication or damage to the iris, in the presence of IFIS.

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11 June 2006, Sunday, 1400-1530 Hrs

Room 311, Level 3

F1050

INTRAOCULAR PRESSURE MEASUREMENT – COMPARISON OF PASCAL DYNAMIC CONTOUR TONOMETRY, GOLDMANN APPLANATION TONOMETRY AND NONCONTACT TONOMETRY

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Purpose: Intraocular pressure (IOP) is the most important risk factor in glaucoma and its progression. Although Goldmann applanation tonometry (GAT) has become the gold standard for IOP measurements, a digital dynamic contour tonometer (DCT) has been introduced as a new method and a competitor of IOP measurement, and supposedly independent of cornea thickness. In this study, We compare the measurement of IOP obtained between DCT, GAT and non-contact tonometry (NCT).

Method: In this prospective study included 262 eyes of 262 subjects (65 eyes with glaucoma suspect, 82 eyes with open angle glaucoma, 73 eyes with angle closure glaucoma and 42 normal eyes). IOP was measured using DCT, GAT and NCT in random order. The DCT can also measure additionally the ocular pulse amplitude (OPA).

Results: The mean DCT measurements (18.91 ± 4.90 mm Hg) were significantly ($p < 0.001$) different both from mean GAT (17.48 ± 4.88 mm Hg) and from NCT values (16.25 ± 5.69 mm Hg). The difference between mean IOP measurements of the latter two groups was not statistically significant. The OPA in angle closure glaucoma patients (3.72 ± 1.68 mm Hg) was significantly higher compared to glaucoma suspect (2.68 ± 1.01 mm Hg, $p < 0.001$) and to open angle glaucoma patients (2.58 ± 1.58 mm Hg, $p < 0.001$).

Conclusion: The DCT is a new and promising device for measurement of IOP and its dynamic pulsatile fluctuations (OPA) in clinical practice, further study to find causes of higher value of OPA in patients of angle closure glaucoma is desirable in the future.

F1051

PREVALENCE OF GLAUCOMA IN RURAL CENTRAL MYANMAR – THE MEIKTILA EYE SURVEY

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Purpose: To determine the prevalence of glaucoma in central rural Myanmar.

Method: A population-based ophthalmic survey was conducted in the rural Meiktila District in central Myanmar. A randomized cluster sampling procedure was used to select subjects 40 years of age and over: a total of 2381 people were eligible and 2076 were examined (participation rate 87.2%). All subjects received an ophthalmic examination, including Goldmann tonometry, slit lamp examination, static and dynamic gonioscopy, and stereoscopic assessment of the cup-disc ratio (CDR) and the neuroretinal rim. In selected subjects with suspicious optic discs, a threshold visual field examination was performed. Glaucoma was categorized using a 3-tiered system of clinical evidence: category 1 on the basis of statistical abnormality of the vertical CDR combined with abnormal perimetry; category 2 in subjects who could not complete perimetry, but had a grossly abnormal CDR; category 3 in blind subjects with raised intraocular pressure and/or evidence of glaucoma-based surgery, but where CDR assessment was impossible. Glaucoma was classified as chronic open-angle (COAG), chronic closed-angle (CACG), acute angle-closure (AACG) or secondary glaucoma.

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Results: Category 1 glaucoma was present in at least one eye of 2.0% (95% CI 1.4-2.6). Glaucoma of any category was present in at least one eye of 95 subjects (4.6%; 95% CI 3.7-5.5). Twenty subjects (1.0%) had AACG, 44 had CACG (2.1%), 51 had COAG (2.6%), and 11 (0.5%) had secondary glaucoma in at least one eye.

Conclusion: Glaucoma is a common ophthalmic problem in rural Myanmar. Angle-closure glaucoma is particularly common, and the relatively high ratio of PACG to COAG is similar to that found in some other South-East Asian populations.

F1052

SAFETY OF INTRAVITREAL LINEZOLID INJECTION — ELECTRORETINOGRAPHIC AND HISTOPATHOLOGIC STUDIES IN RABBITS

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Purpose: The purpose of this study is to evaluate the safety of intravitreal injection of Linezolid in albino rabbits.

Method: We studied eight albino rabbits dividing them randomly into two equal groups. The right eyes were injected intravitreally with Linezolid (100 mcg/0.10 mL in Group 1 and 200 mcg/0.10 mL in Group 2); and the left eyes were injected with 0.10 mL Balanced Salt Solution (BSS®) to serve as control. Indirect ophthalmoscopy was done prior to and after intravitreal injections to determine if Linezolid will precipitate in the vitreous. Electroretinographic recordings were obtained to determine the effects of intravitreal Linezolid in the retina. Histopathologic studies were conducted to determine microscopic changes in the retina.

Results: Indirect ophthalmoscopy of all the rabbit's eyes showed Linezolid does not precipitate in the vitreous. In the Scotopic Tests of electroretinography, a statistically significant decrease in the b-wave amplitude ($p < 0.05$) was noted in Group 2 between 3 hours and 2 days; and between 3 hours and 7 days after injection. Histopathologic examination showed the presence of minimal inflammatory cells, trace vacuolizations in the ganglion cell layer, minimal decrease in the cell density of the outer nuclear layer and partial loss of photoreceptor outer segment were observed both in the experimental and control groups.

Conclusion: Intravitreal injection of up to 200 mcg Linezolid appears to be safe and well tolerated in rabbit eyes and may be used in the treatment of human bacterial endophthalmitis following further studies.

F1053

EFFICACY OF A SINGLE DROP VERSUS 3-DROP REGIME USING 1% TROPICAMIDE FOR MYDRIASIS IN PATIENTS WITH DARKLY PIGMENTED IRIDES – A RANDOMIZED CONTROLLED TRIAL

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Purpose: To evaluate the efficacy of a single drop versus a 3-drop regime using 1% tropicamide for mydriasis in patients with darkly pigmented irides.

Method: A prospective randomized, single masked clinical trial involving 30 patients (60 eyes) with darkly pigmented irides. One eye of each patient was randomly assigned to receive a single drop of 1% tropicamide (Regime A) while the other eye received one drop of 1% tropicamide thrice at 5-minute intervals (Regime B). A masked observer measured the pupil size in both eyes at 5-minute intervals for 45 minutes using a reference pupil chart.

Results: The median age of the participants was 53 years (range, 20-80) with 47% males and 53% females. The ethnic distribution was 53% Chinese, 27% Indian and 20% Malay. Six patients were diabetic. The pupil size at 45 minutes (PS-45) and the rate of mydriasis (RM in mm/min) were not significantly different between the 2 regimes ($p = 0.081$ and $p = 0.056$ respectively). The efficacy of the regimes, in terms of PS-45 and RM, was not affected by ethnicity ($p = 0.091$ and $p = 0.434$ respectively), the presence of diabetes mellitus ($p = 0.312$ and $p = 0.219$ respectively) or age ($p = 0.211$ and $p = 0.263$ respectively).

Conclusion: A single-drop of 1% tropicamide is as efficacious as a 3-drop regime in dilating pupils of darkly pigmented irides. The efficacy of the eye drop is not influenced by ethnicity, the presence of diabetes mellitus or age.

F1054

ENDOSCOPIC DIODE LASER CYCLOPHOTOCOAGULATION IN ASIAN PATIENTS

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Purpose: To describe the safety and efficacy of diode laser endoscopic cyclophotocoagulation (ECP) in Asian patients with glaucoma.

Method: Prospective non randomized study of consecutive patients who had undergone (ECP) with or without cataract surgeries. Inclusion criteria were pseudophakic patients with glaucoma which

was not controlled with 2 topical eye drops. Glaucoma patients with significant cataract and on at least 1 glaucoma medication were also included. Diode laser ECP was given to 3 quadrants of the ciliary body using shrinkage of the ciliary processes as end point. Postoperatively, patients received topical steroid and antibiotic eye drops for a month. Patients were reviewed at first day, 1st week, 1st month, 3rd month and then 3 monthly after the procedures. Visual acuities, intraocular pressures (IOP), anterior chamber activity were recorded at each visit.

Results: Twenty two eyes of 22 patients aged 52 to 91 (mean 74.5, SD 10.6) were recruited into the study. Fourteen patients (63.6%) had combined phacoemulsification, lens implant and ECP, 5 (22.7%) had ECP alone, 2 (9.1%) had extracapsular cataract extraction (ECCE), lens implant and ECP and 194.5%) had ECCE and ECP. Patients were followed for 3-9 months (mean 5.3 months). Preoperative IOP was 21.73mm Hg (SD 6.3) and postoperative IOP was 18.32 mm Hg (SD 6.6) at last follow-up. Average number of glaucoma medications used reduced from 2.04 before the procedure to 0.73 postoperatively. Nine patients (40.9%) were weaned off glaucoma medications. Two patients (9.1%) needed trabeculectomy subsequently. Three patients (13.6%) had significant visual deterioration of more than 2 lines of Snellen's acuity chart. No serious complication was observed.

Conclusion: ECP is a safe and relatively effective procedure. Larger scale studies are needed to investigate the optimal parameters for treatment.

F1055
OCULOMETRIC ANALYSIS IN NEWBORN BABIES – TO ASSESS THE EFFECT OF RETINOPATHY OF PREMATURITY (ROP) ON OCULAR GROWTH

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Purpose: To study the ocular growth in newborn babies and to evaluate the effect of presence of ROP on ocular growth and refractive status of newborn babies.

Method: Sixty-two babies (42 preterms and 20 term babies) were included in the study. Examinations were done at 32 weeks postconceptional age (PCA), at 38-40 weeks PCA and at 3 months after second visit for preterms. Term babies were examined first at birth and then at 3 months after first visit. Examination included cycloplegic retinoscopy, indirect ophthalmoscopy and ultrasonic A scan biometry to measure anterior chamber depth, lens thickness, axial length and posterior segment lengths.

Results: Of 42 preterm babies, 22 developed ROP and formed Group A, whereas 20 preterms who did not develop ROP formed Group B. Term babies (20) formed Group C. The median axial lengths in Group

A,B and C at final visit were 18.11 mm, 18.36 mm and 18.54 mm respectively. At 3 months post term, the axial lengths in preterms (Group A and B) were smaller than term babies. Incidence of myopia in Group A, B and C at final visit was 52.3%, 35% and 15% respectively. Increase in incidence of myopia from second to third visit was significantly more in Group A as compared to other groups. Group A babies had significantly thicker lenses as compared to Group B and C and this was accompanied by shallowing of anterior chamber in these preterms with ROP. It was found that cause of myopia in Group B and C was increased axial length, whereas in Group A, myopia was mainly lenticular in origin.

Conclusion: Preterms with ROP have altered ocular growth, producing thick lenses. The process of emmetropisation is altered in preterms with ROP. How this process occurs in ROP was an interesting observation of the study and will be discussed.

F1056
PERIMETRIC IMPROVEMENT AFTER VISION RESTORATION THERAPY IN A US POPULATION

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Purpose: Although traditionally no specific therapy was available for those with visual field defects from cerebral injury, it has recently been reported that a specific pattern of stimulation directed to the borderzone between the seeing and blind field (VRT) results in a reduction of the field defect. We aimed to corroborate these reports and define the dynamics of the field expansion to improve the implementation of VRT.

Method: Patients with retrochiasmatic insults and homonymous visual field deficits were treated with a 6 module course of VRT. High resolution perimetry, a suprathreshold perimetry of the central 40 x 50°, was obtained at baseline and after each module. The percent of stimuli detected in each perimetric mapping was considered the primary outcome measure. Age, lesion mechanism and location, and time from injury were recorded.

Results: VRT was completed by 55 patients. The mean absolute improvement in stimuli detection was 13.68% ± 1.96 SEM (from 56.89% to 70.47%). An absolute increase in central field stimuli detection of >5% was experienced by 37/55 (66.7%). Stimulus detection improvement of >3% after 3 modules resulted in a final absolute improvement of 21.09% ± 2.78 SEM, while in those with <3%, the final outcome was 5.27% ± 1.6 SEM. Most patients had occipital strokes. Age of patients (mean 57.8, range 17-87 years) and time from onset of visual field defect (mean 40.6, range 3-188 months) did not correlate with the degree of increase in stimuli detection.

Conclusion: VRT results in improved stimulus detection on HRP. Two thirds experience a significant improvement. Better

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performance at 3 modules predicts a greater chance of significant improvement after VRT. Time from injury bears no impact on the effects of VRT. These results support the notion that VRT is useful for some patients with visual field defects.

F1057

THE DEVELOPMENT OF A BIOENGINEERED CORNEAL EPITHELIAL EQUIVALENT USING AN ULTRA-THIN SURFACE-MODIFIED BIOSYNTHETIC SUBSTRATE FOR CLINICAL TRANSPLANTION

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Purpose: To evaluate the novel use of a plasma surface-modified ultra-thin poly (epsilon-caprolactone) [PCL] membrane as a substrate for the development of a transplantable bioengineered corneal tissue-equivalent.

Method: Ultra-thin PCL membranes 6 micrometres in thickness were prepared by solvent casting and biaxial stretching, and analyzed by atomic force microscopy (AFM), scanning electron microscopy (SEM), tensile testing, and water contact angle measurement. Rabbit corneal epithelial cells were cultivated on plasma treated PCL membranes and untreated PCL membranes. The proliferative capacity of cultivated cells were analyzed using Bromodeoxyuridine (BrdU) ELISA proliferation assays. PCL membranes were transplanted onto rabbit corneas to evaluate its biocompatibility. The histological evaluation of the corneal equivalents and immunohistochemistry for tissue-specific keratins 3, 4 and 12, and basement-membrane related proteins were performed.

Results: Following biaxial stretching, the tensile strength of PCL membranes increased from 21 to 42 MPa, with a Young's modulus of 225 MPa. AFM and SEM showed that biaxially stretched PCL membranes consisted of closely packed microfibrils. PCL membranes supported corneal cell attachment and proliferation to form stratified epithelial sheets. Plasma treatment resulted in greater hydrophilicity and cellular proliferation compared to untreated membranes. The BrdU proliferation assay of cells cultivated on plasma treated and untreated PCL was 2.29+0.23 and 1.42+0.13 respectively. The membranes were easy to handle, had high tensile strength, were highly flexible, and moulded well to the cornea. The cultivated sheet expressed the normal differentiation proteins (K3, K12), Ki67, and basement-membrane assembly proteins (collagen IV and integrin beta-4).

Conclusion: An ultra-thin plasma surface-modified PCL membrane was shown to be biocompatible, mechanically strong to be handled, and able to support corneal epithelial cell proliferation. This may

potentially be used as a novel scaffold matrix in tissue-engineered corneal equivalents for clinical transplantation.

F1058

SAFETY OF AN INTRAVITREAL INJECTION OF BEVACIZUMAB (AVASTIN®) – RESULTS OF A MULTICENTER TRIAL

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Purpose: To report the systemic and ocular complications of an intravitreal injection of bevacizumab (Avastin®).

Method: Open label, uncontrolled clinical study of eyes injected with either 1.25 mg or 2.5 mg intravitreal bevacizumab for a variety of retinal disorders including diabetic macular edema, macular edema secondary to branch and central retinal vein occlusions, proliferative diabetic retinopathy, neovascular glaucoma and choroidal neovascularization secondary to age-related macular degeneration, myopia and idiopathic causes. Patients underwent a complete ocular examination at baseline, weekly during the first month and then every month. Monitored systemic conditions included myocardial infarction, stroke, systemic hypertension, thromboembolic diseases and death. Bevacizumab was stored under refrigeration in two different ways: 1- A single vial of 100 mg/4 mL was re-utilized as needed; and 2- The contents of the vial was aliquoted out into single use injections under sterile conditions.

Results: 353 intravitreal injections of bevacizumab in 342 eyes were reported from five centers in five countries. No cases of death, myocardial infarction, stroke, thromboembolic diseases, or colonic perforation were reported. No cases of endophthalmitis, uveitis, retinal detachment, elevation of intraocular pressure or cataract were reported.

Conclusion: An intravitreal injection of either 1.25 mg or 2.5 mg of bevacizumab appears to be safe and well tolerated during the first three months. Monitoring of the adverse side effects in these patients will continue.

Free Paper 5 – Retina & Others

11 June 2006, Sunday, 1400-1545 Hrs

Room 312, Level 3

F1059

VITREO-MACULAR ADHESION AND THE DEFECT IN POSTERIOR VITREOUS CORTEX VISUALIZED BY TRIAMCINOLONE-ASSISTED VITRECTOMY

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Purpose: To study the vitreo-macular adhesion and the contractile force of posterior hyaloid which are shown in triamcinolone acetate (TA)-assisted pars plana vitrectomy.

Method: Interventional case series. Twenty-eight eyes with diabetic macular edema without posterior vitreous detachment received TA-assisted pars plana vitrectomy. Surgical posterior vitreous detachment was performed by an aspiration of vitrectomy probe, and the dynamic changes of posterior vitreous cortex and residual vitreous cortex were evaluated.

Results: A premacular defect was formed in the detached posterior vitreous cortex during surgical PVD in 27 of 28 eyes. Immediately thereafter, the small defect expanded into a large hole in the detached posterior vitreous cortex in all cases. A residual vitreous cortex was left on the macula in 22 eyes.

Conclusion: These observations demonstrate a firm vitreoretinal adhesion in the central macular and suggest that the enlargement of the defect of posterior vitreous cortex may be extrusion of vitreous out through the premacular dehiscence into the pre-retinal space, or a tangentially contractile force may exist in the posterior vitreous cortex. Both macular adhesion and the traction of vitreous cortex might contribute to the pathogenesis of diabetic macular edema and other vitreomacular disease.

F1060

COMPARISON OF THREE-DIFFERENT SIZE INTRAOCULAR ENDSCOPE

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Purpose: Recently, several different size system is available for vitrectomy, but the visibility of peripheral fundus during surgery is limited in smaller size system. Endoscope may help the eliminated visibility during surgery. The purpose of this study is to compare the advantages and disadvantages of three different size intraocular endoscope.

Method: We used three kinds of intraocular endoscope in size, 20-gauge, 23-gauge, and 25-gauge, during surgery in each size.

Results: Twenty-gauge endoscope had wide angle of view and highest rigidity. The angle of view in 23-gauge endoscope was a little narrower than that in 20-gauge, but the cutting and the shaving of vitreous under 23-gauge endoscope were carried out safely as 20-gauge endoscope. On the other hand, the vitrectomy under 25-gauge endoscope was difficult and less safety because of small view size. In laser photocoagulation and fluid-air exchange, retina was clearly observed under 20-gauge and 23-gauge endoscopes. By using 25-gauge endoscope, it was almost impossible to do laser photocoagulation. But 25-gauge endoscope made it possible to find newly developed iatrogenic retinal breaks during surgery.

Conclusion: 20- and 23-gauge endoscopes were very useful in the vitrectomy, especially during fluid-air exchange. 25-gauge endoscope had some advantages in selected steps in the vitrectomy.

F1061

A NEW APPROACH TO SILICON OIL REMOVAL – THE LGH PROCEDURE

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Purpose: To describe a new technique for silicone oil removal in pseudophakic and phakic eyes. Retina re-detaches in 10- 25% of eyes following silicone oil removal. Removal of silicone oil through the Pars Plana in phakic or pseudophakic eyes results in conjunctival scarring and scleral thinning. Re-surgery then becomes difficult as there is paucity of sites and difficulty in covering the subsequent sclerostomies with conjunctiva. Leaking sclerostomies cause hypotony and may lead to endophthalmitis. The technique we describe does not influence further surgery, is easy to use and able to utilize the natural properties of silicone oil.

Method: Silicone oil was removed through pars plana at 12 o'clock position which is never used for 3 PPV. Intraocular pressure is maintained by irrigation through an anterior chamber maintainer introduced in the limbus. Subsequent thinning of sclera at 12 o'clock doesn't effect further surgery. The fluid passes through the zonules into the posterior segment and adequately replaces the silicone oil which is being removed.

Results: 15 patients underwent removal of oil with this technique at Lahore General Hospital, Lahore. The complications encountered were lens touch in one patient and ciliary body detachment in one patient. In two patients retina re-detached one week after surgery.

Conclusion: 12 O clock site with ACM is useful and effective for removal of oil in pseudophakic and phakic eyes.

F1062

USEFULNESS OF A FIXATION RING GUIDE FOR INTRAVITREOUS INJECTION NEEDLES

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Purpose: Investigation of safety and usefulness of a newly developed fixation ring guide for intravitreal injection needles.

Method: In the vitrectomy, triamcinolone acetonide was injected intravitreally using the fixation ring guide for intravitreal injection needles. The injection procedure was observed using a surgical microscope and an intravitreal endoscope.

Results: The intravitreal injection was performed easily and safely with the fixation ring guide for intravitreal injection needles. The advantages of the tool are as follows. 1. It can prevent damaging of retina and lens by the needle. a. Insertion point of the needle is fixed 3.5mm from the limbus. b. Insertion angle is fixed at 60 degrees to the horizontal line. c. Intravitreal length of the inserted needle is less than 13 mm (27G sharp needle). 2. Eyeball and injection needle are well stabilized. a. The positions of the inserted needle and the cylinder are fixed even when one hand is taken off. b. Injection is easily performed with one hand. 3. The aqueous humor can be removed by paracentesis while the needle is inserted. a. High ocular tension, herniation of the vitreous body, and displacement of the injected drug can be prevented. b. Deformation of the eye (in case of pre-paracentesis) can be avoided. 4. Injected drugs can easily penetrate into the vascular arcade. 5. The intravitreal injection procedure becomes easier because of the fewer procedural steps and the safety.

Conclusion: The intravitreal injection procedure becomes easier and safer using the newly developed fixation ring guide for intravitreal injection needles.

F1063

TRANS-ZONULAR DELIVERY OF INTRAVITREAL TRIAMCINOLONE ACETONIDE FOR REFRACTORY MACULAR EDEMA

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Purpose: To report the safety and efficacy of trans-zonular delivery of triamcinolone acetonide (TA) into the vitreous cavity during cataract surgery in patients with concurrent cataract and pre-existing cystoid macular edema (CME) refractory to conventional treatment modalities.

Method: Patients with visually significant cataract and refractory

CME were identified prospectively. Preoperative best corrected visual acuity (BCVA) and intraocular pressure (IOP) were recorded. Fluorescein angiography (FA) and ocular coherence tomography (OCT) were performed. Routine phacoemulsification with intraocular lens (IOL) implantation was undertaken. At the end of the procedure, a Bolger cannula was used to inject 4 mg TA in 0.1 mL solution into the posterior segment through an inferior trans-zonular route. Postoperative BCVA, IOP and OCT were recorded.

Results: Ten patients with co-existent cataract and refractory CME (six diabetic, two branch retinal vein occlusion, one central retinal vein occlusion and one uveitic) were identified. They had previously undergone an average of 2.1 procedures to treat their CME. BCVA improved in all patients after surgery. OCT foveal thickness measurements were available for seven (70%) cases and showed a decrease in five (71%) cases, remained the same in one (14%) patient and increased in one (14%) patient. No IOL decentration or significant IOP rise was noted. The average follow-up period was 12.6 months. No patients underwent re-injection with TA but three (30%) patients required further intervention for persisting CME: two (20%) underwent vitrectomy for vitreo-macular traction and one (10%) required further grid laser treatment.

Conclusion: Management of cataract and coexistent refractory CME is a complex problem. This case series demonstrates that the trans-zonular approach to deliver an intravitreal TA injection at the end of cataract surgery is a safe technique and can be effective in the treatment of refractory CME in these cases.

F1064

TRANS-RETINAL CHOROIDAL TUMOR BIOPSY WITH A 25-GAUGE VITRECTOR

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Purpose: To describe and evaluate trans-retinal biopsy of choroidal tumors using 25-gauge vitrectomy instrumentation.

Method: A consecutive case series of 14 patients undergoing choroidal tumor biopsy at an ocular oncology center. The biopsies were performed under local or general anaesthesia, alone or in combination with ruthenium plaque or tantalum marker insertion. Immunohistochemistry was performed on all samples and some melanomas were also analysed cytogenetically.

Results: The surgery was uneventful in all cases. A positive tissue diagnosis was made in 13 out of 14 patients, albeit at the second attempt in one patient. The only failure occurred because the tumor was calcified.

Conclusion: Choroidal tumor biopsy with 25-gauge instrumentation is safe and yields a larger sample than fine needle aspiration biopsy, usually producing sufficient tissue for cytogenetic studies.

Insufficient samples can occur in some patients and further studies are needed to understand the reason for such failure.

F1065

INTEGRATED ICG ANGIOGRAPHY/OCT/SLO IMAGING OF OCCULT CHOROIDAL NEOVASCULARIZATION

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Purpose: To describe the features of a unique integrated ICG Angiography/ OCT/SLO imager and to explore its use in the evaluation in occult choroidal neovascular membranes compared to conventional devices.

Method: A custom OCT/SLO/ICG imager was constructed which generates 3 active channels including coronal (C-scan) OCT, confocal SLO, and confocal ICG angiography along with one mixing channel which overlays the coronal OCT on the ICG in real-time. It was designed to allow the same optical source, a 793 nm superluminescent diode (SLD), to be used to generate ICG fluorescence, SLO reflectometry and OCT interferometry. The system is also capable of providing OCT B-scans at selected locations on the ICG confocal image. 30 subjects with occult CNV were studied with the combined system compared to various combinations of conventional ICG and OCT imagers. OCT B-scan sequences were collected over areas observed to demonstrate increased fluorescence in the confocal channel.

Results: Coronal OCT along with paired confocal SLO images demonstrated precise anatomic correlates to vascular features revealed in the ICG angiograms. The anatomic features recorded in the OCT complemented the often indistinct vascular outlines highlighted by the ICG fluorescence. Coronal OCT images were helpful in distinguishing the relative depth of specific vascular structures since they could be easily superimposed with precise registration and variable transparency. These facilities were valuable in the evaluation of occult lesions at the late "hot spot" stage when most orientating vascular outlines had disappeared due to normal washout of ICG.

Conclusion: Simultaneous ICG angiography combined with OCT/SLO facilitates an integrated investigation of morphologic and angiographic features of occult choroidal neovascular lesions. This combination of technologies appears to be useful for identifying precisely localizing areas of late hyperfluorescence for lesion subtyping and treatment planning.

F1066

PREDICTION OF POSTOPERATIVE OUTCOMES BASED ON OPTICAL COHERENCE TOMOGRAPHY IN IDIOPATHIC MACULAR HOLES

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Purpose: To determine role of macular hole form factor (HFF) based on preoperative hole configuration by Optical Coherence Tomography (OCT) in predicting outcome in eyes with idiopathic full thickness macular holes.

Method: 26 eyes of 25 patients with idiopathic macular holes underwent Indocyanine Green (ICG) assisted internal limiting membrane (ILM) peeling and 14% perfluropropane tamponade. The median follow-up period was 15.5 weeks (range 11 to 91). OCT of the macular hole using line scan protocol was performed preoperatively and at each follow-up. The preoperative OCT macular HFF was correlated with the postoperative macular configuration on OCT.

Results: The anatomical closure rate in the HFF ≥ 0.9 group was 90% and in the HFF ≤ 0.6 group was 50% ($p=0.045$). The postoperative BCVA in the HFF ≥ 0.9 group was better than that in the HFF ≤ 0.6 group ($p=0.001$).

Conclusion: Preoperative assessment of HFF with OCT aids in predicting the postoperative visual outcome and anatomical success rate in idiopathic macular hole surgery.

F1067

OCT IN UNEXPLAINED VISUAL LOSS

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Purpose: To evaluate role of Optical Coherence Tomography in unexplained decrease in vision.

Method: We report patients with unexplained decrease in vision and field loss. All patients underwent refraction and detailed ocular examination. FFA and visual field, OCT were done appropriately

Results: Foveal atrophy in 2 and vitreo macular traction were noted in 2 patients which were clinically and angiographically not apparent. RNFL loss was found corresponding to visual field defect in patients with old trauma (optic traumatic neuropathy), pituitary macro adenoma. No RNFL loss seen in patients with field defect and cortical lesions (infarcts), 2 patients had normal OCT and with field defects and were later investigated to have demyelinating disease and toxic amblyopia.

Conclusion: OCT is a useful tool in evaluation of explained decrease in vision/field loss and complements FFA and perimetry.

F1068

OCT/SLO VS STRATUS OCT3 – IT MATTERS HOW YOU SLICE IT

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CUCU²

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Purpose: To review the technology of the recently introduced OCT/SLO and demonstrate its many advantages over the Stratus OCT3.

Method: The OCT/SLO is a multiplanar imaging system which utilizes transverse scanning (T-scans) to generate coronal planar scans (C-scans) of the full thickness of the retina. The system generates simultaneously paired OCT and corresponding confocal images (SLO) images which highlight the retinal surface and allow correlation between deep and superficial structures. 3-D OCT volumes constructed from stacks of C-Scan images produce accurate and highly reproducible topographic maps which can be used to compare serial macular thicknesses for assessing pathology and response to therapies. The coronal perspective and confocal feature also allows fusion with angiography, multifocal electrophysiology studies, and microperimetry. A Ultrahigh Resolution OCT version of the technology which produces 3 micron resolution at 2 scans/second demonstrates enhanced detail of internal retinal structures.

Results: More than 500 patients with a wide variety of macular pathologies were scanned with the OCT/SLO and many were scanned with the OCT3 as well. OCT/SLO images demonstrated enhanced details of the vitreoretinal interface, better lateral continuity, and were better at capturing small critical features of occult pathology. OCT/SLO Topographic maps were reliably registered to allow monitoring therapy results while registration OCT3 thickness maps was not confirmable.

Conclusion: The OCT/SLO technology provides the ability to accurately localize the areas being scanned and insure reliable comparisons of retinal thickness changes over time. The approach of scanning parallel to the layers of the retina contributes to the enhanced detail of the images and the ability to accurately relate them to fluorescein and ICG studies. Topographic maps which contain vascular landmarks offer for the first time the ability to accurately compare serial retinal thickness studies.

Free Paper 6 – Paramedical & Allied Health

11 June 2006, Sunday, 1600-1730 Hrs

Room 306, Level 3

F1069

USE OF NUTRITIONAL SUPPLEMENTS AMONGST OPHTHALMOLOGY OUTPATIENTS

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Purpose: This study aims to investigate the use of nutritional supplements (NS) by patients attending an ophthalmology outpatient clinic.

Method: This survey was conducted on 411 randomly selected ophthalmology outpatients using a standardised interviewer-administered questionnaire.

Results: The mean age was 56.67 years (range, 17 - 93). 55.7% were males and 44.3% were females. 41.4% were current users of NS. Educational level was significantly associated with NS consumption ($p=0.006$). For instance, 'N' level patients were 2.51 times more likely to use NS than those without formal education ($p=0.04$, OR = 3.51, 95% CI 1.06-11.60). The income per person in the family was also a significant factor in determining whether the patient consumed NS. Patients with higher income were more likely to consume NS ($p=0.02$, OR = 1.00027, 95% CI 1.000041-1.00049). Majority (64.7%) of the patients consumed NS for general health reasons. Only 12.4% of them consumed NS specifically for eye health reasons. 52.4% of patients consuming NS were recommended to do so by their friends and relatives. Majority (95.3%) of those who consumed NS were not aware of their ingredients.

Conclusion: The use of NS amongst ophthalmology outpatients was common, however, only 12.4% consumed them for ocular reasons. The educational status and financial status were significantly related to the consumption of NS. It was alarming to note that 95.3% of those who consume NS were not aware of their main ingredients.

F1070
SPECTRUM OF SEVERE CORNEAL ULCERS
PRESENTING TO A PRIVATE INSTITUTION

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Purpose: To determine the aetiological factors, spectrum of causative organisms, sensitivities and clinical outcomes of severe sight threatening corneal ulcers presenting to a private institution.

Method: Retrospective case series study. All severe sight threatening cases would have microbiological investigations as standard procedures, and were identified from the laboratory database for years 2004 and 2005.

Results: Of 21 cases identified, 15 were soft contact lens wearers. Positive yields were obtained in 13 cultures. Of these, 11 were *Pseudomonas aeruginosa*, and the others were *Streptococcus pneumoniae* and *microsporium* fungi. All non-fungal isolates were susceptible to fluoroquinolones and gentamicin. Reduced sensitivities were noted to cefuroxime (2/3), cefotaxime (2/4), ceftriaxone (1/1), vancomycin (1/3) and tobramycin (1/6). Of the 8 cases with negative cultures, 7 had prior treatment. Four cases had final visual acuities worse than 20/40. Of these, 3 cases presented to specialist care after 3 days or more, and all had previous treatment initiated elsewhere.

Conclusion: The majority of severe corneal ulcers seen were soft contact lens related and caused by *Pseudomonas aeruginosa*, which were sensitive to currently available fluoroquinolones. Corneal scrapings taken without previous treatment had a higher rate of positive cultures. Prompt presentations to specialist care were associated with faster resolution of ulcers and better clinical outcomes.

F1071
THE EFFECTIVENESS OF DIABETIC COUNSELLING
FOR PATIENTS WITH DIABETIC RETINOPATHY

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Purpose: This study assessed the effectiveness of nurse diabetic counselling initiated in SNEC in Dec 2004 for patients with diabetic retinopathy (DR) in improving their knowledge in diabetes, diabetic eye laser and other treatment.

Method: A prospective, interview-administered, questionnaire-based study with a sample size of 55 subjects who require laser for advanced DR or macula edema. Data was collected prior to counselling and 5-7 days after counselling via telephone interview to assess patients' knowledge level. A modified version of the DKQ

by Anderson et al, with 10 additional questions on how diabetes affects the eye was used.

Results: Out of the 55 subjects, 29 (52.7%) had not received any form of laser treatment previously for their eye condition. 46 (83.6%) subjects received some form of diabetic counselling mainly from polyclinic and general physician. The study revealed patients' knowledge has improved after counselling. The overall DM knowledge pre-counselling mean score of 14.15 compared to post-counselling with a mean score of 16.67 ($z = -4.494$, $p < 0.001$). A subanalysis of 10 eye components of the questionnaire demonstrated a pre-counselling mean score of 6.87 as compared to post-counselling of a mean score of 7.67 ($z = -2.0515$, $p = 0.012$). In addition, this study demonstrated that patients did not score well in understanding hypertension as a risk factor, role of laser treatment and the treatment for advanced diabetic eye disease prior to counselling.

Conclusion: Diabetic nurse counselling has significantly improved patient's knowledge of both diabetic eye disease, diabetic laser and diabetes in general. This study also addressed a few areas for improvement during counselling which include emphasizing the risk factors and advanced treatment of DR, misconception of diabetes laser and the importance of systemic control to prevent vision deterioration.

F1072
RESULT ANALYSIS ACCORDING TO SURGICAL AMOUNT
AFTER UNILATERAL LATERAL RECTUS RESECTION
IN PATIENT WITH EXODEVIATION UNDER 25PD

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Purpose: We tried to study proper recession amount according to deviation angle through results analysis after unilateral lateral rectus recession in exodeviation.

Method: We retrospectively analyzed the data of 139 patients who underwent unilateral lateral rectus recession in patient with 15-24 PD exodeviation and followed up for 12 months or longer. The analyzed patients divided into 7.5, 8, 8.5, 9, 9.5 mm groups according to surgical amount and 15-18, 19-20, 21-24 PD groups according to deviation angle. The strabismus surgery and result were based on the distance deviation and alignment within 4 PD of esodeviation and 10 PD of exodeviation was considered as surgical success.

Results: The success rate was 53.8% for 15-18 PD and 40% for 19-20 PD in 7.5 mm group, 77.7% for 15-18 PD and 66.7% for 19-20 PD and 63.6% for 21-24 PD group in 8 mm group, 100% for 15-18 PD and 81.2% for 19-20 PD and 72.7% for 21-24 PD in

8.5 mm group, 83.3% for 15-18 PD and 85.7% for 19-20 PD and 83.3% 21-24 PD in 9 mm group, 100% for 19-20 PD and 76.9% 21-24 PD in 9.5 mm group at postoperative 1 year. The rate of -1 abduction limitation was respectively 3.1%, 12% and 21.4% in 8.5 mm, 9 mm and 9.5 mm groups and rate of -2 abduction limitation was 14.3% in 9.5 mm group at postoperative 1 year.

Conclusion: Considering the success state and abduction limitation, the proper surgical amount is 8.5 mm recession in 15-18 PD group and 9 mm recession in 19-20 PD and 21-24 PD group.

F1073

CAN DISTANCE STEREOACUITY BE MEASURED USING TNO CHART AND INVERTED TELESCOPE?

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Purpose: To evaluate the TNO chart for the assessment of distance stereoacuity using inverted telescope.

Method: Stereoacuity of 30 emmetropic adult subjects was measured for near and distance using a TNO chart held at 40 cm and an inverted telescope (Galilean design, 26mm, 2X, Camma Inc. China).

Results: The near stereopsis ranged from 60" (seconds of arc) - 240" (Median 120", 95% CI 82"-117"). Distance stereopsis ranged from 4.8" - 38.4" (Median 38.4"). Distance stereoacuity could be measured in 13 (47%) subjects.

Conclusion: Distance stereopsis can be measured using the inverted telescope and a TNO chart. Further improvisation with gradable zoom can be done to design the best telescope system and standardized inter pupillary distance for the telescope to be used with the TNO chart in inverted fashion to measure distance stereo-acuity.

F1180

STANDARDIZED PATIENTS IN OBJECTIVE STRUCTURED CLINICAL EXAMINATION FOR ORTHOPTISTS EDUCATION

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Purpose: We take in Objective Structured Clinical Examination (OSCE) in the education of Orthoptists and are doing the systematic research in it in Japan. In the OSCE it is standardized patient (SP) [S-group] has played the important role. Then we did comparison studied on the teaching staff (T-group) and S-group.

Method: S-group was trained 8 hours by the manual which we created. We arranged and prepared the special table for evaluating in a medical interview station. We adopted 31 students of the third-year-grade as the examination subjects in the medical interview station, and studied on the comparison of the evaluation outcome gained by T-group and S-group.

Results: Positive correlation was revealed between the evaluation scores of T-group and S-group ($r = 0.6766$). In particular, in a way of talking, appearance and clinical history taking nearly the same evaluation scores were found by two examination groups.

Conclusion: Positive correlation was found between evaluation by T-group and S-group in a medical interview station. It is, therefore, very useful to adopt student SPs in OSCE for educating Orthoptists.

Free Paper 7 – Cataract Surgery

11 June 2006, Sunday, 1600-1800 Hrs

Room 311, Level 3

F1074

"HALLELUIAH BIMANUAL!" PART I – WHY BIMANUAL PHACO?

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Purpose: Try to share the experience of bimanual phaco technique in routine practical cataract surgery. People try hard to optimize safety and efficacy in phacoemulsification. "Sayonara Bimanual VS Halleluiah Bimanual!" Personally I prefer bimanual phaco and I would like to say "Halleluiah Bimanual". Since the bimanual technique would give you a sense of security and confidence in the normal routine cases and optimizing safety and efficacy in complicated and complication cases as well.

Method: This part is a digital video presentation on effective and safe lens removal in normal routine or complicated cases. I'll show you why I choose bimanual phaco as my routine phaco technique.

Results: We can tell that bimanual phaco is safe and effective in small or micro-incision cataract surgery. You can move forward from 3 mm incision to 2 mm incision by using micro-sleeve and move further to 1 mm by removing the sleeve. In this brief presentation we will discuss new advances in phacoemulsification techniques and technologies for safe and effective lens removal through a small or micro-incision with bimanual sleeved and sleeveless phaco safely.

Conclusion: The bimanual technique is just one further advance towards a more predictable and controlled cataract surgery. I love it and I would like to say "Halleluiah Bimanual!"

F1075
SMALL INCISION CATARACT SURGERY COMPARED TO PHACOEMULSIFICATION

RENU GROVER¹, KRISHNA VAITHEESWARAN¹
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Purpose: To compare the results of small incision cataract surgery (SICS) with Phacoemulsification in terms of: Visual Results, Complications, Surgical time and effective cost.

Method: All surgeries were performed at St. Stephen's Hospital, Delhi, India. Total number of eyes selected for the study were 3000; out of which 1500 randomly underwent SICS, while 1500 underwent phacoemulsification. Anaesthesia given was peribulbar or topical. Section was either superior or temporal for both groups. The technique used for SICS was viscoexpression or with a wire vectis; for phacoemulsification, it was stop and chop or chop and chop.

Results: The postoperative visual results at one month were nearly the same with SICS or Phacoemulsification. Vision of >6/9 was 74% with SICS and 76% with phacoemulsification. Intraoperative complications such as zonular dialysis and posterior capsule rupture were much higher with phacoemulsification. Average time taken for phacoemulsification was 14.2 minutes, while with SICS it was 4.8 minutes; and the cost per surgery was nearly 6 times higher in phacoemulsification as compared to SICS.

Conclusion: We concluded that small incision cataract surgery is comparable to phacoemulsification in terms of postoperative visual results. It has an easier learning curve, is safer, not dependent on expensive machinery and takes very little time.

F1076
MICROINCISION CATARACT SURGERY WITH A ZERO-PHACO TECHNIQUE

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Purpose: To study the visual and surgical results of a zero-phaco, microincision cataract surgery technique using a high aspiration, controlled chop technique (HACC).

Method: 35 patients with cataract underwent microincision cataract surgery under topical anaesthesia using a zero-phaco technique. After prechopping into quadrants, each quadrant was removed after a controlled delaminating chop technique using aspiration only. Aspiration was done using either a sleeveless phaco probe or a cannula fashioned from an 18 or 19 gauge disposable needle. The irrigating chopper in all cases was fashioned from a disposable 22 gauge needle. Postoperative examination including near and distance visual acuity was assessed after 1 hour, 1 day,

1 week and subsequently at intervals for a minimum period of 1 month.

Results: The study group comprised of 9 females and 26 males of average age 58.35+ 12.8 years. The nuclear grade varied from grade 1 to 4 (8 with grade 4). All patients except two had an unaided postoperative visual acuity of greater than 6/12 at 1 hour. This improved to 6/6 in 90% of patients on day one. Near correction also improved to N12 or better in all patients. There were no intraoperative complications seen. Two patients with grade 4 nuclear grading had corneal striate keratopathy which resolved on follow-up.

Conclusion: Microincision cataract surgery with the zero-phaco HACC technique is a safe and an efficient technique of cataract removal with inherent advantages of elimination of corneal burn and better immediate postoperative visual acuity. The use of disposable aspirator probes fashioned intraoperatively allows greater freedom to use the smallest possible incision required.

F1077
THE ACRYSOF RESTOR LENS IMPLANT FOR CATARACT SURGERY AFTER EXCIMER LASER PHOTOABLATION

SAMUEL MASKET¹
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Purpose: Multifocal IOLs have been considered as relatively contraindicated in patients who have had prior laser refractive surgery. However, as group, those cases might benefit the most, given prior surgery for spectacle and contact lens intolerance. A limited retrospective analysis of 6 eyes having ReSTOR lens implants in association with cataract surgery after excimer laser photoablation was performed to determine visual outcomes and patient satisfaction.

Method: The surgical procedure included phacoemulsification and IOL implantation through 2.2 mm incisions to reduce surgically induced astigmatism, use of the IOL Master for biometry, and application of the author's published nomogram for IOL power adjustment for eyes having cataract surgery following laser photoablation.

Results: All eyes achieved 20/30 or better uncorrected distance Visual Acuity and J 2 or better uncorrected near Visual Acuity. Five of 6 eyes were 20/25 and J 2. Mean optical spectacle error was -0.25 D, and all eyes demonstrated a cylinder error of 0.5 D or less. All patients were satisfied with visual outcomes.

Conclusion: Although optical outcomes are very demanding in the post-refractive surgery patient, excellent outcomes may be obtained with careful attention to detail and appropriate application of new technology.

FREE PAPERS

F1078
MICROINCISION CATARACT SURGERY IN WHITE
MATURE / HYPERMATURE CATARACTS IN SOUTH INDIA

ARUP CHAKRABARTI¹, MEENA CHAKRABARTI¹, VALSA STEPHEN¹,
SONIA RANI JOHN¹
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Purpose: To analyze the feasibility, results and safety of micro incision cataract surgery (MICS) in total white cataracts.

Method: A retrospective analysis of 50 consecutive patients with white cataracts (mature or hypermature) undergoing MICS was performed. Anterior capsule was stained with trypan blue in all. Capsulorrhexis was performed with bent 26 G needle. Surgery was performed through 2 clear corneal incisions of 1.5 mm width. Alcon Universal II phaco unit was used and direct phaco chop was performed with Fine or Nagahara irrigating chopper from MST, through the temporal approach. A hydrophilic acrylic posterior chamber intraocular lens (PCIOL) was implanted with a shooter after enlarging the main incision to 3 mm.

Results: Capsulorrhexis runaway occurred in 1 patient (2%). 3 patients (6%) needed 10-0 nylon suture to secure the wound after PCIOL implantation. Intraoperative miosis occurred in 6 (12%) patients. No other intraoperative complications were noted. Mild to moderate postoperative corneal edema was seen in 7 patients (14%). Best corrected vision of 6/9 or better was seen in 48 patients (96%) at 4 weeks follow-up.

Conclusion: MICS, a very promising option in phacoemulsification can be safely performed in white cataract situations, if proper guidelines are followed.

F1079
MICRO-COAXIAL PHACOEMULSIFICATION – THE
NEXT STEP IN SMALL-INCISION CATARACT SURGERY

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Purpose: Bimanual phacoemulsification reduces incisions to 1.5 mm but requires changes in machine settings, instrumentation and technique that some surgeons find less efficient. This paper describes a new instrument design that would allow coaxial surgery through “micro” incisions (smaller than 2 mm) without significant alteration in fluidics or technique.

Method: SolidWorks TM computer-aided design software (SolidWorks Corp., Concord, Mass.) and Critical Parameter Management (CPM) were used for three-dimensional modeling of various ways to design a phaco needle and sleeve to minimize incision size without the need to significantly alter customary fluidics, including vacuum level, flow rate and bottle height. Parameters in

the analysis included relative diameters of needle and sleeve, fluidics performance, chamber stability, thermal stress, mechanical stress and surgical efficiency.

Results: The computerized optimization process produced a unique needle and sleeve configuration, which was fabricated into a prototype. Laboratory tests in animal eyes confirmed that, using traditional coaxial techniques, the prototype performed as the modeling predicted. Initial clinical evaluation of the prototype’s surgical efficiency is ongoing. Early results will be presented.

Conclusion: Computer modeling was used successfully to design a phaco needle and sleeve for micro-incision cataract surgery with traditional coaxial fluidics and techniques. The device shows promise of permitting surgeons to take advantage of smaller incision size while maintaining surgical efficiency. Early clinical experience will be presented.

F1080
“HALLELUIAH BIMANUAL!” PART II – BIMANUAL
PHACO IN CHALLENGING AND COMPLICATION CASES

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Purpose: Try to share the experience of bimanual phaco technique in challenging and complication cases.

Method: This part is a digital video presentation on effective and safe lens removal in complicated cases, with particular attention to challenging and complication cases. What are challenging cases? Such as small pupil, shallow chamber even flat chamber, capsule rupture during OP with or without vitreous loss. Phaco in these cases, cornea burn and narrow working space are our concern, are prone to damage the cornea. Is there any way to increase the working space and eliminate the heat threatening?

Results: White-star or hyper-pulse technology combined with bimanual micro-incision cold phaco technique is a safe and effective cataract removal procedure especially in the treatment of complications and challenging cases. The emphasis will be on problem resolution and successful approaches to the management of complications by using bimanual micro-incision cold phaco technique.

Conclusion: The bimanual technique is just one further advance towards a more predictable and controlled cataract surgery. I love it and I would like to say “Halleluiah Bimanual!”

F1081
BIAXIAL VERSUS COAXIAL MICROINCISION
PHACOEMULSIFICATION

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Purpose: To compare the visual outcomes after biaxial versus coaxial phacoemulsification.

Method: Randomized controlled clinical trial. Participants: Seventy eyes of 70 patients were examined at a German University eye hospital. Intervention: Seventy eyes with cataract were randomly assigned (1:1) to undergo biaxial microincision phacoemulsification or conventional coaxial phacoemulsification using pulsed ultrasound energy (Whitestar technology, Sovereign®, AMO, Santa Ana, Ca) with variable duty cycles followed by microincision intraocular lens implantation.

Results: The treatment groups did not differ in baseline characteristics (median BCVA of 20/40 preoperatively in both groups; $p=0.97$). At day one the biaxial group showed a gradually greater gain in BCVA compared to the coaxial group (BCVA: 20/25 versus 20/33, respectively; $p=0.018$). 8 weeks after surgery, median BCVA reached 20/20 in the biaxial group versus 20/25 in the coaxial group ($p=0.015$). Median changes in astigmatism were -0.15 dpt in the biaxial versus -0.31 dpt in the coaxial group. Neither clinically relevant nor statistically significant differences were found in laser flare photometry postoperatively. Only 34% of biaxial versus 68% of coaxial surgeries required more than 3 seconds in EPT ($p=0.013$). 8-week post-surgery, the intensity of endothelial cell loss was similar in both groups (14.5% versus 14.1%; $p=0.408$).

Conclusion: After biaxial surgery shorter effective phacoemulsification times and faster visual rehabilitation were observed compared to coaxial phacoemulsification. Postoperative changes in the blood-aqueous barrier, astigmatism and endothelial cell loss did not differ between both procedures.

F1082
COMPARISON OF CLINICAL RESULTS OF NEW
AQUALASE TECHNIQUE AND CONVENTIONAL
PHACOEMULSIFICATION IN CATARACT OPERATION

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Purpose: To compare the clinical results of conventional phacoemulsification and Aqualase (Water jet) technique in cataract operation.

Method: In randomly selected 30 cataract eyes of 30 patients (Group A), we performed conventional phacoemulsification. And

we also performed cataract operation using a new Aqualase technique in another 30 cataract eyes of 30 patients (Group B). In both groups, all cataract eyes were divided in 3 classes according to nucleosclerosis grade. First class includes cataract eyes less than nucleosclerosis grade II. Second class includes cataract eyes between nucleosclerosis grade II and III. And third class includes cataract eyes more than nucleosclerosis grade III. During operation, we measured phaco power, Aqualase power and actual time in all classes of both groups. After operation, we checked visual outcome and capsular opacity in all cases for 6 months.

Results: Visual outcome and capsular opacity did not show any difference in both groups until 6 months after operation. Actual phaco time and Aqualase time during operation showed similar result in first and second classes, however we need slightly longer actual Aqualase time(Group B) compare to phaco time(Group B) in third class.

Conclusion: New Aqualase technique using water jet explosion is very promising for additional method of modern cataract operation.

F1083
APPLICATION OF HIGH VACUUM AND BURST MODE
TO PHACOEMULSIFICATION WITH INFINITI™ PHACO
MACHINE

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Purpose: To observe the differences of energy and effects on oculus during phacoemulsification with INFINITITM Vision System (ALCON) when using different vacuum.

Method: Using INFINITI Phaco machine, flow rate is 40 cc/min, burst mode, vacuum is 300 mm Hg or 600 mm Hg, respectively, and cataract operated on phacoemulsification by the same surgeon. Hardness of lens nucleus is III~V, there are 25 eyes in different hardness and different vacuum, respectively. Under conditions of the hardness of nucleus being the same, evaluate the differences of phacoemulsification power. Record the transparency of cornea, the recover of corneal edema, the count of corneal endothelium, and the response of anterior chamber.

Results: As hardness of nucleus is III, and vacuum is 300 mm Hg or 600 mm Hg, the average power is 48%-s and 32%-s ($p<0.01$). As hardness of nucleus is IV, and vacuum is 300 mm Hg or 600 mm Hg, the average power is 201%-s and 159%-s ($p<0.01$), respectively. As IV, and 300 mm Hg or 600 mm Hg, 201%-s and 159%-s ($p<0.01$), respectively.

Conclusion: Under high vacuum (>600 mm Hg) condition, INFINITITM Vision System (ALCON) displays excellent anterior chamber stability. Application of High vacuum and burst mode to cataract phacoemulsification can save phacoemulsification power effectively, shorten surgical time, and enhance the safety of operation.

F1084**NEW AKREOS MICRO-INCISION IOL — RESULTS OF A PILOT CLINICAL STUDY AFTER ONE YEAR FOLLOW UP****THIERRY AMZALLAG**¹, JOEL PYNSON¹*Ophthalmic Institute of Somain, Somain, France*¹

Purpose: To evaluate the performance of a new micro-incision Intraocular Lens (IOL) in terms of incision size, visual performance, PCO and stability in the eye.

Method: Twenty eligible patients were randomized to receive, after bimanual phacoemulsification, the Akreos Micro-Incision IOL with two implantation techniques: standard insertion inside the anterior chamber (group 1) and a wound-assisted technique where the injector was not introduced into the AC (group 2). During surgery incision size was measured before and after injection. Postoperative exams are scheduled for 1 and 15 days, 1, 3, 6 and 12 months to assess the following parameters: - high contrast UCVA and BCVA (LogMar charts) - refraction - centration versus the pupil (mm) - posterior capsule opacification evaluated by EPCO 2000.

Results: The mean incision sizes after calibration and before implantation were 2.11 mm in group 1 and 1.77 mm in group 2. After implantation, mean incision sizes were 2.22 mm (min 2.2-max 2.3) and 1.86 mm (min 1.8-max 2) respectively. The mean stretch was 0.11 mm in group 1 and 0.09 mm in group 2. The lens was very stable in the bag, with a mean decentration of only 0.03 mm during the first 3 months. The refraction was also stable. At 3 months, mean UCVA was 0.13 (LogMAR) [min 0.4-max 0] and BCVA was 0.03 (20/20). 12 months updated results will be presented at the meeting.

Conclusion: The Akreos Micro-Incision IOL with its new haptic design can be implanted through a 1.8 mm incision. It provides good visual acuity and intracapsular stability. PCO and longer term stability are being studied.

F1085**MODULATING OFF TIME IN BURST MODE IN PHACOEMULSIFICATION TO REDUCE CHATTER OF NUCLEAR FRAGMENTS****CHARITH N FONSEKA**¹*Eye Hospital, Colombo, Sri Lanka*¹

Purpose: To determine if increasing off time in burst mode (parameters fixed at maximum levels) in phacoemulsification of hard cataracts reduces chatter of nuclear fragments.

Method: 30 patients with cataracts (nuclear sclerosis) scheduled for cataract surgery were randomly assigned to two groups (A and B). Patients underwent standard phacoemulsification (recorded on

video) with an Alcon Infinity Machine with parameters fixed at maximum levels (irrigation 110 cm, flow rate 60, vacuum 650 +, phaco power 100%, and burst width of 20. In group A off time was kept at over 700 m sec while in B off time was under 500. Off time duration control was achieved by foot pedal, and was present for majority of the procedure (video analysis). Analysis of the degree of chatter was done by counting the the number of times (chatter count) a nuclear fragment was projected off the needle tip to hit the cornea (on video). The duration of the procedure (needle in out time) quantum of phaco energy utilised were also documented for each procedure.

Results: The chatter count was 1.8 for Group A and 7.3 for B, which was statistically significant. Needle in out time was significantly less in Group B. However phacoenergy consumed was less in Group A.

Conclusion: Faster is always not better. Increasing off time significantly reduces chatter and also has benefits from reduced energy utilization.

Free Paper 8 — Cataract Surgery**12 June 2006, Monday, 0830-1015 Hrs****Room 311, Level 3****F1086****READING PERFORMANCE WITH TECNIS MULTIFOCAL IOL****DANIEL BLACK**¹*Sunshine Eye Clinic, Sunshine Coast, Australia*¹

Purpose: Multifocal IOLs reduce contrast sensitivity and induce some unwanted photic phenomena. These negative aspects must be balanced by excellent reading performance in order for the IOL to be well accepted by patients. This study attempts to compare the reading ability with a Tecnis Multifocal IOL.

Method: Patients had bilateral Tecnis Multifocal IOLs and were given a standardised reading task to perform under controlled lighting conditions. Time taken to complete the task was used to measure reading ability. A control group of emmetropic pilots was similarly tested.

Results: The reading speed of the Tecnis Multifocal IOL and pilot groups will be compared and presented.

Conclusion: A recommendation regarding the effectiveness of this IOL in combating pseudophakic presbyopia will be made.

F1087
REFRACTIVE VERSUS DIFFRACTIVE — A COMPARISON
OF 4 MULTIFOCAL IOLS

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Purpose: A prospective comparison of 4 multifocal IOLs regarding VA in distances of 400, 100, 60 and 40 centimeters, the contrast sensitivity and the subjective satisfaction.

Method: 4 groups of 10 patients underwent bilateral cataract extraction with different multifocal IOL implantation (AcriTwin, ARRAY 2, REZOOM and TECNIS ZM 9000). Postoperatively the UCVA und BSCVA in 4 distances were checked as well as the contrast sensitivity (PELLI/ROBSON) and the subjective satisfaction.

Results: 1. UCVA in refractive MIOLs (ARRAY 2 and REZOOM) was found 0,95 on an average for far distance and 0,82 for reading. 2. UCVA in diffractive MIOLs (AcriTwin and TECNIS ZM9000) was found 0,85 on an average for far distance and 0,97 for reading. 3. There were no significant differences of all MIOLs regarding the intermediate distances of 100 and 60 centimeters, the contrast sensitivity, the optic side effects (halo and glare) and the subjective satisfaction.

Conclusion: The advantages of the refractive system for far distance VA and the diffractive system for reading had been confirmed. The type of the MIOL should be selected according to the subjective patients expectation.

F1088
AN EVALUATION ON THE ACCURACY, SAFETY, AND
PATIENT SATISFACTION ON 3 MULTIFOCAL
INTRAOCULAR LENSES — ARRAY, RESTOR, AND
TECNIS

JOHN CHANG¹

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Purpose: To compare and evaluate the accuracy, safety and patient satisfaction on the SA40N (Array®, AMO), SA60D3 (ReSTOR®, Alcon Laboratories) and ZM900 (Technis®, AMO) multifocal IOLs. Levels of night glare, halo, and overall satisfaction with the visual outcome were assessed through a questionnaire and will be reported in detail at the meeting.

Method: This is a prospective review of 66, 16 and 22 consecutive eyes implanted with the Array, ReSTOR and Tecnis multifocal IOL respectively since October 2003. Eyes implanted with the Array lens have the longest follow-up (mean 229 days) while the Tecnis eyes have the shortest (mean 73.7 days). The mean preoperative manifest spherical equivalent refraction (MSER) in the Array eyes was -7.70 ± 7.08 D, -0.43 ± 2.86 D in the ReSTOR eyes, and -8.09 ± 4.18 D in the Tecnis eyes.

Results: In the eyes implanted with the Array, ReSTOR and Tecnis lens, 20/20 or better distance uncorrected visual acuity (UCVA) was achieved in 27%, 13% and 2 %, 20/40 or better distance UCVA was achieved in 86%, 89% and 100%, and J3 or better near UCVA was achieved in 91 %, 94 % and 100 % respectively. The postoperative distance best corrected visual acuity was maintained at the same level or better than preoperatively was achieved in 82%, 88% and 9 % respectively. Two eyes (3 %) implanted with the Array lens lost more than 2 lines of best corrected visual acuity due to postoperative retinal changes; while there was none in the ReSTOR or Tecnis eyes. Nd:YAG capsulotomy was performed in 22% of the Array eyes and none in the ReSTOR or Tecnis eyes due to the short follow-up. No retinal detachment was found.

Conclusion: The results obtained appear promising in providing good distance and near vision for those patients requiring cataract surgery.

F1089
EARLY CLINICAL EVALUATION OF ACRYSOF RESTOR
MULTIFOCAL INTRAOCULAR LENS FOR TREATMENT
OF CATARACT

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Purpose: To evaluate the efficacy, safety and early visual quality of AcrySof ReStor multifocal intraocular lens (MIOL) for the treatment of cataract.

Method: After the small incision phacoemulsification, AcrySof ReStor multifocal IOLs were inserted in 20 cases (40 eyes, ReStor group). Monofocal IOLs were inserted in 18 cases (36 eyes, as the control group). Visual acuity, focal depth, corneal astigmatism, contrast sensitivity, glare sensitivity, visual field and spherical aberration postoperatively were compared between these two groups. The subjective outcomes after IOLs implantation were evaluated by questionnaire. The follow-up time was 3.0~6.0 months.

Results: Percentage of patients with uncorrected near visual acuity 0.5 or better and 1.0 or better accounted 92.5% (37/40) and 32.5% (13/40) in ReStor group and 33.3% (12/36) and 0.0% (0/36) in control group 3 months postoperatively. There was difference between these two groups ($p < 0.05$). There was no statistical difference between corrected near, distance visual acuity, and uncorrected distance visual acuity of these two groups ($p > 0.05$). In patients with visual acuity 0.5 or better, the depth of focus was (4.87 ± 1.09) D and (2.08 ± 0.69) D in ReStor group and control group respectively. The contrast sensitivity, glare sensitivity and visual field of these two groups were similar ($p > 0.05$). The spherical aberration of ReStor group was similar to that of control group ($p > 0.05$). Higher satisfaction was found in the ReStor group than that in the control group ($p < 0.05$).

Conclusion: AcrySof ReStor multifocal IOLs implantation is a safe and effective way for the treatment of cataract. It has distinct advantage in providing both excellent near and distance visual acuity and reducing spectacle dependence without decreasing contrast sensitivity and glare sensitivity.

F1090

CLINICAL AND WAVEFRONT ANALYSIS OF THE NEW ASPHERIC ACRYLIC IOL AMO TECNIS Z9003

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Purpose: To study the clinical outcome and total wavefront results of a new acrylic foldable aspheric IOL (AMO Tecnis Z9003).

Method: 52 Patients (aged 74.1 ± 10.5 years) received in one eye an AMO Tecnis Z9003 acrylic foldable aspheric IOL ($n = 62$) or an AMO AR40e acrylic foldable IOL (identical IOL design and material) [$n = 42$] after uneventful cataract surgery. 3-6 months post-operatively patients were evaluated for total wavefront error under medium pupil dilation of 5-6 mm using the Schwind ORK Total Wavefront Analyser.

Results: Preoperative visual acuity (BCDVA) increased from 0.38 ± 0.14 to 0.8 ± 0.2 3-6 months postoperatively in both groups. Average Wavefront aberration (OSA [4.0] = spherical aberration) was $+1.43 \pm 0.05 \mu\text{m}$ (spherical AR40e IOL) versus $-0.03 \pm 0.03 \mu\text{m}$ (Aspherical Tecnis Z 9003 IOL). In all intraindividual comparisons the spherical AR40e IOL showed a positive spherical aberration whereas the Tecnis Z9003 IOL always much smaller aberrations and mostly slight negative values produced.

Conclusion: The acrylic aspheric IOL Tecnis Z9003 showed reduced to negative spherical aberrations which do compensate the corneal's positive spherical aberration.

F1091

FIRST EXPERIENCES WITH THE SOVEREIGN PHACOTECHNOLOGY-UPDATE WITH STAR-ICE AND CASE

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Purpose: To test the new upgrade (software and hardware) of the AMO sovereign Phacomashine with Whitestar ICE and CASE technology.

Method: In a GCP pre-market-release study we did cataract surgery on 32 consecutive patients, aged 71.3 ± 5.4 years with the

ICE and CASE Soft- and Hardware Upgrade of the AMO Sovereign Phaco-System. All Phaco-Parameter (% power, EPT, Vacuum, Flow rate) as well as flaremeter and cataract density measurements were recorded.

Results: All surgeries went uneventful. The ICE technology enables the surgeon to go up to a 500 mm Hg vacuum level as well as a flow rate of 55 mL/min. The CASE technology stabilizes the anterior chamber under these high vacuum high flow conditions very much preventing especially the post-occlusion surge phenomenon. ACD stability was markedly improved compared to older standards setting. There was no correlation between nucleus density and phacopower, but a good correlation to the effective phaco time (EPT). This indicates that the type of energy delivery (Whitestar microburst, Pulse shaping of US pulse) is more important as the simple Phaco-power.

Conclusion: The new soft- and hardware upgrade improves ACD stability and therefore improves safety and stability of the cataract surgery with this phaco machine.

F1092

OUR EXPERIENCE WITH THE FIRST 100 RESTOR INTRAOCULAR LENSES

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Purpose: The purpose of this paper is to evaluate the first 100 patients with implantation of the Apodized Diffractive Optic Posterior Chamber Intraocular Lens in India.

Method: All the patients were selected from the clinic of Eye Microsurgery Associates. The patients were motivated to reduce dependency on glasses, Cataract patients with or without presbyopia, Bilateral implantation candidates and Cataract patients who wanted to retain the ability to see near and distant objects without glasses. Thirty four of the patients had myopia and rest 66 were hyperopic, and they ranged in age from 38 to 89 years. Exclusion criteria were: Patients with more than 1 D of preoperative corneal astigmatism, significant pre-existing ocular pathologies such as age-related macular degeneration and corneal disease, Previous RK, PRK or LASIK patients, monofocal IOL implanted in other eye. All surgeries were performed by the main author using the Infiniti vision system. The visual acuity was checked both for distance as well as for near work on day 1, day 7, 4 weeks and 8 weeks.

Results: On day one post surgery, 15 people complained of blurry vision for near work, which reduced to 11 on day 7. All, except 2 people were happy for the entire range of vision without the use of glasses at the end of 4 weeks.

Conclusion: Surgical techniques using the ReSTOR lens can fix far-sightedness and near-sightedness. The apodized diffractive

optic of the Acrysof Restor IOL represents a technical marvel in terms of new concepts in IOL design technology. The lens has effectively given superior visual performance and patient satisfaction as backed by its associated clinical trials. However, as with any IOL technology, a surgeon must take the challenge to preoperatively select appropriate candidates, instill proper expectations, and then meet those expectations with optimal biometry and surgical technique.

F1093
THE VISUAL OUTCOMES OF RESTOR PSEUDOACCOMMODATIVE IOL IMPLANTED FOLLOWED BY PHACOEMULSIFICATION

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Purpose: To confirm the visual outcomes of the multifocal apodized diffractive intraocular lens (ReSTOR) in Chinese population.

Method: Subjects were 9 cases of patient, 7 males and 2 females, (13 eyes) with cataracts or pre-cataracts at the range of age from 67 to 85, mean 75.38 yrs, All of eyes implanted the Alcon ReSTOR multifocal foldable intraocular lenses followed by the phacoemulsification. The power of intraocular lenses calculated by SRK/T and Holladay 1 formula and aimed the patients postoperatively for 0.0 D~+0.25 D. The mean size of pupil were 2.35 ± 0.90 mm, mean distance BCVA was 0.28 ± 0.16, near BCVA was 0.31 ± 0.19 preoperatively?

Results: All eyes obtained uncorrected distance and near vision of 0.5 or better at the 1st day after the surgery. The mean size of pupil were 2.13 ± 0.64 mm, mean distance BCVA was 0.85 ± 0.18, near BCVA was 0.83 ± 0.16 in three month postoperatively. All of cases can read newspaper without spectacles.

Conclusion: ReSTOR lens provided better visual outcomes both in distance vision and near vision.

F1094
REFRACTIVE BIFOCAL IOL — DESIGN AND RESULTS

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Purpose: To study the visual results of new refractive bifocal foldable hydrophilic IOL implanted after cataract extraction by phacoemulsification.

Method: 29 eyes of 27 patients underwent phacoemulsification and implantation of foldable bifocal IOL is taken up for the study.

Unaided visual acuity for the distance and near, best corrected visual acuity for the distance, near vision with the best correction for the distance and near vision with best correction is recorded after 4 weeks. Contrast sensitivity for distance best correction is recorded with Vector vision chart (Sinusoidal Gratings). Contrast sensitivity is also recorded for 29 patients with monofocal IOL implantation. Visual complaints for glare and halos are recorded for each patient with grading of mild, moderate and severe.

Results: 24 patients tolerated the bifocal IOL s well. In 3 patients Bifocal IOLs are explanted for severe glare and replaced with monofocal IOL. The average uncorrected visual acuity for the bifocal group is 6/12 and near visual acuity is N8. There is no difference in the average acuity for the near with best correction. 16 patients complained of mild tolerable glare, 4 patients complained of moderate glare and 3 patients complained of severe glare in the bifocal group. The contrast sensitivity comparison shows an average of 32% less contrast in bifocal group compared to monofocal group. 17 patients never used spectacles for near vision in the bifocal group and 4 patients used occasionally and 3 patients used always.

Conclusion: The results of Bifocal IOL designed on refractive principles are comparable to any multifocal IOL available in the market. The loss of contrast sensitivity is common to these IOLs is not interfering with normal visual functions in most of the patients.

F1179
AUSTRALIAN EXPERIENCE WITH THE TETRAFLEX ACCOMMODATIVE PRESBYOPIC LENS

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Purpose: To report the Australian experience in 54 eyes of 30 patients with Tetraflex at three centers in Australia, with an accommodative, presbyopic intraocular lens.

Method: Employing standard phaco-emulsification techniques, the Kellan Tetraflex KH-3500 posterior chamber accommodative IOL was implanted into patients. The Tetraflex lens is a one-piece, hydrophilic PolyHema (hydroxyethylmethacrylate), biocompatible (26% water) IOL consisting of a 5.75 mm optic, a square edge haptic design, capable of being inserted through a <3 mm incision. Patients were treated at Lasersight facilities in Perth, Brisbane and Maroochydore in Australia.

Results: In the Perth clinic, lenses were implanted into 29 eyes of 15 patients. In the Queensland clinics (Maroochydore and Brisbane) lenses were implanted into 25 eyes of 12 patients of 8 males and 17 females. Mean age as 66, with youngest patient age 48, and oldest 81 years of age. Patients were followed to 3 months, postoperatively, including measurements of UCDVA, UCNVA,

manifest refraction, slit lamp microscopy and intraocular pressure examination. A sub-study of Queensland patients will be presented, mean follow-up 6 weeks, postoperatively, including measurements of accommodative amplitude, and PPR (changes to Proposed Phoropter Refraction) with the Tracey Wavefront analyzer.

Conclusion: The Tetraflex mechanism of accommodation through forward angulation offers a promising alternative to monofocal, multifocal or 'hinged' accommodative lenses.

Free Paper 9 – Neuro-ophthalmology & Others

12 June 2006, Monday, 0830-1000 Hrs

Room 312, Level 3

F1095

CLINICAL PROFILE AND VISUAL OUTCOME OF OPTIC NEURITIS IN AN INDIAN POPULATION

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Purpose: To evaluate the clinical profile and final visual outcome of patients with optic neuritis (ON) at a referral institute in India.

Method: This is a retrospective study of 25 patients (30 eyes) with ON seen at Sankara Nethralaya, Chennai between April 2002 to October 2005.

Results: Mean age was 31.76. Female preponderance (72%) was seen. 5 patients were lactating women. 5 cases were bilateral. All patients presented with sudden loss of vision and 76% had pain.. 10 eyes had anterior ON. Commonest field defect was altitudinal defect All affected eyes showed impaired color vision. MRI was done for 24 patients. Altered signal was seen in the affected optic nerve and 10 had associated altered brain signals. All patients received intravenous methyl prednisolone (IVMP) and 2 patients received intravenous immunoglobulin additionally. Visual acuity (v/a) <6/60 (group 1) was seen in 19 eyes, v/a 6/60-6/18 (group 2) seen in 7 eyes and v/a >6/18 (group 3) seen in 4eyes. Visual recovery (a 2 lines improvement) at 1 month and final follow-up was studied. 14 eyes in group 1, all eyes in group 2 and group 3 showed improvement at 1 month and final follow-up. Visual fields and colour vision improved in all such eyes. 1 remained blind after treatment. Mean follow-up period was 7.4 months (1 month-20 months). No recurrence was seen.

Conclusion: The clinical profile of ON in Indian patients seemed similar to the optic neuritis treatment trial study group. Patients with v/a of 6/60 or better have a good and fast visual recovery after IVMP.

F1096

CLINICAL FEATURES OF WEGENER'S GRANULOMATOSIS OF THE ORBIT AND ADNEXA

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Purpose: To describe the clinical features of patients with orbital and adnexal Wegener's Granulomatosis (WG) in a tertiary centre.

Method: Retrospective case notes review of patients referred to Moorfields Eye Hospital Adnexal Service with WG between 1990 and 2006.

Results: 40 patients with WG were identified. The majority of patients presented with multiple clinical features. Proptosis was present in 15 (38%) of patients, palpable mass/ lid swelling in 11 (28%), nasolacrimal obstruction in 11 (28%), pain in nine (23%), visual loss in eight (20%), red eye in five (12%), diplopia in four (10%), nasal discharge in two (5%) and ptosis in one (3%). Three patients (8%) had concurrent ocular WG and three (8%) had systemic disease. Disease activity was bilateral in eight patients (20%), unilateral in the remainder. Nasolacrimal obstruction was the most common clinical feature associated with bilateral disease. Orbital inflammation was most commonly seen in the infero-temporal quadrant on radiological imaging, irrespective of whether the adjacent sinuses were involved.

Conclusion: Diagnosis of orbital/adnexal WG in patients without systemic disease may be difficult because patients are often ANCA negative at presentation and many have clinical features similar to those of idiopathic orbital inflammation. Given that one third of patients with localised WG will subsequently develop systemic disease, early diagnosis and treatment is mandatory. The presence of concurrent ocular inflammatory disease, nasolacrimal obstruction and infero-nasal orbital distribution, particularly in the presence of adjacent sinus inflammation are highly suggestive of a diagnosis of WG.

F1097

RETINAL NERVE FIBER LAYER ANALYSIS BY OPTICAL COHERENCE TOMOGRAPHY IN ACUTE OPTIC NEURITIS

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Purpose: To determine retinal nerve fiber layer (RNFL) thickness by optical coherence tomography (OCT) in acute optic neuritis

patients seen at the UBC Neuro-ophthalmology Clinic between December 2003 and 2004.

Method: A retrospective review was conducted for patients diagnosed with acute optic neuritis within 2 weeks of onset, who underwent at least one OCT evaluation. The RNFL thickness was compared between the affected and unaffected eyes on the first visit, and at one and four months after onset. In addition, RNFL thickness from OCT was compared with the optic nerve appearance using a 78-diopter lens.

Results: Ten patients with acute optic neuritis were evaluated using the above methods. Four had follow-up OCT evaluations performed at one-month and four-month intervals. At one month, the RNFL thickness had decreased to the same level as unaffected eyes. By four months, three of the four cases measured had developed RNFL thinning. Nine of them had RNFL thickening on the first visit OCT assessment; of these, only five were felt to have optic nerve edema based on the 78-diopter lens evaluation.

Conclusion: RNFL thickening was identified using the OCT in almost all acute optic neuritis patients. The RNFL thickness reduced to the same level as the unaffected eye by one month and was thinner than the normal eye by four months. However, RFFL thickening was only detected in half the cases using a 78-diopter lens.

F1098

OPTIC CANAL DECOMPRESSION FOR TRAUMATIC OPTIC NEUROPATHY

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Purpose: Traumatic optic neuropathy is a devastating condition where visual loss is usually severe and treatment options limited. The visual loss is usually due to primary and secondary pathogenic mechanisms arising out of optic nerve compression in the bony canalicular part. Surgical decompression may partially reverse the process of injury if performed early before irreversible damage has occurred. The paper was designed to evaluate the visual and surgical results of optic canal decompression for traumatic optic neuropathy.

Method: The study was a retrospective investigation of the visual results of 32 (26 unilateral and 6 bilateral) patients of traumatic optic neuropathy who had optic canal decompression by either the trans-cranial (two patients) or by the trans-orbital/ethmoidal route. All patients had a minimum of six months follow-up postoperatively. The time of presentation ranged from 4 days to 12 months after the injury. The preoperative vision was divided into levels from no perception of light to 6/6. Success was defined as improvement by at least 2 levels following intervention.

Results: 22 of 32 patients had visual improvement of more than two levels of vision. There were no intraoperative complications.

One patient developed obstruction of the lacrimal drainage system postoperatively and one patient needed a re-exploration for a suspected orbital haematoma.

Conclusion: Optic canal decompression is a useful procedure for cases of traumatic optic neuropathy. It needs to be offered more universally than as a salvage procedure in difficult cases.

F1099

OPTIC NERVE SHEATH DECOMPRESSION FOR PAPHILLOEDEMA COMPLICATING CEREBRAL VENOUS SINUS OBSTRUCTION

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Purpose: To assess the visual outcome from optic nerve sheath decompression in patients with decreasing visual function and papilloedema secondary to cerebral venous sinus thrombosis.

Method: Retrospective, non-comparative case series review from Neuro-Ophthalmology clinic database at Moorfields Eye Hospital and National Hospital of Neurology and Neurosurgery, London. All patients underwent optic nerve sheath decompression using a standard medial transconjunctival approach. Visual acuity and visual field prior to and following optic nerve sheath decompression over 12 months were measured.

Results: Twenty nine patients (43 eyes) were identified with papilloedema and progressive, bilateral loss of visual acuity and field secondary to raised intracranial pressure. Nine eyes (20.9%) from 6 patients had raised intracranial pressure secondary to cerebral venous sinus obstruction as demonstrated by Magnetic Resonance Imaging. The proportion of women in the group with central venous sinus obstruction (5/6; 83%) did not significantly differ from that of patients with uncomplicated papilloedema (20/23; 87%) [$p=0.45$; Fisher's exact test]. One case demonstrated relentless decline in visual function despite complete resolution of papilloedema after optic nerve sheath decompression. All of the eyes showed a resolution of papilloedema postoperatively. Optic discs that had shown signs of chronicity or atrophy on presentation also appeared to benefit from ONSD, with one eye showing an improvement in visual acuity and no eyes demonstrating further field loss during follow-up. In the three cases that had unilateral surgery, the fellow non-operated eyes also showed a postoperative improvement in visual acuity, visual field grade, and disc appearances.

Conclusion: Poor prognostic factors included diagnostic delay and chronicity of papilloedema. Clinicians should be aware that optic nerve sheath decompression is an acceptable treatment option, with favorable visual outcome, in patients with decline in visual function secondary to cerebral venous sinus thrombosis.

F1100 OPTIC NEUROPATHY ASSOCIATED WITH DENGUE FEVER — A REPORT OF 3 CASES

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Purpose: To report 3 patients with optic neuropathy following dengue fever (DF).

Method: Observational case series.

Results: Three patients aged 19 (Chinese; female), 31 (Malay; male), 40 (Chinese; female) years presented with unilateral blurring of vision with a visual acuity (VA) of 6/7.5, counting fingers and 6/6 respectively in the presenting eye and 6/6 in the fellow eyes. They were diagnosed to have DF 1 to 4 weeks prior to the onset of eye symptoms. All patients developed a relative afferent pupillary defect in the presenting eye. The presenting eyes of all 3 patients and the fellow eyes in 2 patients showed features of optic nerve dysfunction, including impaired colour vision and visual field defects. In addition, 4 eyes had retinal haemorrhages and cotton wool spots. Visual evoked potentials done in 2 patients confirmed the optic neuropathy. Neuroimaging showed optic nerve swelling in the 31-year-old patient and he was treated empirically with corticosteroids but his VA worsened to no light perception in the presenting eye. The VA in the 4 other affected eyes remained stable.

Conclusion: Optic neuropathy associated with DF is unusual and may potentially result in permanent visual loss.

F1101 COMPARISON OF VISUAL EVOKED POTENTIALS IN OPTIC NEURITIS AND OPTIC NEURITIS WITH MULTIPLE SCLEROSIS

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Purpose: To compare the visual evoked potentials (VEP) in patients with acute optic neuritis, recurrent optic neuritis and optic neuritis with multiple sclerosis.

Method: We retrospectively reviewed VEP latency records of the patients with optic neuritis in neuroophthalmology unit, Siriraj hospital into three groups which were acute optic neuritis, recurrent optic neuritis and optic neuritis with multiple sclerosis (ON/MS). We excluded the patients with nonrecordable VEP in the analysis. Comparison of the mean latency of the VEP in affected eyes among three groups was statistically analysed by nonparametric independent sample test.

Results: There were 27 patients with ON/MS, 22 patients with acute optic neuritis and 8 patients with recurrent optic neuritis. The mean age among three groups was not statistically significant. The mean latency of flash VEP (fVEP) and pattern reversal VEP (PRVEP) in the acute optic neuritis group was shorter than that of recurrent optic neuritis group which was statistically significant (fVEP, $p=0.012$; PRVEP, $p=0.004$). The mean latency of PRVEP in the acute optic neuritis group was shorter than that of ON/MS group which was statistically significant (PRVEP, $p=0.002$). The mean latency of both fVEP and PRVEP in recurrent optic neuritis group and ON/MS group were delayed with no statistical significance (fVEP, $p=0.458$; PRVEP, $p=0.403$).

Conclusion: The VEP can be used to demonstrate the demyelinating mechanism of optic neuritis and optic neuritis with multiple sclerosis but cannot determine the opportunity of the patients with acute optic neuritis to develop multiple sclerosis. The significantly delayed latency of VEP in recurrent optic neuritis is possibly caused by severe damage of the optic nerve conduction from recurrent attacks. Our study is limited by the small sample size, therefore a further prospective study is needed.

F1102 IDIOPATHIC INTRACRANIAL HYPERTENSION — A CASE SERIES AND REVIEW

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Purpose: To report the clinical features and management of patients from diverse nationalities presenting to the Welcare Hospital, UAE diagnosed with Idiopathic Intracranial Hypertension (IIH).

Method: Retrospective review of patients diagnosed as IIH presenting to the ophthalmology department from August 2001 to May 2005 was performed. A complete ophthalmological examination including symptomatology, disease course, associated conditions, medications and automated perimetry was performed along with a neurology workup. The treatment course and the incidence of recurrences was highlighted.

Results: Our study included 30 patients, 26 women (86.6 %) and 4 men (13.3 %) belonging to 19 different nationalities seen between August 2001 and May 2005 with a follow-up ranging from 1 to 44 months (mean 6.28 ± 10.14 months). Associated factors included being overweight or obesity in 12 patients (40%) and being on systemic medications triggering the IIH in 16 patients (53.3%). Visual disturbances (22 patients [73%]), headaches (21 patients [70%]), and nausea and vomiting (10 patients [33%]) were the commonest symptoms. Papilledema was seen in all patients. Visual field defects were seen in 11 patients (36.66%). A previous diagnosis of migraine had been made elsewhere in 8 patients (26.66%) of whom 6 patients were found to have IIH instead. All our patients in this

series resolved with medical treatment in 0.5 month to 9 months (mean 2.85 ± 2.55 months). Recurrences after withdrawal of medical treatment were seen in 5 patients (16.6%). None of our patients suffered permanent visual loss.

Conclusion: Our series showed a higher incidence of IIH associated with the use of systemic medication. Patients diagnosed with migranes unresponding to therapy should be reevaluated to rule out the presence of IIH. The incidence of permanent visual loss in patients with IIH can be reduced by early detection and treatment. Further studies are needed to establish management protocols.

F1103

BIOMETRIC ANALYSIS OF CLINICAL OUTCOMES FOR PATIENTS UNDERGOING LASERACE PROCEDURE FOR RESTORATION OF ACCOMMODATIVE FUNCTION

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Purpose: To perform Biometric analysis of presbyopic patients undergoing LaserACE procedure.

Method: Prospective study of 20pts. ages 43-66 yrs. treated with LaserACE™ procedure. Wavefront aberrometer, IOL Master, 20HZ US Biometry along with other methods were used.

Results: Mean f/u 3.5 months (1-8 months). Mean accommodative range 2D (SD 0.14). Mean IOP decrease 3.5. US and IOL showed statistical AC depth and ciliary sulcus diameters. iTrace lens subtraction methods showed evidence of central lens steepening. No statistical differences were found in manifest refraction, wavefront, axial length.

Conclusion: LaserACE procedure appears to provide an excellent range of vision for both near and intermediate VA without compromising distance VA. Biometric analysis shows promising value to analyze the biomechanical mechanisms for accommodative function.

Free Paper 10 – Glaucoma

12 June 2006, Monday, 1400-1530 Hrs

Room 311, Level 3

F1104

EVALUATION OF SINGLE SITE SUTURELESS PHACOTRABECULECTOMY

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Purpose: To evaluate the efficacy of single site sutureless phacotrabeculectomy.

Method: The study was a prospective, randomized, interventional trial. 60 eyes of 60 subjects with uncontrolled glaucoma (angle closure or open angle) were divided into 2 groups (30 eyes each). Group 1 underwent a single site sutureless phacotrabeculectomy. Group 2 underwent conventional phacotrabeculectomy. Sutureless phacotrabeculectomy involved creating the internal fistula through the scleral tunnel with a Kelly Descemet's membrane punch. Conventional phacotrabeculectomy was done by raising the scleral flap and suturing it after creating the fistula. Preoperative intraocular pressure (IOP) and IOP at the last follow-up visit of the subjects were recorded. The reduction in IOP was statistically analyzed using the Student's t test (paired and unpaired).

Results: The mean preoperative IOP was 29 ± 7.19 mm Hg in Group 1 and 28.5 ± 7.41 mm Hg in Group 2. The mean postoperative IOP at the last follow-up was 16.4 ± 3.65 mm Hg in Group 1 and 15 ± 2.13 mm Hg in Group 2. The mean reduction in IOP in Group 1 was 12.3 ± 8.95 mm Hg after 12 ± 5.77 months of follow-up and 13.4 ± 7.56 mm Hg in Group 2 after 12.3 ± 5.62 months of follow-up. The intra-group reduction in IOP was statistically significant in both the groups ($p=0.0001$, paired Student's t test). The difference in IOP reduction between the two groups was statistically not significant ($p=0.59$, unpaired Student's t test).

Conclusion: Good intraocular pressure lowering effect was observed with both the procedures. Sutureless phacotrabeculectomy appears to be an effective procedure for control of intraocular pressure in patients undergoing a combined cataract extraction and filtering procedure.

F1105

IMAGING OF TRABECULECTOMY BLEBS USING ANTERIOR SEGMENT OPTICAL COHERENCE TOMOGRAPHY

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Purpose: To image trabeculectomy blebs using anterior segment optical coherence tomography (OCT).

Method: This was a prospective cross-sectional study of selected patients who underwent trabeculectomy surgery between 1996 - 2005. All blebs were imaged with the AS-OCT prototype (Carl Zeiss Meditec Inc, Dublin, CA, USA). Standardised non-stereo photographs of all blebs were obtained. A case sheet review was undertaken to determine relevant preoperative data, operative technique, and postoperative outcome. Success was defined as IOP <21 mm Hg without the use of topical ocular hypotensive medications.

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Results: 70 blebs in eyes of 49 patients were imaged. There were 28 (57.1%) men and 21 (42.9%) women with a mean age of 69.7 \pm 9.3 years. There were 56 (80%) successful and 14 (20%) failed trabeculectomies. All had undergone trabeculectomy with mitomycin C (68 eyes, 97.1%) or 5-fluorouracil (2 eyes, 2.9%), with or without phacoemulsification and intraocular lens implantation. Distinct morphological features were identified in successful and failed blebs. A variety of bleb morphologies were encountered: successful blebs included high, moderate and low blebs, whereas failed blebs were all low blebs with ostial occlusion, flap fibrosis or episcleral fibrosis. AS-OCT was able to demonstrate bleb characteristics such as total elevation, cavity height, wall thickness, tangential and radial dimensions, scleral flap thickness and patency of the internal ostium. Correlation of bleb morphology with functional outcome is ongoing.

Conclusion: The anterior segment OCT is a promising tool to image trabeculectomy blebs. It is able to demonstrate features of bleb morphology not visible at the slit lamp.

F1106

CO-PRESCRIBING OF TOPICAL AND SYSTEMIC BETA-BLOCKERS IN PATIENTS WITH GLAUCOMA – A QUALITY USE OF MEDICINE ISSUE IN AUSTRALIAN GENERAL PRACTICE

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Purpose: Prescribing topical beta-blockers for patients with glaucoma, who are also being treated with systemic beta-blockers, can raise efficacy and safety concerns. This potentially inappropriate co-prescribing practice is a Quality Use of Medicine issue. The purpose of our study was to quantify the extent of co-prescribing of topical and systemic beta-blockers in Australian clinical practice.

Method: This study involved a retrospective analysis of de-identified billing data for topical and systemic beta-blockers from the Australian Pharmaceutical Benefits Scheme. The patient population was all concessional patients in Australia for whom one or more prescriptions for systemic or topical beta-blockers were dispensed under the Pharmaceutical Benefits Scheme between 1 July 1999 and 30 June 2004. The primary outcome measure was the percentage of patients prescribed systemic beta-blockers within the patient population prescribed topical beta-blockers. This percentage was calculated for each financial year (July 1999 to June 2004), age group (<65 years; 65-74 years, 75-84 years; \geq 85 years) and sex.

Results: Approximately 20% of patients prescribed topical beta-blockers were also prescribed systemic beta-blockers. This percentage equated to approximately 20,000 patients per year. This percentage varied with age, but not with year or sex. The percent-

age of patients co-prescribed topical and systemic beta-blockers was lowest (13%) for patients less than 65 years and highest (23%) for patients 75 to 84 years.

Conclusion: The potentially inappropriate practice of co-prescribing topical and systemic beta-blockers affected approximately 20,000 concessional patients in Australia each year, particularly the elderly. This Quality Use of Medicine issue has now been quantified; healthcare stakeholders must alert professionals and patients to the reduced efficacy and potential for more side effects from these prescribing practices.

F1107

THE IMPACT OF LENS OPACITY ON MULTIFOCAL VISUAL EVOKED POTENTIALS AND HUMPHREY VISUAL FIELD IN GLAUCOMA PATIENTS UNDERGOING CATARACT EXTRACTION

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Purpose: To assess the impact of lens opacity on the AccuMap severity index (ASI) for multi-focal visual evoked potentials (MFVEPs) in patients with glaucoma undergoing cataract surgery and to correlate ASI with the mean deviation (MD) and pattern standard deviation (PSD) of the Humphrey visual field (HVF).

Method: In a prospective, non-randomized study, patients with glaucoma had MFVEPs and HVFs. performed both before and after cataract extraction with intraocular lens implant. The pre- and postoperative ASI, MD and PSD were compared and correlated, and the differences between pre- and postoperative ASI, MD and PSD were analyzed.

Results: Of the 22 patients, 13 (59.1%) had primary open angle glaucoma and 9 (40.9%) had angle-closure glaucoma. Eight patients (36.4%) underwent phacoemulsification only while 14 (63.6%) had phacoemulsification and trabeculectomy. The ASI decreased from a mean of 90.1 (SD 54.8) preoperatively to 43.1 (SD 36.6) postoperatively ($p < 0.001$). The MD increased from -12.2 (SD 7.8) to -9.6 (SD 8.8) postoperatively ($p < 0.001$). There was no significant difference between the preoperative and postoperative PSD (6.5 vs. 6.3, $p = 0.748$). Preoperatively, the ASI and MD were well correlated (Pearson correlation -0.519, $p = 0.013$). Likewise, the postoperative ASI correlated well with the MD (Pearson correlation -0.599, $p = 0.004$). However, there was no correlation between either the pre- or postoperative ASI and PSD ($p = 0.763$ and 0.114 respectively).

Conclusion: Glaucoma patients who undergo cataract extraction demonstrate significant decrease in the ASI and improvement in the MD. Both the pre- and postoperative ASI correlate significantly

with the respective MD, and may be useful in monitoring of glaucoma progression.

F1108

USE OF IOL MASTER AND SCANNING PERIPHERAL ANTERIOR CHAMBER DEPTH ANALYZER FOR ANTERIOR CHAMBER DEPTH ASSESSMENT IN ANGLE-CLOSURE SUBJECTS

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Purpose: To utilise IOL master and Scanning Peripheral Anterior Chamber Analyzer (SPAC) for central and peripheral anterior chamber depth grading in normal and angle-closure subjects.

Method: SPAC is a new non-contact instrument, which uses optical principles to grade the peripheral and central anterior chamber depth (CACD). In this prospective study, the peripheral anterior chamber depth (PACD) was assessed using the SPAC and CACD was measured with the IOL Master. Associations between PACD, CACD and SPAC grades were assessed using Spearman's correlation coefficient. ROC analysis (area under curve; AUC) was used to examine the performance of tests to identify angle-closure.

Results: 120 eyes of 120 subjects with angle-closure and normal eyes (62 with primary angle closure and 58 with open angles) were examined. Central anterior chamber depth by IOL Master was significantly correlated with SPAC-CACD ($r=0.798$; $p<0.001$). CACD measured by either SPAC or IOL Master correlated strongly with PACD grading by vH and SPAC ($r=0.601 - 0.787$; $p<0.001$). A vH grade of 25% or less, SPAC grades (S and P) and CACD of 2.1 mm or less gave the best performance for detection of angle-closures (AUC: 0.872, 0.790, 0.781 respectively). SPAC grades in combination with CACD 2 mm or less gave the ROC value of 0.821.

Conclusion: The combination of central and peripheral anterior chamber depth measurements by IOL master and SPAC can be useful in screening of angle-closure subjects.

F1109

LASER PERIPHERAL IRIDOTOMY IN EYES WITH NARROW ANGLES — ULTRASOUND BIOMICROSCOPY OUTCOMES — THE LIWAN EYE STUDY

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Purpose: To assess the short-term effect of laser peripheral iridotomy (LPI) on anterior segment anatomy by using ultrasound microscopy (UBM).

Method: Persons identified as having asymptomatic narrow angles aged 50 -79 years old from a population-based survey in Guangzhou, China. Laser peripheral iridotomy (PI) was performed in one randomly selected eye. UBM examination was carried out before and 2 weeks after the intervention. Proportions of appositional closure, as well as changes in UBM parameters including anterior opening distance (AOD), iris thickness (IT), iris curvature, iris ciliary process distance (ICPD), trabecular ciliary process distance (TCPD), iris ciliary process distance (ICPD), and scleral spur to iris insertion distance (SS-IR) were quantified.

Results: A total of 72 of 101 eligible subjects participated in the study. The proportion of people with UBM-identified appositional closure in at least one quadrant was found to drop from 95% (68/72) before to 59% (42/72) after PI. After PI, the mean AOD at 250 microns increased from 0.064mm (SD:0.052) to 0.085 (0.052)mm ($p<0.001$); angle recess area increased from 0.040 (0.030) to 0.070 (0.036) mm² ($p<0.0001$); TCPD increased from 0.537 mm to 0.561 mm ($p=0.001$); iris thickness (IT750) increased from 0.440 to 0.459 mm ($p=0.094$) and IT at 1000 microns increased from 0.471 mm to 0.488 mm ($p=0.0001$). Eyes whose angles remained closed after PI (pigmented trabecular meshwork not visible in 3 or more quadrants) tended to have shallower AOD both at 250 (0.071 mm vs 0.049 mm, $p=0.09$) and 500 microns (0.108 mm vs 0.052 mm, $p=0.001$), a thicker iris (IT at 750 microns: 0.447 mm vs 0.415 mm, $p=0.041$), and a more anterior positioned ciliary body (TCPD: 0.514 mm vs 0.562 mm, $p=0.03$), prior to the LPI. There was a statistically non-significant more anterior iris insertion (SS-IR: 0.085 mm vs 0.125 mm, $p=0.061$) in eyes whose angles remained closed.

Conclusion: PI results in a significant increase in the angle width in Chinese people with narrow angles. However, some irido-trabecular apposition was found in 59% of eyes even with a patent iridotomy. This was associated with smaller anterior chamber angle dimensions and a thicker iris, both of which may play a causative role in maintaining angle closure after LPI.

Free Paper 11 – Retina & Others

12 June 2006, Monday, 1400-1530 Hrs

Room 312, Level 3

F1110

CONTRAST SENSITIVITY CHANGES IN TYPE 1 DIABETES MELLITUS PATIENTS WITH AND WITHOUT RETINOPATHY

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Purpose: To evaluate the influence of multilevel metabolic disturbance of insulin dependent diabetes mellitus (IDDM) on the vision even before the onset of the other changes routinely evaluated by ophthalmologists.

Method: Contrast sensitivity (CS) were estimated using the Cambridge low contrast gratings chart. The standardized measurement procedure was performed. The value of the threshold contrast sensitivity was obtained for single median spatial frequency (4 c.p.d. at six metres). Other data was collected (duration of diabetes, BCVA, funduscopy, HbA1C). The study group consisted of 20 IDDM patients (40 eyes) with or without diabetic retinopathy and with Snellen BCVA >1.0. The control group (20 normals, 40 eyes) was age and BCVA matched.

Results: Highly statistically significant decrease of the Contrast sensitivity in the study group was obtained. Correlation between duration of the diabetes and impaired degree of CS was present. No significant changes in CS were found among patients with pathological value of glycated hemoglobin HbA1c (>7.8%).

Conclusion: Highly statistically significant decrease in Contrast Sensitivity in the study group was obtained. Correlation between duration of the diabetes and impaired degree of CS was present. No significant changes in CS were found among patients with pathological value of glycated hemoglobin HbA1c (>7.8%).

F1111

DECREASING EFFICACY OF REPEATED INTRAVITREAL TRIAMCINOLONE INJECTIONS IN DIABETIC MACULAR EDEMA

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Purpose: Intravitreal triamcinolone (ivTA) is increasingly used for the treatment of diabetic macular edema (DME). However the treatment benefit of a single dose of ivTA is transient, lasting 1-9 months,

necessitating repeated injections. We report a case series of 10 eyes of 10 patients, which received a repeated injection of 4 mg ivTA for treatment of DME at least 6 months after their first injection of the same dose.

Method: Pre-injection and at 2, 4, 9 and 17 weeks post-injection, best-corrected visual acuity (BCVA) and central foveal thickness (CFT) on optical coherence tomography, after the first and repeat injections of 4 mg ivTA, were compared using paired-t test. Side effects including cataractogenesis and intraocular pressures (IOP) were monitored.

Results: All 10 eyes completed at least 26 and 17 weeks of follow-up after their initial and repeat injections, respectively. Mean duration to repeat injection was 32.5 ± 3.5 weeks after the first injection. Three eyes were pseudophakic, 7 phakic and none underwent cataract extraction or macula laser photocoagulation during the follow-up period. Pre-injection BCVA, CFT, IOP and cataract scores were not significantly different between the two injections. Transient improvements of BCVA and CFT were achieved after both injections, however the mean BCVA after the repeat injection was significantly worse than after the first, at all time points ($p < 0.05$). The mean best-achieved CFT and the mean CFT at 4 weeks post-injection were also worse after the repeat injection, compared with the first injection ($p = 0.034$ and 0.011 respectively). Post-injection mean maximum IOPs and the mean increase in cataract scores were not significantly different between the two injections.

Conclusion: A repeat injection of ivTA did not appear as effective as an initial injection for the treatment of DME.

F1112

PHOTODYNAMIC THERAPY FOR IDIOPATHIC POLYPOIDAL CHOROIDAL VASCULOPATHY – IS AGE IMPORTANT?

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Purpose: To assess the relationship between the age of the patient and the efficacy of photodynamic therapy (PDT) in the treatment of idiopathic polypoidal choroidal vasculopathy (IPCV).

Method: Retrospective study of patients who underwent PDT for symptomatic serosanguineous maculopathy secondary to IPCV. All patients had indocyanine green defined lesions and were divided into 3 groups; Group A aged <65 years, Group B aged 66 to 75 years and Group C aged >75 years. Patients had pre-treatment best corrected visual acuity (BCVA) measured and were followed up at 3, 6, 9 and 12 months after PDT. 42 eyes of 41 patients completed 12 months follow-up.

Results: In Group A (13 eyes), mean age was 57.5 years (range 44 to 64). 7 eyes had subfoveal and 6 had juxtafoveal lesions. 10 eyes (76.9%) had stable or improved vision (change of less

than 3 lines) at 12 months follow-up. In Group B (19 eyes), mean age was 69.2 years (range 66 to 75). 16 eyes had subfoveal and 3 had juxtafoveal lesions. 11 eyes (57.9%) had stable or improved vision. In Group C (10 eyes), mean age was 81.7 years (range 78 to 92). 8 eyes had subfoveal and 2 had juxtafoveal lesions. 4 eyes (40%) had stable or improved vision.

Conclusion: In our study, a larger proportion of patients in the younger age groups (76.9% in Group A vs 57.9% in Group B vs 40% in Group C) did better following PDT for symptomatic IPCV. Age may therefore, be an important prognostic factor in the treatment of this disease. However, in view of the retrospective nature of this study and small sample size, the true efficacy of PDT for IPCV and its relationship with age, would have to be evaluated with a larger, randomized controlled trial.

F1113 FACTORS ASSOCIATED WITH TYPE 2 DIABETIC RETINOPATHY IN JOHANNESBURG, SOUTH AFRICA

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Purpose: To examine factors associated with diabetic retinopathy (DR) in type 2 diabetics of differing ethnic origins.

Method: A cross-sectional study with univariate and multivariate analysis was performed on 1139 patients of 30 years of age and older. DR was determined with 60 degree fundus photography and masked standard scoring.

Results: The prevalence of any DR was 25% and severe DR was 12%. The proportion of severe DR in patients with DR was 57% in Africans, significantly more than Whites. HbA1c of Africans was higher (10.3%) than Whites (9.0%, $p=0.000$) and Indians (9.2%, $p=0.008$). Significant univariate associations with DR were: In 474 African patients: older age ($p=0.001$), duration of DM (diabetes mellitus) with $p=0.000$, hypertension ($p=0.000$), systolic BP (blood pressure) with $p=0.002$, ACR (urinary albumin:creatinine ratio) with $p=0.000$, creatinine ($p=0.008$), cholesterol ($p=0.001$), HDL (high density lipoproteins) with $p=0.037$ and LDL (low density lipoproteins) with $p=0.001$. In 147 Indian patients: duration of DM ($p=0.001$), insulin use ($p=0.021$), ACR ($p=0.000$), creatinine ($p=0.015$). In 518 White patients: older age ($p=0.000$), duration of DM ($p=0.000$), female gender ($p=0.033$), insulin use ($p=0.000$), hypertension ($p=0.008$), systolic BP ($p=0.000$), ACR ($p=0.000$), creatinine ($p=0.010$), cholesterol ($p=0.019$), HDL ($p=0.028$). Logistic regression for presence of DR for the whole group showed statistically significant independent risk factors were duration of DM, ACR, LDL, hypertension and insulin use.

Conclusion: Africans showed worse diabetic control and more severe DR than Whites and Indians. Improved management of treatable factors associated with DR may improve the prognosis in all of our patients.

F1114 VALIDATION STUDY OF DIGITAL DIABETIC RETINAL PHOTOGRAPHY

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Purpose: To investigate the use of single and three field digital non-stereoscopic diabetic retinal photography (DDRP) and polaroid non-stereoscopic retinal photography. When compared against clinical assessment by the ophthalmologist, for the screening and grading of diabetic retinopathy.

Method: A prospective study of 808 consecutive patients with diabetes mellitus, with 1616 eyes recruited from referrals by the primary healthcare service. Each patient underwent, three different modalities of photographic screening. The polaroid and digital images were read by 2 ophthalmologists. All patients underwent clinical diabetic retinopathy grading by vitreoretinal specialists. The gradings were based on the Early Treatment Diabetic Retinopathy Study.

Results: Whilst the use of non-stereoscopic retinal photographs allowed for good ability to screen for diabetic retinopathy, the ability to grade proved to be more difficult. The agreement rates between clinical assessment vs polaroid photography, one field and three fields DDRP were 72.8% ($K=0.45$), 74.2% ($K=0.49$) and 75.9% ($K=0.54$) respectively. For diabetic maculopathy, the agreement rates between clinical assessment vs polaroid photography, one field and three fields DDRP were 86.4% ($K=0.46$), 86.9% ($K=0.53$) and 86.5% ($K=0.51$) respectively.

Conclusion: Both 1 field and 3 field of DDRP, and polaroid photography performed equally well in the diagnosis and grading of diabetic retinopathy. Diabetic maculopathy showed higher agreement with clinical assessment by an ophthalmologist.

F1115 THE RISK AND BENEFIT OF INTRAVITREOUS BEVACIZUMAB (AVASTIN) FOR RETINAL VASCULAR DISEASES — 8 MONTHS FOLLOW UP

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Background: Bevacizumab (Avastin, Roche) is a recombinant humanized, full length, anti-VEGF monoclonal antibody that binds all isoforms of VEGF-A. It has been shown to block the new vessel formation and prolong survival of patients with advanced colorectal cancer. For the time being, specific ophthalmic anti-VEGF is not available in Thailand. We will report the effect of intravitreal

bevacizumab in many varieties of retinal vascular diseases namely, subfoveal choroidal neovascularization (CNV), vascular occlusive disease, retinal angiomatous proliferation and proliferative diabetic retinopathy, diabetic macular edema. The positive clinical experience regarding visual acuity, optical coherence tomography (OCT) and fluorescein angiography (FA) will be presented.

Purpose: To evaluate risk and benefit of intravitreal bevacizumab (Avastin) for retinal vascular diseases.

Method: A prospective, non-comparative, interventional case series.

Results: In our series, majority of the patients had stable or improved in visual acuity, FA and OCT. No serious adverse events were observed from this agent during 8 months of follow-up.

Conclusion: Intravitreal bevacizumab was shown to be safe and effective for treating many retinal vascular diseases. Further studies with longer follow-up are warranted to assess the long-term safety and efficacy relative to other treatments.

F1116

THE PIER STUDY — TWELVE MONTH EFFICACY AND SAFETY RESULTS FROM A PHASE III STUDY OF RANIBIZUMAB 0.3MG AND 0.5MG ADMINISTERED INITIALLY MONTHLY AND THEN EVERY 3 MONTHS FOR SUBFOVEAL CHOROIDAL NEOVASCULARIZATION SECONDARY TO AGE-RELATED MACULAR DEGENERATION

URSULA SCHMIDT-ERFURTH¹, FOR THE PIER STUDY GROUP¹

University Eye Hospital, Vienna, Austria¹

Purpose: To determine the efficacy and safety of monthly and then quarterly intravitreal injections of ranibizumab 0.3mg or 0.5mg on durability of treatment effect over two years, as monitored using optical coherence tomography (OCT).

Method: Patients (n=184) with subfoveal choroidal neovascularization (CNV) secondary to age-related macular degeneration with or without a classic lesion component were randomised 1:1:1 to receive ranibizumab 0.3mg, ranibizumab 0.5mg or sham injection. Inclusion criteria specify a baseline visual acuity (VA) between 20/40 and 20/320. Patients in all arms of the study receive three monthly treatments (months 0, 1, 2), and then treatments every three months (months 5, 8, 11, 14, 17, 20, 23). The primary efficacy outcome is mean change in best-corrected visual acuity from baseline, as assessed using ETDRS scores. Secondary endpoints include time to resolution of excess retinal thickness. Safety assessments include the incidence and severity of ocular and non-ocular adverse events over 24 months.

Results: The study successfully completed enrolment and all patients will complete the 12 month visit in the first quarter of 2006.

Conclusion: Twelve-month efficacy and safety data from the Phase

III PIER trial will be presented and will indicate whether the studied treatment regimen can result in a similar clinical benefit as previously observed with monthly intravitreal injections of ranibizumab.

F1178

PERFLUOROCARBON LIQUIDS-SIDES VITRECTOMY — A MODIFIED TECHNIQUE FOR VITREOUS REMOVAL DURING VITRECTOMY

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Purpose: To introduce a modified technique for vitreous removal during vitrectomy for retinal detachment.

Method: The results of a retrospective study in 30 eyes of 30 patients with retinal detachment treated with perfluorocarbon liquids (PFCL)-sides vitrectomy were reported. After removal of the posterior vitreous or epi-retinal membranes, PFCL was injected into the vitreous cavity until it cover the middle or peripheral residual vitreous. The underneath vitreous, which was positioned by the gravitational force of PFCL, was then removed with the vitrector.

Results: The residual vitreous was fairly contoured by the sided PFCL, which facilitates a better visualization. The retina was well stabilized, which allows a closer cutting of the vitreous. All the vitreous in 30 eyes were successfully removal with this technique with 32 vials (5~7 mL/per vial) of PFCL. Two tiny iatrogenic retinal damages were present in two eyes. After a mean follow-up of 6 months, twenty-nine of the 30 eyes achieved retinal attachment postoperatively.

Conclusion: PFCL-sided vitrectomy is a safe and easy technique for vitreous removal. Advantages, disadvantages, and skills of this technique will be discussed.

F1117

EXPRESSION OF C-FOS PROTEIN IN THE VISUAL CORTEX OF BINOCULARLY SUTURED RATS

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Purpose: To investigate the expression of c-fos protein in the visual cortex of amblyopia rats, and to seek out whether there is plasticity remained in the visual cortex of the adult amblyopia rats which has overgrown the critical period of visual system.

Method: Rats were subjected to binocular suture during the critical period (postnatal days 13), and reared with control group until postnatal days 180 in the normal light-dark condition. Visual cortex area 17 were sectioned for c-fos staining by immunohistochemistry.

Results: In group of binocularly sutured rats, numerous c-fos neurons were detected in almost all layers except layer?. By contrast, only a small number of Fos-immunoreactive neurons was obtained in the visual cortex in the control group.

Conclusion: Significant difference was detected in c-fos expression in the visual cortex between amblyopia and normal rats. This suggested that contrast to the normal, there may remained some plasticity in the visual cortex in the amblyopia rat.

Free Paper 12 – Keratorefractive Surgery

12 June 2006, Monday, 1600-1800 Hrs

Room 311, Level 3

F1118

FIRST-HAND EXPERIENCE WITH MULTIFOCAL ABLATIONS FOR THE TREATMENT OF PRESBYOPIA

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Purpose: To discuss preliminary safety and efficacy results of multifocal LASIK treatments for the correction of hyperopic presbyopia.

Method: Preliminary safety and efficacy results, as well as case studies will be presented. Also being reviewed will be long-term postoperative data from international multicenter trials of multifocal ablations for presbyopic treatments.

Results: International multi-center clinical trials have shown twelve months postoperatively 94 percent of eyes (n = 12) saw 20/25 or better at distance and 88 percent saw J3 or better at near. Additionally, 77 percent of patients achieved 20/25 distance and J3 near or better. First-hand clinical data will be presented onsite. Initial clinical results to be discussed have demonstrated stability and safety by high overall patient satisfaction. Postoperative visual acuity has also shown to be excellent in most cases studied.

Conclusion: Multifocal wavefront-guided LASIK has proven as a safe and effective treatment for hyperopic presbyopia in early clinical results and long-term internationally.

F1119

CUSTOMVUE VS. CONVENTIONAL LASIK – 1-YEAR COMPARISON MEASURING VISUAL QUALITY IMPROVEMENT

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Purpose: To compare CustomVue and conventional LASIK laser vision correction treatments to determine whether significant visual quality improvement exists in CustomVue compared to conventional LASIK.

Method: This retrospective, comparative study of 2 groups of 637 treated patients using either CustomVue or conventional LASIK treatments. In this investigation, 354 eyes of 182 patients received CustomVue LASIK, while 283 eyes of 145 patients received conventional. Patients from both groups were followed for three to six months to compare visual quality improvement results.

Results: Data showing visual quality results achieved with CustomVue vs. conventional laser vision correction procedures will be presented. Measures used will include UCVA, BCVA, higher-order aberrations, patient subject night glare improvement and changes in contrast sensitivity.

Conclusion: CustomVue laser vision correction is a better treatment option than conventional LASIK because it not only improves lower-order aberrations, but also measures and attempts to reduce preexisting higher-order aberrations.

F1120

INTRAOPERATIVE ONLINE PACHY IN LASIK – 1ST CLINICAL EXPERIENCE

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Purpose: To investigate Intraoperative Optical Coherence Pachymetry during various steps of Laser in Situ Keratomileusis (LASIK).

Method: With the New ESIRIS Schwind Excimer Laser and Integrated Online Pachy, the initial clinical evaluation 25 patients with Myopia and Myopic Astigmatism were studied. Corneal thickness was assessed with optical pachymetry. During all the steps of LASIK, Online Pachymetry was observed in all eyes. LASIK was performed with 130-micron head for 46 eyes and 110-micron head for 4 eyes using Carriazo Pendular Microkeratome.

Results: Attempted mean spherical equivalent refraction was $-4.0\text{ D} \pm 3.0\text{ D}$ with a mean calculated stromal depth of 80 ± 22 microns. Mean flap thickness of $115, \pm 15$ microns with residual corneal stroma of more than 250 microns at the end of every case was achieved. The immediate post op showed swelling of the cornea.

Conclusion: This system of Online Pachymetry during LASIK is reproducible to the extent of 1-2microns. This non-contact method of Intraoperative Pachymetry was reproducible in all eyes during difficult stages in LASIK. This initial clinical evaluation proves that it is an important safety feature for monitoring flap thickness with each cut to check residual stromal thickness, excessive hydration during wash, well opposed interface after wash and will be helpful to avoid itrogenic corneal ectasia in patient with thin corneas and LASIK Retreatments.

F1121

HAZE PROPHYLAXIS IN LASEK USING DILUTE MITOMYCIN-C 0.002%

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Purpose: To present the results of 0.002% Mitomycin-C in preventing haze after LASEK.

Method: LASEK was performed in 630 consecutive eyes using a 20% alcohol solution in the standard way. A 0.002% (0.02mg/mL) solution of Mitomycin-C was applied to the cornea after the laser ablation. The duration of application was 45 secs in errors of -3.00 D or less, for one and a half min in errors of over -3.00 D and less than -6.00 D, and for 2 min in errors of over -6.00D.

Results: 80 % of the eyes showed no signs of any laser ablation. 20% eyes had very fine sub-epithelial stippling. No moderate or dense haze was noted. The maximum follow-up was 3 years and the refractive error ranged from -0.75 D to - 20.00 D.

Conclusion: Mitomycin-c has been used for the prophylaxis and treatment of corneal haze, which is the most feared complication of surface ablation. Mitomycin-C is a potentially toxic drug and therefore many have reservations in using it on the cornea. The above experience shows that it is effective in a concentration that is 10 times more dilute than the standard recommended dose. This should allay the fears and make refractive surgeons to do more of surface ablation.

F1122

FACTORS INFLUENCING FLAP THICKNESS AND DEVIATION FROM NOMINAL CUTTING DEPTH FOR AMO AMADEUS, SCHWIND PENDULAR AND WAVELIGHT RONDO

MATTHIAS J MAUS¹, STEPHAN KROEBER¹

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Purpose: To accurately determine and predict true flap thickness and thus enhance the safety and efficacy of 'Laser in situ keratomileusis' (LASIK).

Method: Corneal thickness was measured preoperatively using the Oculus Pentacam. Before the microkeratome pass, central corneal thickness was additionally taken with the Wavelight Concerto's built-in OLCR non touch pachymeter. OLCR pachymetry measurements were repeated after flap-lift and after ablation. A dataset was created for each eye, additionally accounting for factors influencing flap thickness including microkeratome type, head, suction ring and blade lot number; preoperative refractive error and keratometry data as well as intraoperative handling of the keratome.

Results: A total of 510 eyes were evaluated in the study. 108 eyes were treated with the AMO Amadeus microkeratome the Schwind Pendular was used for 402 eyes and the WaveLight Rondo was applied on 178 eyes. Mean flap thickness for the Amadeus equipped with the MedLogics -20 blade was 131.2 μ (\pm 25.07 μ , 77 eyes) and 155.88 μ (\pm 23.88 μ) for the Amadeus 140 μ OEM blade (31 eyes). The Pendular was used for 101 eyes with the 110 μ head and for 301 eyes with the 130 μ head, with flap thicknesses of 90.78 μ (\pm 21.83 μ) and 118.51 μ (\pm 13.6 μ), respectively. The Rondo showed a flap thickness of 95.44 μ (\pm 17.17 μ).

Conclusion: The Rondo and the Pendular microkeratomes deliver cutting predictability superior to that of the Amadeus. Especially for managing complicated cases of high myopia or topography guided tissue consuming ablations, this can be a pivotal factor for success.

F1123

AGE-RELATED CHANGES IN THE EYE ORGAN – BIOMECHANICAL IMPLICATIONS FOR REFRACTIVE SURGERY

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Purpose: To present a biomechanical model understanding and treating the aging eye in correlation with ocular biomechanics and pathophysiology of aging.

Method: Analysis of the pathophysiology of aging of the ocular organ both macroscopic and microscopic are presented. Measurement and outcome variables for patients treated with various methods for the correction of presbyopia in relationship to the biomechanical pathophysiology of the aging eye are reviewed including interventions such as LaserACE, CK, Accommodating IOL's, and presbyopic LASIK.

Results: The pathophysiology of the aging oculus has tremendous impact on ocular biomechanics and visual function and must be given comprehensive consideration when evaluating refractive treatment options for the presbyopic age range.

Conclusion: Evaluation and Treatment of the aging eye will

require a more integrated system approach in order to determine the appropriate refractive surgical intervention required to meet the visual function demand for the presbyopic patient. Restoration of the normal ocular biomechanics will be critical not only to visual function but also to the overall ongoing health of the ocular organ.

F1124

CORRELATION OF 2 INFRARED PUPILLMETERS AND CCD CAMERA IMAGING FROM ABBEROMETRY AND TOPOGRAPHY FOR DETERMINING SCOTOPIC PUPIL SIZE

MICHELLE BEE HUA TAN¹, JERRY TAN¹

Jerry Tan Eye Surgery, Singapore¹

Purpose: Correlation of 2 infrared pupillometers and CCD camera imaging from aberrometry and topography for determining scotopic pupil size. Setting: Jerry Tan Eye Surgery, Camden Medical Centre, Singapore.

Method: The pupil diameter was measured in 100 eyes of 50 patients after 2 minutes of dark adaptation using the following devices: digital infrared pupillometer (Procyon Instruments Ltd.), handheld infrared pupillometer (Colvard) [Oasis Medical], Zywave[®] aberrometer (Bausch and Lomb), and Orbscan[®] II topography system (Bausch and Lomb Surgical). Measurements taken with the Procyon pupillometer were considered reference values for comparison with the other devices. Statistical evaluation was performed for comparison of measurement techniques.

Results: The differences in measurement were smallest for measurements between Procyon and Colvard and largest for measurements between Procyon and Orbscan. The differences between all instruments were statistically significant when compared with the Procyon pupillometer.

Conclusion: The poorest correlation with Procyon measurements was found for measurements by the Orbscan II Topographer, which provided the smallest pupil sizes. Pupil measurements by the Orbscan II Topographer should never be used to extrapolate scotopic pupil size. This is especially important when deciding on optical zone size for corneal refractive surgery.

F1125

FIRST EXPERIENCE WITH CUSTOMVUE LASIK AND PRESBYOPIC LASIK

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Purpose: To present the features and benefits of the latest Fourier based wavefront customised lasik surgery using iris registration in

Singapore, 2 year experience. To showcase the treatment of Hyperopic presbyopia using Visx's latest presbyopic program.

Method: 1. Wavefront analysis Wavescans or wavefront maps are obtained with the Visx wavescanner which uses a new program called Fourier analysis. This advanced analysis replaces the older Zernike analysis. 2. VisxStar S4 Excimer Laser Data from the wavescans are used to direct the excimer laser, the Visx Star S4, to correct the lower and higher order refractive errors. Correct alignment and any cyclorotational errors are corrected by the latest iris registration technology. Higher order aberrations are routinely corrected in all patients whenever possible. This results in reduced night glare and haloes. 3. Presbyopic hyperopic lasik program was used to correct presbyopia in suitable cases.

Results: 1. Ease of use: All wavefronts were easily captured without pupil dilatation 2. Rapidity of treatment: Same day screening and treatment were possible and was the norm 3. Iris registration made alignment at surgery easy and accurate 4. Tissue saving compared to previous laser equipment.

Conclusion: 1. Fourier analysis enabled precise refractive error correction 2. Iris registration makes for greater accuracy and safety 3. Variable spot size treatment is faster and removes less tissue 4. Presbyopic hyperopic lasik surgery works Case studies will illustrate the effectiveness of the technology.

F1126

ADVANCED USE OF THE INTRALASE LASER TO TREAT DIFFICULT REFRACTIVE CORRECTIONS

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Purpose: Show advanced techniques using the new 30 kHz IntraLase laser.

Method: Video of surgery used to demonstrate one surgeons technique for performing the IntraLase laser. Multiple cases are shown that demonstrate the safety and consistence of this laser in complicated cases. Corneal Transplants, Radial Keratotomy and case of early ectasia will be shown and discussed. Decentered previous flaps as well as irregular astigmatisms from previous HSV infection will be shown corrected with IntraLase laser.

Results: Excellent treatment for normal and most difficult refractive cases with the 30 kHz IntraLase Laser.

Conclusion: With proper use IntraLase can used to correct previous refractive problems and corneal disease without problems.

FREE PAPERS

F1127

ENHANCEMENT OF VISUAL ACUITY AND CONTRAST SENSITIVITY IN EARLY PRESBYOPES THROUGH THE USE OF NEURAL VISION CORRECTION™ (NVC™) TECHNOLOGY

DONALD TAN¹, NIR ELLENBOGEN¹, JACOB SCHONDORF¹, CHRISTINA LAU¹
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Purpose: NeuroVision's NVC™ technology is a non-invasive, patient-specific, perceptual learning program based on visual stimulation and facilitation of neural connections at the cortical level, involving a computerized visual training regime using Gabor patches, to improve contrast sensitivity and visual acuity. We evaluated efficacy of treatment in enhancement of near unaided visual acuity and near unaided contrast sensitivity function in early presbyopes.

Method: 41 presbyopic patients aged 41-55 (mean 46.37 ± 0.52) with near addition ranged +1.00D to +2.00D (mean $+1.40D \pm 0.05D$) were divided into: Treatment group – 31 patients who underwent 30 NVC treatment sessions and 6 visual examinations every 5 sessions, and Control group - 12 patients who only underwent visual examinations every 2 weeks.

Results: Mean Near Unaided LogMAR VA improved from 0.33 to 0.17, gain of 1.6 lines. Mean Low Contrast (10%) Near Unaided LogMAR VA improved from 0.44 to 0.30, gain of 1.3 lines. Mean Near Unaided CSF at 1.5,3,6,12,18 cpd improved from 58.00, 68.38, 40.63, 10.04, 3.30. to 81.75, 112.20, 73.85, 21.66, 6.96, an improvement of 40.96%, 64.90%, 81.79%, 115.60% 111.05% in sensitivity at the respective frequencies. A subgroup of 19 patients with initial Near Unaided LogMAR VA of 0.2 LogMAR or worse has shown higher improvement. Near Unaided LogMAR VA improved from 0.43 to 0.24, gain of 1.9 lines. Mean Low Contrast (10%) Near Unaided LogMAR VA improved from 0.53 to 0.39, gain of 1.4 lines. The control group demonstrated insignificant improvement in all parameters.

Conclusion: Initial results suggest that NVC treatment improves Near UAVA and Near CSF in early presbyopes. A randomized controlled trial will be conducted.

F1128

SINGAPORE EXPERIENCE WITH MYOPIC AND HYPEROPIC PRESBYOPIC LASIK

LOW CZE HONG¹

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Purpose: To show case our experience with the Nidek system for presbyopic LASIK.

Method: 1. OPD scan Suitable patients with presbyopia i.e. older

over 40 year old cases were chosen for screening with the OPD scan and then for treatment. 2. Nidek excimer laser to correct refractive errors and PAC to correct presbyopia.

Results: 1. Hyperopic presbyopia cases were treated to achieve a pseudoaccommodative cornea; cases will be demonstrated the effectiveness and side effects of the therapy 2. Myopic presbyopic lasik cases were similiarly treated. Illustration of tyical and atypical cases will be presented.

Conclusion: The OPD scan was a robust and accurate equipment for capturing the refractive data and the workstation enable simulation of treatment to be made before actual therapy. The Nidek laser provided multiple permutations of treatment to be made and hence surgeon planning is possible for the advanced practitioner AsiaMedic's acquisition of two laser systems that can correct presbyopia is a world's first.

Free Paper 13 – Kerato & Intraocular Refractive Surgery

13 June 2006, Tuesday, 0830-1000 Hrs

Room 311, Level 3

F1129

TORIC POSTERIOR CHAMBER PHAKIC LENSES FOR THE CORRECTION OF COMPOUND MYOPIC ASTIGMATISM IN PATIENTS WITH STABLE KERATOCONUS

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Purpose: To assess the efficacy, predictability and safety of sulcus-fixated phakic lenses (ICL) for correction of compound myopic astigmatism associated with stable keratoconus.

Method: Nineteen eyes of 15 patients were enrolled in a prospective study. All eyes had stable keratoconus documented by videokeratography, clear central cornea, spherical equivalent refraction (SE) between -4.00 and -13.00 D, spectacle-corrected visual acuity of 20/40 or better, stable manifest refraction for at least 1 year, and endothelial cell count above 2200 cell/mm². All patients were rigid contact lens intolerant. Each eye received a myopic toric ICL through a temporal clear corneal incision.

Results: At baseline; mean SE refraction was -8.45 ± 2.89 D (range; -4.38 to -13.00 D), 47% eyes could see 20/20 or better with correction. At 6 months (follow-up rate, 84.2%), SE refraction was -0.32 ± 0.45 D (range; -1.25 to 0.13 D), uncorrected visual acuity was 20/40 or better in 88% and 20/20 or better in 56% eyes; 19% eyes gained 2 or more lines of spectacle-corrected visual acuity.

Conclusion: Toric ICL implantation is effective, predictable and relatively safe for the correction of compound myopic astigmatism associated with stable keratoconus. Longer follow-up is needed.

F1130
WAVEFRONT-DRIVEN BIOPTICS — THE FUTURE OF CUSTOMIZED CATARACT SURGERY

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Purpose: To describe a two-pronged method for performing state-of-the-art customized cataract surgery.

Method: Lenticular surgery with implantation of an aspheric or multifocal IOL followed by LASIK or Epi-LASIK. Laser ablation processes utilized a variable spot scanning platform with Fourier wavefront reconstruction and iris registration.

Results: Wavefront-driven bioptics provides cataract patients with correction of higher-order aberrations and the highest probability of achieving spectacle independence.

Conclusion: An aspheric or multifocal IOL combined with wavefront-driven ablation results in the best possible vision outcomes in cataract patients.

F1131
PIGGY BACK IOLS — OUR EXPERIENCE

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Purpose: To highlight the use of piggy back intraocular lenses in selected cases of High hyperopes with or without cataract. Post pseudophakic residual refractive errors.

Method: The authors demonstrate the use of 2 lens placements in an eye both as a primary and a secondary piggy back procedure performed in 9 patients (5 patients as secondary and 4 patients as a primary procedure) with the help of surgical videos demonstrating its usefulness in extreme hyperopia and distinct advantage over lens exchange in cases of residual post pseudophakic refractive errors. This paper describes practical tips and formulae used by the authors for the above procedure along with the management of various possible complications. Problems related to lens power calculations for such cases have also been discussed along with secondary multi-focal and toric piggyback lenses, are discussed.

Results: All the 9 patients showed gratifying results with visual acuity of 6/12 and above and achieved a refractive error of ± 0.10 dsp.

Conclusion: Piggy back intra-ocular lens are fast assuming importance as viable mode of refractive correction in 1. Extreme hypermetropes with or without cataract and 2. Secondary procedure to correct residual post pseudophakic error making it an ideal atraumatic procedure and giving more predictable refractive results.

F1132
COMPARISON OF ACCURACY OF PACHYMETRY AND KERATOMETRY WITH ORBSCAN IIZ AND PENTACAM FOLLOWING LASIK

DEEPAK KUMAR CHITKARA¹, **ANNE WALSH**¹

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Purpose: To compare Orbscan IIZ and Pentacam for accuracy and reproducibility for pachymetry and anterior and posterior K readings pre and postoperatively after LASIK surgery on Bausch and Lomb 217 Z100 laser.

Method: Prospective measurements of central and thinnest pachymetry and anterior and posterior keratometry with Orbscan IIZ and Pentacam on 20 consecutive myopic eyes undergoing LASIK surgery is made. Patients with a history of prior refractive surgery were excluded from the analysis. The Tomey AL 3000 pachymeter was used as a control for pachymetry measure. 5 measurements of each parameter is made to check reproducibility and for calculation of standard deviation.

Results: To date results are available on 10 eyes only. The central and thinnest pachymetry measures differed by a mean of 7 and 7.7 microns respectively between the Orbscan IIZ and Pentacam. Reproducibility was within 5 microns for each instrument and although the pentacam showed a greater standard deviation. The mean difference in anterior keratometry was 0.47 dioptre between the two instruments with the mean standard deviation of 1.1 dioptre for the Orbscan and 1.3 dioptres for the pentacam between each measurement.

Conclusion: Both the Orbscan IIZ and Pentacam can be used to accurately assess the cornea after LASIK surgery. The Orbscan shows a slightly greater reproducibility of keratometry measurements although this is not statistically significant.

F1133
EFFECTIVENESS OF SOLID STATE LASER (213 NM) IN CORRECTING MYOPIA AND MYOPIC ASTIGMATION

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Purpose: To investigate the clinical efficiency, predictability and safety of a 213 nm solid state laser for the treatment of myopia and myopic astigmatism in laser in situ Keratomileusis (LASIK) and photorefractive keratectomy (PRK).

Method: Clinical studies were performed at different international sites with a solid state, 213 nm wavelength, 300 Hz scanning spot, diode-pumped Nd:YAG ablative laser (CustomVis Pulzar laser system). 82 eyes underwent LASIK and 78 eyes underwent PRK. Preoperative mean spherical equivalent (SE) was -4.66 ± 4.13 D for LASIK and -3 ± 2.13 for PRK.

Results: All the patients were evaluated after 1 month follow-up. The postoperative mean spherical equivalent for LASIK was -0.83D. The Uncorrected Visual Acuity (UCVA) was 6/9 or better in 65% of the patients and 6/12 or better in 88% of patients. No patient had a loss of Best Corrected Visual Acuity (BCVA). The mean SE for PRK was -0.32 D postoperatively. The UCVA was 6/9 or better in 76 % of patients and 6/12 or better in 85 %. The BCVA was improved by 2 lines in 7 patients. 71% were within ± 0.5 D and 85 % were within ± 1 D.

Conclusion: The 213nm laser is an effective, predictable and safe for the treatment of myopia and myopic astigmatism.

F1134

PREDICTING THE VISUAL PERFORMANCE OF CONVENTIONAL, OPTIMIZED, AND WFG LASIK

STEVEN SCHALLHORN¹

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Purpose: To predict the visual performance of conventional, optimized and wavefront-guided LASIK.

Method: A dataset of 324 and 253 eyes of conventional and wavefront guided LASIK was used to develop a model to predict visual performance after conventional, optimized, and WFG LASIK. The induction or reduction of higher order aberrations (HOA) through the 6th Zernike order was related to the preop-HOA and the type of surgery. The model assumed that optimized LASIK induced no spherical aberration (SA) and that changes in other higher order aberrations were similar to conventional. Random wavefront maps were produced with each Zernike term following the same statistics of the dataset, both preoperatively and postoperatively. The preoperative aberration profiles of three groups of patients were analyzed: high HOA ($>2SD$), normal HOA, and normal HOA with negative SA. The predicted postoperative changes in HOA, strehl ratio, point spread function, and convolved 'E' were used to compare the different surgeries.

Results: In all cases analyzed, WFG LASIK was predicted to have superior visual performance than conventional or optimized surgery because there was either less induction or more reduction of HOA with WFG LASIK. Optimized LASIK had superior visual performance compared to conventional in all cases except when negative SA was present preoperatively.

Conclusion: Regardless of the level of preoperative HOA, the visual performance of WFG is predicted to be superior to both conventional and optimized.

F1135

COMPARISON OF VISUAL OUTCOMES WITH FEMTOSECOND AND MECHANICAL KERATOMES FOR WAVEFRONT-GUIDED LASIK

STEVEN SCHALLHORN¹

Naval Medical Center, San Diego, United States¹

Purpose: To analyze differences in clinical outcomes, induced aberrations, and quality of vision between the femtosecond and mechanical keratomes.

Method: Wavefront guided LASIK was performed with the VISX Star S4 Custom-Vue using one of three keratomes: Amadeus (100 eyes), Hansatome (99 eyes) and IntraLase (100 eyes). A second group of patients had one month delay between flap creation and excimer treatment: Amadeus (91 eyes), Hansatome (92 eyes) and IntraLase (96 eyes). Data was collected one day, one week, and one and three months postoperatively. In addition, the patients with delayed excimer ("Staged") had wavefront measurements obtained four weeks after the flap was created but before the excimer was performed. Psychometric questionnaires were administered preoperatively and three months postoperatively.

Results: Uncorrected visual acuity (UCVA) was improved following IntraLase LASIK compared to either mechanical keratome at one day, one week, and one month. Change in mesopic low contrast acuity also favored IntraLase at three months. Induction of higher-order aberrations was not significantly different for any keratome; however, there was an increase in spherical aberration following Amadeus treatments. There was no significant benefit derived from staging the procedure. Finally, there was no significant change in subjective visual complaints when comparing the traditional vs. the staged approach for any keratome used.

Conclusion: Data shows a faster visual recovery and improvement in mesopic low contrast vision following IntraLase LASIK compared to a mechanical keratome. Delaying excimer treatment after flap creation does not offer an advantage in clinical outcomes over the traditional, same day approach.

F1136

COMPARISON OF CENTRAL CORNEAL THICKNESS MEASUREMENTS BY ONLINE OPTICAL COHERENCE TOMOGRAPHY, ORBSCAN II AND ULTRASOUND PACHYMETRY

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Purpose: To compare the central corneal thickness measured by online optical coherence tomography with ultrasound and Orbscan

II pachymetry in normal cornea.

Method: This is a prospective, non-randomised study involving 145 consecutive eyes undergoing screening for LASIK. Central cornea thickness (CCT) measurements were made with Orbscan II pachymetry (Orbscan, Bausch and Lomb) and 20 MHz ultrasound pachymetry (Nidek NC-1800) as part of the work up before LASIK surgery. The CCT was measured again with online optical coherence pachymetry (Online OCP, 4Optics AG) intraoperatively before flap creation. Correction factors were calculated to approximate the mean of OCP with the mean of Orbscan II and ultrasound scan measurements.

Results: OCP measurements are consistently lower than either Orbscan II (Correction factor 0.92) or ultrasound. The OCP readings correlate well with those of Orbscan II ($r = 0.87$) and ultrasound ($r=0.90$) [$p<0.001$] Correction factor calculated for OCP vs ultrasound was 1.079 while OCP vs Orbscan II was 1.064.

Conclusion: Online OCP measurements correlate well with preoperative measurements made using Orbscan II and ultrasound pachymetry. However, correction factors are probably needed to approximate the results.

Free Paper 14 – Uveitis & Computer Info and Technology

13 June 2006, Tuesday, 0830-1000 Hrs

Room 312, Level 3

F1137

PREVALENCE OF AGE-RELATED MACULOPATHY AND ASSOCIATED RISK FACTORS IN MATSU, TAIWAN

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Purpose: To determine the prevalence and associated risk factors of age-related maculopathy (ARM) in Matsuo, Taiwan.

Method: Seven hundred and five participants (352 males and 353 females, 55% response rate of 1280 eligible persons) aged 50 years or older were examined by digital fundus images. Grading was performed according to the definitions of the International Classification and Grading System for ARM. Early ARM was defined as the presence of soft indistinct drusen only or either hard or soft drusen and retinal pigment epithelial depigmentation. Late ARM was defined as the presence of either geographic atrophy or signs of exudative macular degeneration.

Results: The prevalence of overall ARM in residents aged 50 years or older was 10.2% (early ARM 9.5%, and late ARM 0.7%). Prevalence of ARM in males was significantly higher than that in females (12.7 vs. 7.7%, $p<0.05$). After adjusting by age, gender

(female OR 0.532, 95% CI 0.320-0.886), smoking (OR 1.862, 95% CI 1.091-3.174) and pterygium (OR 2.004, 95% CI 1.049-3.831) were significantly associated with ARM. In the multivariate analysis, age (coefficient 1.046, $p<0.001$) and pterygium (coefficient 2.028, $p=0.034$) were significantly associated with ARM.

Conclusion: ARM is not uncommon among Chinese residents aged 50 years or older in Matsuo, Taiwan. Older age and pterygium (sunlight exposure) were independent risk factors of ARM in our study.

F1138

PROSPECTIVE OPTICAL COHERENCE TOMOGRAPHIC EVALUATION OF THE EFFICACY OF ORAL AND POSTERIOR SUBTENON CORTICOSTEROIDS IN PATIENTS WITH UVEITIC MACULAR EDEMA

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Purpose: To evaluate the response of Cystoid Macular Edema (CME) in non-infectious intermediate uveitis following oral and posterior subtenon corticosteroid therapy using Optical Coherence Tomography (OCT).

Method: 32 eyes of 22 patients with non-infectious intermediate uveitis received oral prednisolone (in bilateral CME, 11 patients) or posterior sub-tenon triamcinolone acetonide 20 mg/mL (in unilateral CME, 11 patients). Patients were followed up for 3 months. Macular thickness was measured before treatment and at each follow-up visit using OCT. Reduction of macular thickness and improvement in visual acuity were statistically compared between the two groups.

Results: In patients receiving oral prednisolone, significant decrease in macular edema occurred at day 3 by 63% and at day 14 by another 28.5%. Whereas in patients receiving PST injection it took 2 weeks for 55% reduction in macular thickness and 6 weeks for another 45% reduction. Significant improvement in mean ETDRS VA occurred by 2 weeks in both groups ($p<0.05$). A significant correlation was observed between VA and macular thickness.

Conclusion: OCT demonstrated an earlier (3 days) resolution of CME with oral prednisolone. A delayed (2 weeks) and sustained response was observed with PST injection of triamcinolone acetonide. VA negatively correlated with CME. No significant rise of IOP persisted by the end of 3 months. Our study suggests that combination therapy of PST and oral corticosteroids (<7 days) can hasten recovery and avoid complications of systemic steroids in patients with unilateral pars planitis and CME.

F1139

OPHTHALMIC MANIFESTATIONS OF HIV INFECTIONS IN INDIA — A SERIES OF 100 PATIENTS EVALUATED AT A REFERRAL CENTRE IN INDIA

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Purpose: To describe ophthalmic manifestations in 100 patients with HIV infection examined at a multi speciality referral centre in North India.

Method: A complete ophthalmological examination was performed on each patient between October 2004 to December 2005. Relevant investigations were carried out in selected patients.

Results: More than 50% of the patients is within 30 to less than 40 years. 45% patients had ophthalmic manifestations most common being cytomegalo virus retinitis (20%). HIV microangiopathy was seen in 11% of patients. Amongst them 6% cotton wool exudate, 3% pre and sub retinal hemorrhage, 1% with both cotton wool and hemorrhage, 1% Central Retinal Vein Occlusion. Others lesions included immune recovery vitritis (5%), acute retinal necrosis (3%), Retinal detachment (14%), Tubercular Choroiditis (2%), Neuro-ophthalmic manifestations (12%), complicated cataract (6%), kerato uveitis (1%), corneal ulcer (1%). 7% patients present to us with ophthalmic manifestation as only presenting sign of HIV infection.

Conclusion: CMV Retinitis and its complications are the most common Ophthalmological manifestation of HIV in India. Visual morbidity is mostly due to CMV Retinitis and its complications (Retinal detachment, immune recovery vitritis). Significant number of HIV infected patient may initially present with only ophthalmic manifestation.

F1140

VOGT-KOYANAGI-HARADA DISEASE IN MALAYSIAN POPULATION

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Purpose: To describe demographic characteristic, systemic and ocular findings of Vogt-Koyanagi-Harada (VKH) disease in Malaysian people, and result of treatment, final visual acuity and recurrence.

Method: All patients diagnosed with VKH disease at Hospital Universiti Kebangsaan Malaysia Eye Center from 1996 to 2005 were reviewed. Data collected including age, gender, races, systemic

and ocular findings, initial and final visual acuities, duration of disease, treatment, complications and number of recurrences.

Results: A total of 30 patients with VKH disease were identified and 20 (66.7%) patients were female and mean age of first presentation was 39.73 ± 11.47 years (range 21 to 68 years). Nineteen patients (63.3%) were Malay, 9 (30.0%) Chinese, and 2 (6.7%) Indian. Five patients (16.7%) were diagnosed having complete criteria, 17 patients (56.7%) were incomplete and 8 patients (26.7%) were probable. Fifteen patients (53.6%) had neurologic/auditory problems and 8 patients (28.6) had integumentary problems. Fifty-four eyes (93.1%) developed sunset glow. Ten patients (33.3%) who came on acute phase and 16 patients (53.3%) on late phase were treated with high dose corticosteroid. Fifteen patients were given with immunosuppressive agents. Final visual acuity from 52 eyes showed much improvement, which 43 eyes (82.7%) achieved 6/12 or better. Recurrence was observed in 10 patients (33.3), which recurrence rate in Malay was 1.13 times, Chinese 0.22 times and Indian 2.00 times.

Conclusion: IV methylprednisolone, high dose oral corticosteroid and immunosuppressive agents are very useful to reduce vision loss in the management of VKH disease.

F1141

FOVEOLITIS ASSOCIATED WITH DENGUE FEVER

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Purpose: To report foveolitis as a new manifestation of dengue fever.

Method: Clinical records of patients with dengue fever and ocular manifestations were reviewed. Only patients found to have a foveal orange or yellow spot or foveal edema, supported by a typical optical coherence tomography finding of swelling in the outer neurosensory retina and retinal pigment epithelium were included. The clinical findings, optical coherence tomography, fundus fluorescein, indocyanine green angiography, automated perimetry and electroretinography findings and clinical progress are reported.

Results: 11 eyes of 7 patients were included in the study. 9 eyes presented with acute visual loss 5 to 7 days after classic dengue fever. Two eyes of 1 patient were asymptomatic and picked up during screening of patients with dengue fever. The best corrected visual acuity ranged from 20/25 to counting fingers. 4 eyes had best corrected visual acuity of counting fingers. Fundus examination revealed a discrete orange or yellow spot or foveal swelling at the fovea. Branch retinal venular and arteriolar occlusion were also present in 2 cases. Optical coherence tomography showed a corresponding outer neurosensory retinal and retinal pigment epithelial thickening at the fovea. Multifocal electroretinography showed

decreased foveal and parafoveal responses. Treatment depended on visual acuity and ranged from observation, immunosuppressives including systemic steroids, immunoglobulins. Visual acuity improved in all treated patients and Optical coherence tomography showed resolution.

Conclusion: Foveolitis may be associated with dengue fever. Optical coherence tomography can be used to diagnose and monitor progression of foveolitis associated with dengue fever.

F1142
PULSE INTRAVENOUS METHYLPREDNISOLONE IN TREATMENT OF ACUTE VOGT-KOYANAGI-HARADA DISEASE

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Purpose: To evaluate the use of pulse intravenous methylprednisolone in treatment acute phase of Vogt-Koyanagi-Harada (VKH) disease.

Method: Retrospective non randomized study of acute phase VKH patients at Hospital Universiti Kebangsaan Malaysia Eye Center from 1996 to 2005. Data collected including age, gender, systemic and ocular findings, initial and final visual acuity.

Results: A total of 11 patients with acute phase VKH disease were identified and 7 patients (63.6%) were female and mean age of first presentation 40.27 ± 12.35 years (range 21 to 68 years). Mean of onset was 16.54 ± 10.60 days (range 2 to 30 days). Ten patients (90.9%) showed anterior inflammation, all patients came with exudative retinal detachment and nineteen eyes (71.4%) had optic disc swelling (n=21). On the first visit, seven patients (63.6%) were treated with pulse intravenous (IV) methylprednisolone, three patients (27.3%) with oral prednisolone and one patient (9.1%) with topical bethametasone only. Immunosuppressive agents were given in patients with visual acuity counting fingers or less. Seventeen eyes achieved visual acuity 6/6, two eyes 6/9 and two eyes 6/12.

Conclusion: Pulse IV methylprednisolone and high dose steroid per oral can give good result in treatment acute phase of Vogt-Koyanagi-Harada (VKH) disease.

F1143
MANIFESTATIONS, DIAGNOSIS AND MANAGEMENT OF MYCOBACTERIUM-RELATED OPHTHALMIC COMPLICATIONS

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Purpose: To report the protean presentations, diagnostic methods and treatment of mycobacterium-related ophthalmic complications.

Method: Case series.

Results: We present a series of 12 patients presenting to the Uveitis Service at the Tan Tock Seng Hospital over 12 months. Cases range from recurrent scleritis (1), anterior uveitis (4), intermediate uveitis (2) and panuveitis (5). Diagnosis can be definitive based on PCR and positive systemic mycobacterium infection, or presumptive based on positive Mantoux and response to specific anti-TB medication. Outcome was generally good for anterior segment inflammation but posterior segment inflammation can be difficult to treat.

Conclusion: Mycobacterium-associated infections of the eye can present in a myriad of presentations. Diagnosis can be difficult and there must be a high index of suspicion. Management involves systemic evaluation and treatment by an internist. The choice of local therapy depends on the severity and presentation.

F1144
CLINICAL MANIFESTATIONS AND 1-YEAR OUTCOMES OF DENGUE RETINOPATHY IN TAN TOCK SENG HOSPITAL AND COMMUNICABLE DISEASE CENTRE, SINGAPORE

STEPHEN CHARN BENG TEOH¹, DAVID CHAN¹, AUGUSTINUS LAUDE¹, CAROLINE CHEE², BRENDA SZE PENG ANG³, TIMOTHY BARKHAM⁴, GOH KONG YONG¹

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Purpose: To report the clinical presentations and long-term outcome of dengue-related retinochoroidopathy.

Method: Case series.

Results: We present a series of 50 consecutive patients presenting to the Tan Tock Seng Hospital between 2004-2005. The clinical course, spectrum of clinical manifestations and investigations are discussed. We present the correlated long-term clinical outcomes of these patients after 12 months follow-up.

Conclusion: Dengue-associated retinochoroidopathy, an emerging ophthalmic condition seen in Singapore, is the most common manifestation of dengue fever. Physicians should be aware of the clinical course of this new disease. Prognosis is variable and patients may retain persistent scotomata despite long-term resolution of the disease. Management is still controversial.

F1145

INNOVATIONS IN TELEMEDICINE BASED EYECARE

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Purpose: Non availability of eyecare specialist makes the rural regions vulnerable for blindness. This study aims to research, develop, implement and evaluate key components and strategies essential for effective and lasting eye care interventions in rural and remote regions. Lions Eye Institute (LEI) developed innovative, portable eye testing devices to reach remote regions which may not even have electricity and telecommunication facilities. The technology and methodology developed are affordable, transferable, and adaptable to the needs and realities of the developing world. The issues relating to this innovative mode of eyecare intervention are analysed.

Method: Trained health worker at Carnarvon Regional Hospital (CRH) used innovative testing devices and transmitted patient data to specialists at 940 kms away in Perth City. Diagnostic and management decisions were provided to all patients within 24 hours. Questionnaire and interview approach assessed the satisfaction of the patients and ophthalmologists. Economic data was gathered from the Department of Health, the CRH and the LEI.

Results: Teleophthalmology proved to have impact on all the patients. Following teleconsultation, only 3 % of patients were referred to city hospital. 36 % of patients required regular follow-up and 3 % of patients received treatment at CRH itself. The free exchange of service and ideas between city based specialist and rural healthcare workers is viewed as a catalyst for a positive change in rural eye care culture. Analysis further identified challenges faced between city-rural eye health service collaborations.

Conclusion: This study provided access to specialist consultation and complex eye examinations to the remote regions. Study highlighted the importance of redefining utilisation criteria in order to achieve efficiency. This collaborative rural health programs are being devolved to Aboriginal patients so eye care can be controlled and delivered at the community level.

Free Paper 15 – Cataract Surgery

13 June 2006, Tuesday, 1400-1600 Hrs

Room 311, Level 3

F1146

IMPROVING VISUAL QUALITY WITH AN ARTIFICIAL IRIS SEGMENT AND PUPILLOPLASTY

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Purpose: To improve a debilitating degree of visual blurring and glare by repairing a large traumatic iris defect with an artificial iris segment combined with phacoemulsification, intraocular lens implant and pupilloplasty.

Method: Through a temporal corneal approach, iris adhesions on the anterior lenticular capsule were gently dissected with a dispersive viscoelastic. Capsulorrhexis was performed in a deep anterior chamber, with minor rotation of the globe to allow good visualisation despite a centrally placed corneal scar. A controlled hydrodissection was performed and phacoemulsification proceeded with reduced phaco fluidics parameters. An artificial iris segment was implanted and dialled towards the area of maximal zonular weakness to minimize zonular stress. A single piece acrylic intraocular lens was injected into the capsular bag where it unfolded slowly with no added stress to the zonules. The remaining iris defect was closed by passing two double armed 10/0 prolene sutures on straight needles through the peripheral iris roots to the limbus; one suture on either side of the artificial iris segment.

Results: Preoperatively, vision was down to hand movements with excessive glare symptoms. A corneal scar extended from the sclero-corneal limbus at 10 o'clock to the central visual axis overlying the distorted pupil. There was extensive posterior synechiae and complete loss of peripheral iris tissue from 630 to 1030 clock hours. Zonules were absent from 9 to 1030 clock hours. Posterior subcapsular opacifications were present. Postoperatively, unaided Snellen visual acuity was 20/80 with no glare symptoms. Despite the central corneal scar with induced astigmatism, the patient was fully satisfied with the improved visual quality and was able to function normally in his activities of daily living.

Conclusion: Glare symptoms from a large iris defect can be debilitating. Techniques outlined above can be utilised to repair iris defects to improve visual quality significantly.

F1147
SOFT-SHELL TECHNIQUE DURING
PHACOEMULSIFICATION WITH COMPROMISED CORNEA

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Purpose: To analyze the advantage of soft-shell technique to protect the corneal endothelium during endocapsular phacoemulsification and foldable intraocular lens implantation in a group of 16 eyes of 12 cases with compromised cornea.

Method: 16 eyes of 12 cataract patients aged from 50 to 83 years with compromised cornea were enrolled in this study, mean corneal endothelium cell density was 750/mm², from 620 to 800/mm², undergoing endocapsular phacoemulsification with foldable intraocular lens implantation. 6 eyes of 3 cases suffered from Fuch's corneal dystrophy, 6 eyes of 5 cases after trabeculectomy, 4 eyes of 4 cases after corneal keratoplasty. Nuclear hardness was grade III to IV. All surgery were performed by the same surgeon using phaco-chop technique. The endothelial cell density was measured pre-operation and one month post-operation.

Results: On the first day post-op, slight corneal edema was observed in 2 eyes of 1 patient aged 83ys with Fuch's corneal dystrophy. 1 week later, it became clear. All other patients had clear corneas. On 1 month post-op, the mean corneal endothelium cell density was 703/mm², from 610 to 730/mm².

Conclusion: Using soft-shell technique during phacoemulsification can effectively protect the compromised corneal endothelium. Soft-shell technique is strongly suggested in cataract patients with compromised cornea.

F1148
PLATFORM AND RATIONALE FOR THE USE OF THE
INTRAOCULAR LENS TO IMPROVE PATIENT RESULTS
FOLLOWING CATARACT SURGERY

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Purpose: Evaluate the clinical results of the aspheric IOL. Aspheric lenses have been introduced to reduce spherical aberrations by correcting the posterior spherical aberration of the cornea and improve image quality.

Method: Patients that have received an aspheric IOL were evaluated for visual acuity, contrast sensitivity and overall patient satisfaction and compared to cohort patients with standardized lens.

Results: Mid and long term results of patients who received the higher order of monofocal implant will be reviewed. Emphasis is on surgeon factor, visual acuity and contrast sensitivity.

Conclusion: Platforms can deliver 20/20 vision. Contrast sensitivity is better with the aspheric IOL.

F1149
EFFICACY OF HYPERTONIC SALINE IN BACTERIAL
ULCERS

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Purpose: To analyze the efficacy of hypertonic saline as an effective adjuvant in treating bacterial corneal ulcers.

Method: Cases attending our cornea clinic were selected at random. One group was treated with appropriate antibiotics depending on whether it is gram positive or negative. The other group was given 5% hypertonic saline eye drops along with the antibiotics.

Results: We found that the ulcers started healing faster when the patients used hypertonic saline. While study group started healing within a week the control group started healing only after 10 days. Complete healing was also noted earlier in the study group i.e. healing was complete in 3 weeks time. Hypertonic saline was used in cultures also. It was found that even pseudomonas did not grow in that culture. Fungus grew well even in that culture. 17 patients were in the study group of whom one case absconded. All these cases healed well within 4 weeks. In the control group 5 cases healed in 4 weeks time, 10 cases took longer and 2 went in for therapeutic keratoplasty.

Conclusion: Hypertonic saline is an effective adjuvant in treating bacterial corneal ulcers. It shortened the healing time and thereby shortened the period of hospitalization. This is a boon to the patients in developing countries.

F1150
COMPARATIVE EVALUATION OF PAIRED OPPOSITE
CLEAR CORNEAL INCISIONS AND SINGLE CLEAR
CORNEAL INCISION IN CORRECTION OF PRE-EXISTING
CORNEAL ASTIGMATISM IN PHACOEMULSIFICATION
SURGERY

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Purpose: To compare the astigmatic correcting effect of paired opposite clear corneal incisions on the steep axis with that of single clear corneal incisions in cataract patients undergoing phacoemulsification.

Method: Randomized prospective clinical study of 40 eyes of 40 patients with topographic astigmatism of more than 1.5 D. Paired OCCI of 3.2 mm in the steep axis was made in group 1 and single CCI in group 2. Preoperative evaluation included uncorrected visual acuity, refraction, applanation tonometry, dilated funduscopy, biomicroscopic examination, keratometry and topography. The steep axis was marked before subtenon's anesthesia and all patients underwent a routine phacoemulsification through a 3.2 mm clear corneal incision on the steep axis. An additional opposite 3-step self sealing clear corneal incision was made in group 1. All patients were followed up at 1, 4 and 12th postoperative week. Visual acuity, refraction, keratometry and topography were performed in all patients.

Results: Mean preoperative and postoperative topographic corneal astigmatism were 2.51 ± 2.45 0.92D and 0.91 ± 2.45 0.54D in group 1. Mean preoperative and postoperative topographic corneal astigmatism were 2.16 ± 2.45 0.80D and 1.57 ± 2.45 0.7D in group 2. Mean astigmatic correction was 1.66 ± 2.45 0.5D and 0.85 ± 2.45 0.75D in group 1 and group 2 respectively. Mean surgical induced astigmatism by Holladay Cravy Koch's vector corrected method was 1.66 ± 2.45 0.5D and 0.85 ± 2.45 0.75D ($p=0.00$) in group 1 and group 2 respectively. Coupling ratio was -0.96 in group 1 and -0.87 in group 2. Spherical equivalent was $+0.23 \pm 2.45$ 0.41D in group 1 and $+0.11 \pm 2.45$ 0.17D in group 2 at 12th postoperative week. Uncorrected visual acuity was better in group 1 as compared to group 2 ($p=0.032$). There was no difference in best corrected visual acuity between the two groups. There were no incision related complications.

Conclusion: Paired OCCIs are predictable and effective method providing an enhanced effect in correcting PEA in cataract surgery.

F1151

USE OF MORCHER PUPIL DILATOR IN PHACOEMULSIFICATION CATARACT SURGERY WITH SMALL PUPIL

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Purpose: To show the efficacy and safety of the Morcher Pupil Dilator in phacoemulsification cataract surgery with small pupil.

Method: A prospective study of 25 patients with maximum pharmacologic pupil dilation of not more than 4 mm were enrolled in the study. Phacoemulsification with foldable intraocular lens implantation cataract surgery was performed under topical anesthesia with sedation by a single surgeon. Pupil dilation was achieved by inserting a Morcher pupil dilator. Pre-op and post-op undilated and dilated pupil size were measured with the use of the vertical slit beam on a Haag-Streit slit lamp.

Results: Patients with advanced age, glaucoma, diabetes, uveitis, trauma, pseudoexfoliation syndrome were included in the study. Pre-op pupil size: dilated - mean(m) 3.54 mm, standard deviation (SD) 0.36 mm, range (R) 2.5 to 4 mm; undilated - m 2.33 mm, SD 0.26 mm, R 2.0 to 2.8 mm. Post-op pupil size: dilated - m 3.59 mm, SD 0.34 mm, R 2.6 to 4 mm; undilated - m 2.43 mm, SD 0.28 mm, R 2 to 3.1 mm. There was no significant difference in the pupil size pre-op and post-op both dilated and undilated pupil ($P<0.001$). Minimal complications include iris bleeding, sphincter rupture, and mild corneal edema.

Conclusion: The Morcher Pupil Dilator does not damage the pupil sphincter muscle, thereby maintaining the integrity of the iris tissue and pupil size. It is simple and easy to use making it a useful device in phacoemulsification cataract surgery with small pupil.

F1152

INCREASED CONTRAST SENSITIVITY WITH ACRYSOF ASPHERIC IOLS

CHARITH N FONSEKA¹

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Purpose: To evaluate the performance of Acrysof Aspheric Natural (SN60WF) compared to the Acrysof Natural SN60AT IOL.

Method: 80 eyes of 80 patients scheduled for cataract surgery were randomly assigned to two groups (A and B) of 40. After standard phacoemulsification, eyes in A received SN60WF and the B, SN60AT. Exclusion criteria were concomitant ocular pathology, Diabetes or any other medical condition which interfered with evaluation. Perioperative complications in relation to wound or capsule were also exclusion criteria. Postoperative visits were at 1 day 1 week 1 and 3 months. Distance visual acuity uncorrected and corrected were assessed with ETDRS charts. Contrast sensitivity at 3 6 12 18 cpd under photopic and mesopic conditions were assessed at each visit with charts (Vector Vision USA).

Results: Both groups were similar, with a mean age of 61 and 63 and no significant difference in gender or side. Distance visual acuities were also similar with no statistical significance in the deviation at each post operative visit. Contrast sensitivity did not show a significant difference on day 1 post op. Contrast sensitivity under photopic conditions was better in group A patients with a statistical significance seen at 1 month and 3 month visits. Mesopic contrast was better in Group A at 1 week 1 and 3 months (with statistical significance).

Conclusion: The Acrysof Aspheric SN60WF IOLs increase contrast sensitivity under both photopic and mesopic conditions compared to the Acrysof SN60AT.

F1153
MULTICENTER RANDOMIZED STUDY OF PCO –
AKREOS ADAPT IOL VERSUS ACRYSOF SA60AT IOL

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Purpose: To establish whether different lens designs and materials can affect the overall PCO rate of two acrylic intraocular lenses.

Method: This is a prospective multi-centre study with over 150 patients requiring bilateral cataract surgery (300 eyes). Patients were randomly assigned test (Bausch and Lomb Akreos Adapt) and control (Alcon Acrysof SA60 AT) lenses to provide within-patient comparison. Ease of implantation, incidence of peri-operative and postoperative complications, lens centration, visual acuity and posterior capsule opacification (PCO), measured by EPCO analysis were assessed. Patient satisfaction was evaluated using a patient questionnaire to determine the incidence of dysphotopsia and light-related eye problems.

Results: Results after twelve months on the primary endpoint of PCO, as assessed by EPCO are available. Assessment of PCO gave EPCO scores of 0.1400 (± 0.2838) for the Akreos Adapt eyes and 0.0454 (± 0.1059) for eyes fitted with the Acrysof SA60AT lens. YAG capsulotomy was reported in one case with each lens type. 80% of eyes achieved 20/40 or better with both lenses. 52% of Akreos Adapt lenses were deemed very well centered, compared with 42% of Acrysof lenses.

Conclusion: EPCO analysis at twelve months suggests that both lenses show equivalent performance despite the different nature of their acrylic materials. This may be due to the mechanical barrier effect of their square-edge designs.

F1154
PHACOEMULSIFICATION IN POSTERIOR POLAR
CATARACT

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Purpose: To demonstrate a new technique and to evaluate the results of phacomulsification with that technique in posterior polar cataract.

Method: 26 eyes of 26 patients with posterior polar cataract (PPC) were operated upon by a single surgeon. The technique included a superiorly eccentric capsulorhexis (4.5 to 5.5 mm in diameter), hydrofree dissection with a cyclodialysis spatula, no hydrosteps, progressive debulking of the accessible inferior half of the nucleus and no rotation of the nucleus. The inferior segment of the nucleus was debulked using phaco-chopping or slow motion sculpting and

aspiration depending upon the grade of nuclear sclerosis. The residual superior half of the nucleus was gently viscodisplaced through the superiorly eccentric rhexis, elevated with a spatula and emulsified at the rhexis plane. Low flow and low vacuum parameters were employed to have a stable anterior chamber.

Results: Posterior capsular rent occurred in 5 (19.2%) patients, 3 of which required anterior vitrectomy and posterior chamber intraocular lens (PCIOL) placement in the sulcus. The 2 patients without vitreous disturbance had PCIOL placed in the bag. There were no other complications. Best corrected visual acuity of 6/9 was achieved in all patients.

Conclusion: The results of this study show that phacoemulsification is the way to go in posterior polar cataracts provided a proper technique is adopted.

F1155
MANAGING ROCK HARD CATARACTS WITH PHACO –
TAMING THE UNTAMMABLE

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Purpose: this vpresentation would demonstrate mangement of hard brown cataracts with modified techniques and machines, Hard brown cataracts have been a night mare for a phacosurgeon and often been a surgeons Waterloo.

Method: The authors describe the various methods of tackling different types of Hard black brown cataracts, Machine settings using a millinium, CCS for these kinds and variations in capsulorhexis, hydroprocedures, phacoaspiration / emulsification using Flip Chip, manual nuclear separation, etc. This presentation lays stress on practical manoeuvres and tips for the management of various types of Hard cataracts, The whole presentation is accompanied with demonstration of step by step surgical videos, and also along with advantages of using CCS System of Millenium machine to aid handling of such cases even performing bimanual phaco/ sleeveless phaco in such cases, Also the concept of and Waveform Phaco is described to advantage of Operating surgeon, using this software increases the safety and control.

Results: Gone are the days when we would refuse harder cataracts for phacoemulsification surgery, now with little improvisation of machines technologies and techniques such cases are operable.

Conclusion: This presentaion will help all levels of phaco surgeons with some very practical tips for the surgery to handle such cases for all.

F1156

HIGH VOLUME CATARACT SURGERY — TEMPORAL SECTION SICS UNDER TOPICAL ANAESTHESIA

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Purpose: To evaluate the results of high volume temporal section manual SICS under topical anaesthesia.

Method: 1800 patients selected from screening camps in sub-urban and rural areas of northern India were enrolled for the study over a period of one year. The patients underwent surgery at the base hospital. Small incision (non-phaco) cataract extraction was done through a temporal limbal tunnel, under topical anaesthesia (proparacain eye drops). No postoperative eye patch was given and the patients were discharged same day. Post op uncorrected visual acuity was recorded after 1 hour, 1 day, and one month. Visual acuity, keratometry, and postop astigmatism were assessed for all patients.

Results: 1800 patients in the agegroup 20 to 88 (Mean 54.1, with median preoperative visual acuity of 3/60 underwent uneventful surgery. No significant complications due to the procedure or type of anaesthesia were encountered. 72% patients had visual acuity of better than 6/18 1 hour postop. 88% were better than 6/12 at last follow-up. Refractive spherical equivalent error at last follow-up was 0.64D and mean keratometric cylinder of 0.98D. Average per unit expenditure on consumables was 112 INR.

Conclusion: Temporal Section Small Incision Cataract Surgery under topical anaesthesia is a cost effective surgical technique for high volume day care cataract management, particularly in areas with resource limitation.

Free Paper 16 — Cornea & Ocular Surface

13 June 2006, Tuesday, 1400-1545 Hrs

Room 312, Level 3

F1157

SURGICAL EXCISION OF PRIMARY PTERYGIUM COMBINED WITH SUBCONJUNCTIVAL IMPLANTATION OF OCULUSGEN COLLAGEN MATRIX

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Purpose: To evaluate the effectiveness and safety of the OculusGen Collagen Matrix (ProTop and MediKing Co., Ltd., Taiwan) implanted in subconjunctival space during surgical excision of primary pterygium.

Method: In this non-randomized comparative trial, 15 cases of patient with primary pterygium, 7 males and 8 females at the range of age from 36 to 65, diagnosed at the Clinic of Ophthalmology, Zhongshan Hospital of Fudan University. After allergy test of OculusGen before the surgery, the patients were scheduled for surgical excision of primary pterygium by bare scleral closure procedure combined with OculusGen Collagen Matrix implantation in subconjunctival space before suturing the conjunctiva. There were 31 cases of primary pterygium patients retrospectively, 17 males and 14 females, performed surgical excision of primary pterygium with simply bare scleral closure procedure by the same surgeons as the control group. All patients were regularly followed up until 90 days postoperatively for the exam of best corrective vision, adverse events and the status of recurrence of pterygium. The parameters of recurrence include: complete success (the distance of tip from limbus and the length of limbus involved was 1/2 less than preoperative without any chemical therapy), overall success (between 1/2 to 1), failure (more than 1). The adverse events include: scleritis and keratitis.

Results: None of the recurrence of pterygium regrowth case in the study group compared with 40% in the control group (difference statistically significant; $p < 0.01$). The mean best corrected visual of in study group was 20/25 and of control group was 20/30 (difference statistically not significant). Complications, such as keratitis occurred in control group more than in study group. None of patients was occurred with scleritis in both groups.

Conclusion: OculusGen Collagen Matrix is a biodegradable 3-dimension porous collagen-glycosaminoglycan scaffold, which is designed to prevent scar formation and recurrence. Implantation of OculusGen Collagen matrix drastically reduced contraction and promoted the formation of a nearly normal subconjunctival stroma. The OculusGen implanted in primary pterygium surgery results in a significantly lower recurrence rate.

F1158

COMPARISON OF DEHYDRATED HUMAN AMNIOTIC MEMBRANE ALLOGRAFT (AMBIODRYTM) AND CONJUNCTIVAL AUTOGRAFT AFTER PTERYGIUM EXCISION USING FIBRIN GLUE (BERIPLAST P)

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Purpose: To determine if the use of dehydrated human amniotic membrane allograft attached with fibrin glue following pterygium excision will be comparable to conjunctival autograft in terms of surgery time, efficacy, early recurrence, postoperative discomfort and comesis.

Method: This is a prospective, randomized, interventional, controlled trial involving forty-two patients undergoing excision of

primary pterygium at the Philippine General Hospital. After excision of pterygium, a superior bulbar conjunctival autograft was harvested and transferred onto bare sclera in 22 eyes and dehydrated human amniotic membrane allograft (AmbioDry TM) was transferred onto bare sclera in 22 eyes. Fibrin glue (Beriplast P) was used to attach the grafts in both groups. The patients were followed up for at least 3 months.

Results: All grafts in both groups were successfully attached. One patient from the conjunctival autograft group experienced graft dehiscence. Mean surgery time was not significantly different between the two groups ($p=0.16$). No recurrence was noted within the observation period. Postoperative pain, foreign body sensation and discomfort were not statistically different across both groups ($p=0.07$, $p=0.82$ and $p=0.31$, respectively). Mean tearing severity scores of patients receiving AmbioDry TM were statistically lower than those receiving conjunctival autograft when compared from day 1 postoperatively ($p=0.024$). Cosmetic grading results for the conjunctival autograft group were statistically higher than in the AmbioDry TM group ($p=0.003$).

Conclusion: Dehydrated human amniotic membrane allograft attached with fibrin glue and anchored with nylon sutures is a safe and effective adjunct after excision of primary pterygium. It is comparable to conjunctival autograft in preventing early recurrence and can be considered as a primary grafting method after primary pterygium excision. Conjunctival autograft has better cosmetic results than amniotic membrane allograft.

F1159 CONJUNCTIVAL LIMBAL STEM CELL GRAFTING FOR RECURRENT PTERYGIUM — AN ANALYSIS IN 65 CASES

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Purpose: To study the efficacy of auto conjunctival limbal stem cell grafting in patients with recurrent pterygium.

Method: 65 cases with recurrent pterygium were included in the study between Jan 2003 to Dec 2005. Pterygium was excised in the usual way and blunt and sharp dissection was performed to remove all fibrous adhesions to sclera and cornea. Superior or superotemporal bulbar conjunctival graft was dissected and a block of limbal tissue was included in the graft, where conjunctival graft acts as a carrier tissue for the limbal stem cells. The graft is placed on the bare scleral bed and sutured to the adjacent conjunctiva.

Results: The follow-up period ranged from 3 months to 36 months. Recurrence was noticed in 1 patient (1.5%), 4 months after the procedure. Pseudopterygium was noticed in 1 patient (1.5 %). Granuloma was seen in 2 patients (3.1 %). None of the patient showed any sight threatening complication.

Conclusion: Conjunctival limbal stem cell grafting for recurrent pterygium is a safe and simple procedure with encouraging results.

F1160 CUT AND PASTE — A NO SUTURE, SMALL INCISION APPROACH TO PTERYGIUM SURGERY

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Purpose: To evaluate the benefits of a new technique of pterygium surgery with respect to recurrence rate, reoperation rate and surgery time.

Method: A prospective randomized clinical trial was carried out in 102 patients. 48 eyes were operated with autologous conjunctival graft using tisseal glue and 54 patients were operated using absorbable sutures. Autologous conjunctival graft taken at the superior limbus was used to cover the sclera after pterygium excision.

Results: The recurrence rate was 6% in the tisseal glue group and 15% in the suture group. The reoperation rates were 2% and 5% respectively. The average pain was significantly lower when glue was used.

Conclusion: Using a fibrin tissue adhesive instead of sutures when attaching conjunctival transplant in pterygium surgery results in significantly less postoperative pain and shortens the surgical time with a low recurrence rate.

F1161 COMPARISON OF 20% AUTOLOGOUS SERUM EYEDROPS WITH UNPRESERVED HYPROMELLOSE IN A RANDOMIZED CONTROLLED STUDY IN THE TREATMENT OF AQUEOUS DEFICIENCY DRY EYE DISEASE

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Purpose: To evaluate the effectiveness of solitary 20% autologous serum eye drops versus unpreserved hypromellose in the treatment of patients with aqueous deficiency dry eye disease with ocular surface staining.

Method: Study design: investigator-masked, randomized, controlled trial. Setting: institutional. Study population: Sixty eyes of 30 aqueous-deficient dry eye patients with ocular surface staining were enrolled in this study. Patients were randomly assigned to 2 groups. Group 1 patients were treated with 20% autologous

serum eyedrops only while group 2 patients were treated with unpreserved hypromellose eyedrops (Tears Naturale Free, Alcon Laboratories, Fort Worth, TX, USA) only. Main Outcome Measures: Change from baseline and 1, 2, 4 and 8-week values of corneal and conjunctival staining with fluorescein and lissamine green, tear break-up time (TBUT), Schirmer test (with anesthesia), Ocular Surface Disease Index (OSDI) and subjective grading of ocular discomfort.

Results: Fifteen patients in the autologous serum group and 13 patients in the unpreserved hypromellose group completed the study. Corneal staining with lissamine green ($p=0.046$) and conjunctival staining with fluorescein ($p=0.04$) showed a significant improvement in scores in the autologous serum group compared to that of the unpreserved hypromellose group at 2 weeks. However, after 8 weeks of treatment, difference in staining scores, Schirmer test and TBUT was insignificant. The OSDI ($p=0.002$) and subjective grading of ocular discomfort ($p=0.004$), on the other hand, showed significant improvement in the autologous serum group compared to the unpreserved hypromellose group. No clinically significant adverse events were reported.

Conclusion: Solitary use of 20% autologous serum eyedrops is safe and effective in the treatment of aqueous deficiency dry eye disease. Patients' dry eye condition improved earlier in the autologous serum group compared to the unpreserved hypromellose group and provided better functional improvement and symptomatic relief.

F1162

AMNIOTIC MEMBRANE TRANSPLANTATION FOR MOOREN'S ULCER

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Purpose: To evaluate the effect of AMT for patients with Mooren Ulcer.

Method: A prospective, non-comparative case series of 7 patients (10 eyes) with severe Mooren Ulcers who were treated by AMT.

Results: Ten eyes of 7 patients with severe Mooren Ulcer were performed AMT (5 eyes with single layer and 5 others with multilayers AMT). First signs of corneal epithelialisation on all 10 eyes occur in 2-7 days. The completed healing time ranged from 2-4 weeks. All of the eyes have recovered from Mooren Ulcer and have being stable after 2 months following up.

Conclusion: Amniotic Membrane Transplantation should be considered as an effective solution for Mooren Ulcer, especially for severe cases.

F1163

OCULAR INFLAMMATION — TH1/TH2 PARADIGM AND TRANSFERABLE T-CELL MEDIATED KERATOCONJUNCTIVITIS SICCA

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Purpose: Extensive research led to the realization that inflammation is a key component in ocular surface disorders such as dry eye (DE) and ocular allergy. The traditional concept is that DE is TH1-driven while allergic conjunctivitis (AC) is a TH2-based response. This study was to determine the role of IFN- γ , a major TH1 cytokine, in a mouse model of TH2-mediated AC, and to demonstrate whether T cells are the main contributors to the pathogenesis of DE disease using an adoptive transfer (AT) model.

Method: BALB/c(wt) and IFN- γ knockout (KO) mice were sensitized via footpad (day1) and topically challenged on Day 10 for 7 days with short ragweed (SRW). AC was evaluated clinically and histologically. Cytokine profiles of CD4+ TH2 cells was determined. To define the role of T cells in DE pathogenesis, an established mouse model of DE was used. CD4+ T cells from cervical lymph node was IP injected into syngeneic nude/wt mice. Three days after AT, recipient mouse globes with lid were prepared for hematoxylin/eosin or anti-CD4+ antibody staining.

Results: Repeated SRW challenge induced AC clinically and histologically. IFN- γ KO mice treated with anti-IFN- γ antibody exhibited milder clinical symptoms of AC and a 70% reduction in eosinophil numbers in the conjunctiva. Spleen cells from AC mice expressed TH2 marker T1/ST2, TH2 cytokine profile, and IFN- γ following SRW stimulation. AT of CD4+ T cells from DE mice resulted in decreased tear production, reduced conjunctival goblet cell numbers, and increased conjunctival T cell infiltration in the nude mice.

Conclusion: IFN- γ appears to contribute to the pathogenesis of TH2-mediated AC, therefore challenging the conventional TH1/TH2 paradigm. Adoptive transfer model of DE suggest that at least some forms of dry eye are directly mediated by CD4+ T cells.

F1164

OUR EXPERIENCE WITH USE OF TOPICAL CYCLOSPORIN — A IN KERATOCONJUNCTIVITIS SICCA

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Purpose: Dry eye syndrome (keratoconjunctivitis sicca) is a common condition affecting large population worldwide. Characterized by insufficient tear production, the syndrome eventually may lead to vision loss. Cyclosporin-A, an immunomodulator, has been used to increase tear production in patients whose tear production is presumed to be suppressed due to ocular inflammation associated with keratoconjunctivitis sicca. We conducted this study to evaluate the efficacy and cytological changes in conjunctiva after use of Cyclosporin-A in dry eye patients.

Method: 27 patients with KCS were included in the study. Baseline ocular n dry eye tests along with CIC was done. Complete blood count was done before starting CS-A therapy. All the test were repeated after 12 weeks of use of topical 0.05% cyclosporine-A.

Results: there was an overall improvement in symptoms along with improvement in schirmers value. The CIC showed increase in goblet cell density with use of topical CS-A.

Conclusion: there was an overall improvement in symptoms along with improvement in schirmers value. The CIC showed increase in goblet cell density with use of topical CS-A.

F1165

THE NOVEL USE OF CULTIVATED HUMAN CONJUNCTIVAL EPITHELIAL TRANSPLANTATION FOR TOTAL LIMBAL STEM CELL DEFICIENCY

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Purpose: To evaluate the novel use of cultivated human conjunctival epithelial (HCjE) transplantation for severe ocular surface disease and total limbal stem cell deficiency, and to compare it with cultivated human corneal epithelial (HCE) transplantation.

Method: HCjE and HCE were cultivated on human amniotic membranes (AMs) to form confluent epithelial sheets, which were subsequently exposed to an air-liquid interface. Total limbal stem cell deficiency was created in rabbit eyes by surgically removing the entire corneal epithelium and limbal tissue up to 2mm beyond the limbus. These rabbits were divided into 3 treatment groups: Group 1- cultivated HCjE transplantation (n=7), group 2- cultivated HCE transplantation (n=7) and group 3- plain AM transplantation (n=6). Subconjunctival steroids and systemic FK506 were administered

to prevent graft rejection. Rabbits were followed-up with slit lamp examination and the corneas were excised and analyzed at 2 weeks by histology, immunohistochemistry and transmission electron microscopy.

Results: Cultivated HCjE and HCE transplantation achieved immediate epithelialization of the corneal surface. HCjE and HCE transplanted corneas remained clear and smooth, and the transplanted cultivated conjunctival and corneal epithelia remained intact throughout the follow-up period. In contrast, plain AM transplanted eyes had persistent epithelial defects with greater inflammation and vascularization. The engrafted HCjE and HCE demonstrated five to six layers of stratified squamous epithelium, which was morphologically similar to normal corneal epithelium. These epithelial sheets demonstrated normal differentiation-related keratins, as well as basement-membrane assembly structures that were important for ensuring graft integrity following transplantation.

Conclusion: Transplantation of a cultivated human conjunctival epithelial equivalent was successfully used to re-epithelialize and stabilise the corneal surface in eyes with total limbal stem cell deficiency. This may provide a novel method of treating a wide range of ocular surface disorders where the normal corneal or limbal epithelium is damaged or deficient.

F1166

THE IDENTIFICATION OF THE GENE RESPONSIBLE FOR AUTOSOMAL RECESSIVE CONGENITAL HEREDITARY ENDOTHELIAL DYSTROPHY (CHED2) ON 20P13

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Purpose: CHED is a bilateral disorder characterized by a loss of endothelial cells that result in an oedematous cornea with opacification ranging from a diffuse haze to a ground glass milk appearance that often necessitates keratoplasty. CHED can be inherited either as an autosomal dominant (CHED1) or as a recessive (CHED2) disease. The locus for CHED2 was previously localized to an 8 cM interval on chromosome 20p13. We used a novel consanguineous, autosomal recessive CHED family from Myanmar to refine the disease interval and to identify and characterize the gene for CHED2.

Method: This family was subjected to linkage analysis with 21 short tandem repeat (STR) markers from the CHED2 region on chromosome 20p13. Mutational analysis of positional candidate genes was by bi-directional sequencing.

Results: Segregation analysis of STR markers in informative recombinants in this family refined the CHED2 locus to a ~ 2.5Mb interval containing at least 30 genes. A positional candidate gene approach was adopted to identify the gene responsible for CHED2. A homozygous sequence variation resulting in the amino acid substitution of a highly conserved residue was found to co-segregate with the disease. In addition, mutational analysis in 8 other CHED2 families from India and Pakistan revealed 6 novel mutations that co-segregated with the disease in all cases. None of these variants were identified in over 100 ethnically matched control individuals. Furthermore all mutation sites showed high interspecies conservation.

Conclusion: The identification of SLC4A11 mutations in all the analyzed recessive CHED families of different ethnicities and genetic backgrounds confirms genetic homogeneity for this disease. Further functional characterization of these mutations are currently being undertaken to understand how these mutations may impinge on the proliferation and development of the endothelial cells and thus give rise to the histopathological features of CHED.

Free Paper 17 – Paediatric Ophthalmology

13 June 2006, Tuesday, 1600-1800 Hrs
Room 311, Level 3

F1167

ANTERIOR CHAMBER REACTION AFTER CATARACT SURGERY IN CHILDREN USED CLEAR CORNEA AND SCLEROCORNEAL TUNNEL INCISION

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Purpose: To compare the influence of difference type of incision (corneal and sclerocorneal) to inflammation in anterior chamber after cataract surgery in children.

Method: An open label randomized clinical trial with repeated measures, and parallel design. Subjects were congenital and juvenile cataract patients, age were 5-13 years, who will be performed cataract extraction with implantation of PC IOL. The subject divided into 2 groups (corneal and sclerocorneal). We assessed level of inflammation in anterior chamber using slit lamp biomicroscope at 1st day, 1st week, 2nd week, 4th week, 6th week after surgery. Data analysis was used by Friedman rank test for each group inflammation, and Mann-Whitney test to compare 2 groups.

Results: There were 26 eyes (22 patients). There were no statistical significant differences of inflammation in anterior chamber between 2 groups at 1st day, 1st week, 2nd week after surgery (flare assessment at 1st day; $p=0.443$, 1st week; $p=0.313$, 2nd

week; $p=0.159$. Cell assessment at 1st day; $p=0.431$, 1st week; $p=0.274$, 2nd week; $p=0.159$). While at 4th week there was a statistically significant differences of inflammation in anterior chamber between 2 groups (Flare; $p=0.036$; cell; $p=0.036$).

Conclusion: Anterior chamber reaction after cataract surgery in children used sclerocorneal tunnel incision was lower than used corneal incision after fourth week.

F1168

CAN THE BRÜCKNER TEST BE USED AS A RAPID SCREENING TEST TO DETECT SIGNIFICANT REFRACTIVE ERRORS IN CHILDREN?

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Purpose: To assess the suitability of Brückner test as a screening test to detect significant refractive errors in children.

Method: A masked Pediatric ophthalmologist prospectively observed the size and location of pupillary crescent on Brückner test as hyperopic, myopic or astigmatic. This was compared with the cycloplegic refraction. Detailed ophthalmic examination was done for all. Sensitivity, Specificity, Positive predictive value and Negative predictive value of Brückner test was determined for the defined cut off levels of ametropia.

Results: Ninety six subjects aged 8.6 years (range 1-16 years) were examined. Brückner test could be completed for all; the time taken to complete this test was 10 seconds per subject. The ophthalmologist identified 131 eyes as ametropic, 61 as emmetropic. The Brückner test had sensitivity 91%, specificity 72.8%, positive predictive value 85.5% and negative predictive value 83.6%. Of 10 false negatives 4 had compound hypermetropic astigmatism and 3 had myopia.

Conclusion: Brückner test can be used to rapidly screen the children for significant refractive errors. The potential benefits from such use may be maximized if programs use the test with lower crescent measurement cut offs, a crescent measurement ruler and a distance fixation target.

F1169

SINGLE PIECE ACRYSOFTM IMPLANTATION FOLLOWING CONGENITAL CATARACT SURGERY

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Purpose: To evaluate outcome of Single piece Acrysof™ (SA30AL) following congenital cataract surgery.

Method: This prospective observational study comprised of 134

consecutive eyes of 84 children age 2-15 years undergoing congenital cataract surgery. Children were assigned to 2 groups depending on age of the child at surgery. Primary posterior continuous curvilinear capsulorrhexis (PCCC) was performed in children below 6 years (Gp.I, n = 66 eyes) and no PCCC was performed in children above 6 years (Gp.II, n = 68 eyes). Vitrectomy was not performed in any of the eyes. Single piece Acrysof™ (SA30AL, Alcon Laboratories, Fort Worth, TX) was implanted in the bag in all the eyes except 1 eye in Group I where IOL was placed in the sulcus. Our primary observation was to determine incidence of visual axis obscuration (VAO) and need for secondary procedure to clear the axis. Secondary observations comprised of incidence of posterior synechia, cell deposits, haptic compression and IOL decentration. Test of proportion was applied to determine whether age was a risk factor influencing the development of VAO.

Results: Mean age was 6.03 ± 3.17 years. Mean follow-up was 2.6 ± 0.6 years. In Gp. I, 20 (30.3%) eyes developed VAO but only 6 (9.1%) eyes required secondary procedure. In Gp. II, 20 (29.41%) eyes developed VAO and 10 (14.71%) eyes needed secondary procedure. Posterior synechiae were observed in 2 (3.03%) eyes in Gp.I and none in Gp.II. Cell deposits were seen in 8 (12.12%) eyes in Gp. I and 8 (11.76%) eyes in Gp.II. Haptic compression was noted in 1 eye in Gp.II. Decentration was observed in the sulcus fixated IOL of Gp I.

Conclusion: Single piece Acrysof™ maintained satisfactory visual axis clarity, produced acceptable inflammatory response and maintained good centration.

F1170
HYPERPIGMENTATION AS A PREDICTING FACTOR AND MARKER OF SEVERITY IN VERNAL CONJUNCTIVITIS

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Purpose: Evaluation of hyper-pigmentation as a predicting factor for the severity of vernal conjunctivitis. Analysis of any statistical correlation / association between the signs, symptoms and pigmentation of vernal by validating the significance of a proposed grading of bulbar conjunctival pigmentation.

Method: A prospective, non-interventional, observational study. Demographic data, symptoms like ocular itch, signs of disease severity like limbal infiltration and upper tarsal conjunctival (UTC) papillary reaction and characteristics of bulbar conjunctival pigmentation were noted. Relation/measure of association between pigmentation and sign/symptoms were established by statistical analysis. Semi-quantitative grading of signs, symptoms and conjunctival pigmentation was done.

Results: 530 eyes of 265 consecutive cases of vernal conjunctivitis were studied. The mean age of patients (213M, 52F) was 7.9 years (range 3-16years). Using S-Plus package, a statistically significant association was found between bulbar conjunctival pigmentation, itch ($p=8.28 \pm 10^{-9}$) and perilimbal infiltration ($p=5.10 \times 10^{-6}$), though there was no definite correlation between these attributes. No gender bias was found.

Conclusion: The consistent finding of bulbar conjunctival hyperpigmentation appears to be a definitive indicator of severity of bulbar variety of the disease. For all clinical convenience the simple method of grading of pigmentation appears prognostically relevant and useful. The presence of pigments even in quiescent stage of the disease makes it a more valuable sign.

F1171
PROFILE OF CHILDHOOD CATARACT CASES SEEN AT THE PHILIPPINE GENERAL HOSPITAL

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Purpose: The study determined the major causes of childhood cataracts among patients seen at the pediatric ophthalmology clinic of the University of The Philippines-Philippine General Hospital (UP-PGH).

Method: Case records of all patients seen at the pediatric ophthalmology clinic of UP-PGH from January 1, 2000 to August 31, 2003 were reviewed. Included were patients less than 21 years old diagnosed with cataract and not associated with trauma. Cases were classified as to presumptive etiology: idiopathic, familial or secondary to a systemic or an ocular disorder.

Results: The cause of cataract was identified in 37.6% of the 218 cases reviewed. Rubella was the leading cause (20.5%), followed by suspected rubella infections (8.2%). There were 2 cases of Varicella and 1 case of cytomegalovirus (CMV) infections. Down syndrome and Lowe syndrome had one case each. Three cases (1.4%) were familial. Cataract was idiopathic in 133 cases (61.0%).

Conclusion: The pattern of childhood cataract in this study is typical of a developing country where Rubella infection is the major cause.

F1172

OCCLUSION TREATMENT FOR AMBLYOPIA IN CHILDREN AGED 10-15 YEARS – A PROSPECTIVE ANALYSIS

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Purpose: To study the visual outcome and improvement in binocular single vision (BSV) after occlusion treatment for anisometropic and strabismic amblyopia in children aged 10-15 years.

Method: A prospective study of 90 patients with anisometropic, strabismic and mixed amblyopia conducted between February 2003 and January 2004 with a 1 year follow-up. All patients were advised occlusion of the better eye for 6 hours per day. Success was defined as improvement of visual acuity by 2 lines or more and improvement in BSV.

Results: Of the total 90 patients, 39(43.3%) were female children. Mean age was 12.6 years. Improvement in final visual acuity was seen in 86.7%, 46.7% and 50% and final improvement in BSV in 86.6%, 46.6% and 53.4% of anisometropic, strabismic and mixed amblyopia respectively. Success was directly related to initial density of amblyopia. Success was achieved in 56 (62.2%) of total cases. Success was significantly different ($p < 0.005$) between esotropic (20%) and exotropic (73.3%) patients. Compliance to occlusion treatment contributes statistically significantly ($p < 0.001$) to success.

Conclusion: With good compliance, therapy for anisometropic and strabismic amblyopia can be successful even if initiated after 10 years of age. Exotropia patients showed better results to improvement as compared to esotropia patients.

F1173

RETINOBLASTOMA IN OLDER CHILDREN

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Purpose: To study the unusual presentations of retinoblastoma in older children and their outcome.

Method: We retrospectively analysed the clinical presentations and management of all patients above 4 years.

Results: Out of 262 patients, there were 42 patients above 4 years of age with mean of 6.12 years (range 4–12). There were 34 males and 8 females. It was bilateral in 10 with a positive family history in 2. Symptoms and signs were leucocoria and squint (7), diminished vision (12), proptosis (14), and pain redness watering (9),

raised IOP (13), exudates in AC (8), ciliary staphyloma (4), cholesterol in posterior segment (2), pthisis bulbi and mass with bleeding (2). Imaging revealed intraocular disease in 54.7% (23) and extraocular in 42.8% (18). Reese-Ellsworth staging for intraocular disease was 5b in 55%. Extraocular disease was observed in 40% (17) of eyes and with distant metastasis in 2.3% (1). Of the 42 patients, 33 were subjected to various treatment modalities which were neoadjuvant combination chemotherapy 21 (63.6%), enucleation (9) and enucleation followed by adjuvant therapy (3). Overall recurrence rate was 15%. Follow up of all treated patients ranged from 1 month to 13 years (mean 24.57 months).

Conclusion: Results of our study reveal that majority of older children have uncommon presentation and advanced disease. Neoadjuvant chemotherapy followed by local therapy has shown promising results.

F1174

A MOLECULAR DIAGNOSTIC TEST FOR COUNSELING THE OCULOCUTANEOUS ALBINISM TYPE 1 PATIENTS IN AN ETHNIC GROUP OF EASTERN INDIA

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Purpose: Oculocutaneous Albinism (OCA) is common amongst an ethnic group (Tili) of eastern India. OCA is a group of autosomal recessive disorders characterized by deficient synthesis of melanin pigment with developmental anomalies of the eyes. The purpose of this study was to identify the genetic defect causing OCA within this community for the unequivocal diagnosis of the carriers.

Method: Twenty-six affected persons amongst a total of 161 individuals representing fourteen OCA-affected "Tili" families were recruited in the study. A lack of Tyrosinase (TYR) activity among the patients, ascertained by the Tyrosinase Hair Bulb Assay, suggested involvement of OCA type 1 locus (OCA1) for causation of the disease. Mutation screening in the TYR was done by polymerase chain reaction (PCR), single strand conformational polymorphism (SSCP) and DNA sequencing. The Restriction Fragment Length Polymorphism (RFLP) assay was carried out to determine the frequency of the pathogenic change among the phenotypically normal individuals.

Results: All the patients were confirmed to have OCA1 on the basis of their harboring homozygous null mutation (c.832C>T, Arg278stop) in TYR exon 2, which would be predicted to cause a complete loss of the enzyme activity. The mutation occurred in the same haplotype background.

Conclusion: The occurrence of a founder mutation in the TYR is the cause of OCA1 amongst the "Tili" population of eastern India.

Prenatal diagnosis and carrier determination within the community by the PCR-based RFLP assay could be utilized for genetic counseling for prevention of this genetic disorder.

F1175

STITCH LESS STRABISMUS SURGERY

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Purpose: To study fornix based incision for strabismus surgeries in children. To study level of comfort of child and parents after sutureless strabismus surgery.

Method: All cases those Operated at our hospital during period November 2003 to September 2005 were included all complicated and paralytic cases excluded from study. Surgeries performed using fornix incision including recession, resection, weakening and tenotomy for all recti and oblique muscles. All patients followed up on the same day after a week and 2 months later. During follow-up visit eyes were categorized for discomfort, diffuse haemorrhage and tenon exposure.

Results: Majority (%) of children and parents were found to have good comfort level.

Conclusion: Fornix based small incision stitch less surgery is very effective method for strabismus surgery.

F1176

THE OUTCOME OF PHAKO LENS ASPIRATION AND ACRYSOF IMPLANTATION IN PAEDIATRIC CATARACT

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Purpose: This study was undertaken to see if Acrysof IOL implantation would also retard Posterior Capsular Opacification in children.

Method: This is a case series study with 21 patients admitted to the Eye unit of Khyber Teaching hospital between June 1999 to May 2003. Number of eyes treated was 29. Mean age of presentation was 07 Years. Etiology varied from Congenital, Traumatic to Complicated cataracts. Surgery done was Phako Lens aspiration with Acrysof in the bag implantation. Average power was 20.6 Diopters (range 14-30 Diopters). 44.8% of eyes were Undercorrected by 08- 30%. 55.17% of eyes were given Full correction. The Range of follow-up was 05 months - 03 years.

Results: 12 eyes developed posterior capsule opacification (PCO) of which 06 (20.6%) eyes required YAG Laser Capsulotomy. Time Interval for development of visually significant posterior capsule opacification ranged from 1.5 months to 03 years.

Conclusion: Acrysof Implantation is safe and effective in the management of Paediatric cataract in terms of retarding Posterior capsule opacification in etiologies varying from Congenital, Traumatic to Complicated cataracts.

F1177

COMPLETION RATE OF PRIMARY POSTERIOR CAPSULORRHESIS AND VITREOUS DISTURBANCE DURING CONGENITAL CATARACT SURGERY

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Purpose: To document completion rate and incidence of disruption of vitreous face during primary posterior capsulorhexis (PCCC).

Method: 106 consecutive eyes were prospectively evaluated. Under Healon GV, PCCC was performed by initiating with 26G cystotome and completed with Ultrata forceps. 2-port anterior vitrectomy performed with disruption of vitreous face. AcrySof SA30ALTM was implanted in the bag if PCCC was <4 mm and in sulcus with PCCC >4 mm.

Results: Mean age was 17 ± 26 months. PCCC was completed in all eyes. Disruption of vitreous face in 5 (4.7%) eyes. In-the-bag and sulcus implantation of IOL in 98 (92.45%) and 8 (7.5%) eyes.

Conclusion: PCCC could be completed in all eyes with minimal disruption of vitreous face in a well-controlled manner under high viscosity viscoelastics by using appropriate technique.