We make it visible.

We would like to take this opportunity to thank these organisations for their kind support and sponsorship of this event

Sponsorship was for a stand at the event and the companies had no influence on the content of the symposium

Nottingham Eye Symposium

and Research Meeting

30th January 2015

Programme and Abstracts

The University of Nottingham

UNITED KINGDOM · CHINA · MALAYSIA

PROGRAMME CONTENTS

PROGRAMME SUMMARY

8.30am: Registration, Coffee and Pastries

9.00am: *Chairman's welcome and opening remarks*

9.10am: Clinical and Translational Research Presentations
Chair: Professor Harminder Dua

10.30am: Coffee, Trade Stand and Poster Viewing

11.00am: Optometry Guest Lecture 'Cataract surgery changes to falls rates'
Professor David Elliott, Bradford University

11.25am: Clinical and Translational Research Presentations continued
Chair: Mr Winfried Amoaku and Professor Martin Rubinstein

12.25pm: Hot Buffet Lunch, Trade Stand and Poster Viewing
1pm: Poster Session in Trade Hall

1.30pm: 19th Norman Galloway Lecture:
'The place of Aesthetic Surgery in Reconstructive and Cosmetic Patients'
Professor Bhupendra Patel, Salt Lake City, Utah

Symposium 'Looking inside and outside the box': Lids and orbit
Chair: Katya Tambe

2.30pm: To fill or not to fill, non-aesthetic uses of fillers
Raman Malhotra, Queen Victoria Hospital, East Grinstead

2.55pm: In the Pipeline: Sponsor Presentations
(Grafton Optical, Instinctive, NuVision, Scope, Spectrum, Topcon, Zeiss)

3.30pm: Coffee, Trade Stand and Poster Viewing

4.00pm: Jack in the box - orbital surprises
Geoff Rose, Moorfields Eye Hospital

4.25pm: The trinket box - paediatric sockets
Francesco Quaranta-Lioni, Rome, Italy

4.50pm: The box wrapped up - eyelid malpositions
Maria Amesty, Moorfields Eye Hospital

5.20pm: Research and Poster Prize Presentations

5.25pm: Chairman's concluding remarks and close of meeting

9.10AM: CLINICAL AND TRANSLATIONAL RESEARCH PRESENTATIONS, PART 1

Chairs: Professor Harminder Dua

9.10am: Anaesthetic corneas with intact corneal nerves
Mouhamed Al-Aqaba, University of Nottingham

9.20am: The dynamics of big bubble formation after intrastromal air injection in human corneas
Mohamed Elalfy, University of Nottingham

9.30am: Corneal stromal cells: A potential cell source for ocular surface regeneration
Laura Sidney, University of Nottingham

9.40am: Surgical trabeculectomy training – are we safe at supervising?
Andrew Walkden

9.50am: Dynamic muscle transfer in facial nerve palsy
Aruna Dharmasena, Manchester Royal Eye Hospital

10.00am: A standardised, off the shelf substrate for enhanced tissue engineering
Matthew Branch, University of Nottingham

10.10am: Safety and efficacy of intravitreal Ocriplasmin injection for the treatment of vitreomacular traction (VMT) and macular hole
Rohit Saxena, Nottingham University Hospitals NHS Trust

10.20am: Dynamic digital subtraction dacryocystography for paediatric epiphora
Ruth Chen, Nottingham University Hospitals NHS Trust

ABSTRACTS

9.10pm: Anaesthetic Corneas with Intact Corneal Nerves

Mouhamed Al-Aqaba and Virinder Dhillon, Mohamed Elalfy, Harminder S. Dua
Academic Ophthalmology, Division of Clinical Neuroscience, University of Nottingham, UK

Purpose: To report two cases presented with interesting and unexpected findings of absent corneal sensation and intact sub-basal nerve plexus.
Methods: Two patients presented with persistent uniocular dry eye symptoms. Full history and clinical examination was obtained from each patient. The corneal sensation was measured using *Cochet-Bonnet* Esthesiometer. In vivo confocal microscopy (IVCM) was performed to evaluate corneal innervation.
Results: A 57-year-old woman with history of left trigeminal neuralgia for several years had unsuccessful left alcohol trigeminal root injection followed by left microvascular decompression. Postoperatively she developed persistent dry eye symptoms. Her left cornea showed superficial punctuate epithelial erosions (SPEE). Corneal sensation was 60 (normal) in her right eye and 0 (absent) in her left eye. IVCM revealed normal stromal and sub-basal nerves with equal density on both sides. A 46-year-old man presented with a 2-week history of sudden onset left blurred vision and left-sided facial numbness affecting primarily the V-1 and V-2 areas. This was preceded by an episode of diarrhoea. MRI of his head and trigeminal tract did not reveal any abnormality. The left cornea showed SPEE and

the corneal sensation was absent. IVCM showed normal appearances of his left stromal and sub-basal nerves with equal density on both sides.
Conclusions: Our observations highlight two new aspects of corneal innervation and sensation in disease process. First, there is a lack of correlation between corneal sensation and sub-basal nerve plexus. Second, it likely that damage to the nerve fibres proximal to trigeminal primary sensory neurons results in impaired corneal sensation but intact corneal nerves and their trophic function. This could explain the absence of severe neurotrophic keratitis in our cases.

9.20am: The Dynamics of Big Bubble Formation after Intrastromal Air Injection in Human Corneas

M Elalfy, L Faraj, DG Said, T Katamish, HS Dua
Academic Ophthalmology, Division of Clinical Neuroscience, University of Nottingham, UK

Purpose: Dua's layer (DL) has considerable relevance to Deep anterior lamellar keratoplasty (DALK) procedure and the hitherto clinically observed but unexplained formation of Types 1, 2 and mixed Big Bubble (BB). In this study we explored the dynamics of the formation of different types of BB.
Methods: 50 human sclerocorneal discs were injected with air under balanced salt solution and recorded. Videos were studied for leakage of air and formation of BB. Height and diameter of BB were measured. Specimens were subjected to electron microscopy and immunohistology for collagens & matricellular proteins. Age ranged from 3 weeks – 80 years.
Results: Air injected in the cornea preferentially reached the limbus and moved circumferentially in a clockwise & anticlockwise direction as bands of 2-3 mm till they met, irrespective of direction of needle tip. The air then migrated centripetally to fill the stroma. Air leaked from the trabecular meshwork (TM) area at one or more points. Small bubbles formed in the centre and coalesced into a Type-1 BB. This rapidly expanded to attain a height of 5 mm and a diameter of ≤ 9 mm. The anterior stomal wall of Type-1 BB showed multiple 'holes' through which air leaked to lift DL. DL was impervious to air. Type-2 BB always started at the periphery. Distinct pores were seen in the peripheral stroma of DL. Most of these were located distal to attachment of Descemet's membrane and explained the leakage of air from TM. Some were located centrally to the attachment and explained formation of Type-2BB. More than 80% of BB were Type-1. Immunohistology did not offer an explanation for DL being impervious to air.
Conclusion: DL is a distinct part of the surgical anatomy of the cornea. Identification of pores in DL periphery is novel and explains the formation of a Type-2BB and the clinical observation of appearance of air in anterior chamber during DALK. Leakage is not through the TM.

9.30am: Corneal Stromal Cells: A Potential Cell Source for Ocular Surface Regeneration

Sidney, L. E., Dunphy S. E., Branch, M. J., Dua H. S. and Hopkinson, A.
Academic Ophthalmology, Division of Clinical Neuroscience, University of Nottingham, UK

Purpose: Keratocytes of the corneal stroma are quiescent, dendritic cells, which maintain the extracellular matrix. It is believed that there is a subpopulation of keratocytes that act as multipotent stem/progenitor cells in the limbal region. To utilise these cells in regenerative therapies, it is important to understand the effect of in vitro culture environment and the processes of dedifferentiation to a keratocyte phenotype. These cells may also play a role in rejuvenation of other layers of the cornea, such as the epithelium.
Methods: Primary human corneal stromal cells (hCSC) were extracted from corneal rims. Optimum culture media was determined from a selection available, and the effect of passage on cell phenotype was assessed. The potential for differentiation back into a stromal keratocyte phenotype was investigated by culture of hCSC on a 3D polymeric microfibre carrier. Potential transdifferentiation of hCSC into a corneal epithelial lineage was investigated using a specialised differentiation medium.
Results: Phenotype of hCSC is strongly affected by extraction, passage and culture media formulation. Under optimum conditions, hCSC show potential as a multipotent stem cell, expressing indicative markers and differentiating to mesenchymal lineages. hCSC cultured on microfibre scaffolds demonstrate a morphology and phenotype more similar to that of a keratocyte (CD34 and ALDH positive). CD34+ cells isolated from hCSC at low passage demonstrate a higher stem cell potential than the unsorted cells, with evidence of transdifferentiation to corneal epithelial cell morphology and high expression of key corneal epithelial markers.
Conclusions: Corneal stromal cells demonstrate stem cell potential, independent of the role they are traditionally associated with in the cornea. This potential depends upon in vitro culture environment and isolation of certain subpopulations. In future, these cells may have potential in the regeneration of the ocular surface in cases of disease or trauma.

9.40am: Surgical Trabeculectomy Training – Are We Safe At Supervising?

[1]Walkden, A., [1]Senior, M., [1]Naylor, S., [1]Lee, H., [2]Anand, N., [2]Turner, S., [2]Ivanova, K., [1]Bhargava, A., [2]McNaught, A.
[1]Royal Preston Hospital, North West Deanery, [2]Royal Gloucester Hospital

Purpose: Surgical exposure for trainees is limited due to service provision demands, the European working time directive and subspecialisation of glaucoma surgery. Limited knowledge exists on the outcomes of supervised glaucoma surgery. The aim is to determine the safety of supervised trabeculectomy surgery performed by trainee ophthalmologists.
Methods: Retrospective case note review of all eyes (n=231) that underwent trabeculectomy surgery with MMC by consultant and trainee surgeons between March 2011 and November 2013 across 3 UK centres. All eyes have 1-year follow-up. Data collection includes pre-operative IOP, IOP at 1 year, and Snellen visual acuities. Failure rates and surgical complications were recorded. Two-tailed p-values were obtained using Fisher's exact test to ascertain statistical significance between groups.

Results: 140 (60.6%) cases were performed by consultant ophthalmologists (mean age=67; range 44-89 years). Trainees performed: 93 (40.3%) cases mean age= 70; 37-89 range years). No statistical significance was observed between consultant and trainee eyes achieving IOP <21mmHg and <16mmHg (p=0.31 and 0.75 respectively). No statistical significance was observed between the two groups in terms of Snellen acuity loss (p=0.37). No statistical significance was seen between consultant failure rate (n=20) and supervised trainee failure rate (n=27) (p=0.38) or complication rate (p=0.45).
Conclusion: Supervised trainee cases did not show higher complication rates than consultant cases. These findings help guide informed consent if a trainee is to perform surgery. The findings may encourage trainee participation in more glaucoma surgery therefore increasing experience and enhancing training.

9.50am: Dynamic Muscle Transfer in Facial Nerve Palsy

Saghir Ahmed Sadiq, Aruna Dharmasena
Manchester Royal Eye Hospital

Purpose: To describe the results of dynamic muscle transfer with an orbicularis oculi muscle flap from the contralateral side to the paralysed side in patients with House-Brackman grade 6 facial nerve palsy.
Methods: A case series of 6 patients who underwent dynamic muscle transfer with a flap of healthy orbicularis oculi muscle fibres from the contralateral side into the paralysed orbicularis oculi muscle. All patients had a House-Brackman grade 6 facial nerve palsy. All the subjects had previous multiple surgical procedures to improve the eyelid function. In spite of this they were all symptomatic in terms of corneal exposure before orbicularis muscle transfer. All patients had post-operative follow up in excess of 6 months after the procedure.
Results: All patients improved symptomatically and had clinically reduced lagophthalmos post-operatively. Five patients who had an absent blink reflex showed a significant improvement in their blink reflex post-operatively. There were no complications at the donor site.
Conclusion: All patients showed a significant improvement of their symptoms and their lagophthalmos reduced post-operatively. Most importantly, the blink occurred involuntarily at the same time as the blink on the normal side. The authors propose that a dynamic muscle transfer using the contralateral orbicularis muscle may be considered to improve lid closure and blink reflex to improve corneal exposure in patients with grade 6 facial palsy who have not benefited from conventional surgical procedures.

10.00am: A standardised, off the shelf substrate for enhanced tissue engineering

Branch, M.J., Hopkinson, A
University of Nottingham, NuVision

Purpose: Amniotic membrane (AM) is a popular ophthalmic tissue engineering adjunct. We have previously developed a highly effective thermolysin-based denuding technique that preserves basement membrane integrity. This technique combined with dry preservation of AM produces a simple easy to use substrate for research.

Methods: Dry preserved thermolysin denuded AM (DAM), and FAM denuded with ethylenediaminetetraacetic acid (EDTA), and dispase -based methodologies were prepared. Denuding efficiencies were compared using electron microscopy. The effect of denuding on AM molecular composition was investigated and characterised using proteomics. The propensity of DAM to support stem cells was explored using fluorescent immunohistochemistry for defined markers.
Results: Electron microscopy demonstrated thermolysin denuding efficiency was comparable in FAM and DAM. Proteomic analyses showed effective removal of epithelial cell proteins in DAM, but not EDTA–based denuding techniques. Whilst similar enzymatic activity to thermolysin, mechanical scraping reduces the efficacy of dispase denuding. Collagens IV, VI, periostin, βig-h3 and VLA-6 are targets of thermolysin activity. DAM maintains stem cell characteristics and is most effective in preventing differentiation.
Conclusions: Conventional EDTA and dispase procedures for preparing AM for tissue engineering are ineffective at removing cells whilst preserving the basement membrane. Combining our novel thermolysin denuding and dry preservation techniques improves the overall quality of AM for tissue-engineering and other research and clinical based applications.

10.10am: Safety and Efficacy of Intravitreal Ocriplasmin Injection for the Treatment of Vitreomacular Traction (VMT) and Macular Hole

Saxena R, Kumudhan D
Nottingham University Hospitals NHS Trust

Purpose: To evaluate the results of intravitreal ocriplasmin injection for the management of vitreomacular traction and macular hole.
Methods: This was a prospective audit from March'2014 to September'2014. The diagnosis of macular hole and vitreomacular traction was confirmed with spectral domain optical coherence topography in all patients. Patients' eligibility for treatment of vitreomacular traction was based on NICE guidance. All eligible patients were administered 125µg intravitreal Ocriplasmin. Mean follow up was after 6.5 weeks (Range 5-10 weeks). The results were compared with studies published in peer reviewed journals.
Results: 8 patients (3 males & 5 females) with mean age of 73.37 years (Range 49-84 years) were treated. Vitreomacular adhesion was relieved in 5/8 (62.50%) patients. Total posterior vitreous detachment was induced in 1/8 (12.50%) patient. Non-surgical closure of macular hole was achieved in 3/8 (37.50%) patients. Transient ocular adverse effect, like floaters were reported in 2/8 (25%) patients. There were no severe ocular or systemic adverse effects.
Conclusions: The results compared favourably with the studies published in peer reviewed journals. Intravitreal ocriplasmin injection relieves vitreomacular adhesion with minimal ocular adverse effects.

10.20am: Dynamic Digital Subtraction Dacryocystography for Paediatric Epiphora

Ruth Chen, Maria Amesty, Julia Baxter, Shery Thomas, Timothy Taylor, Lorraine Abercrombie, Katya Tambe
Nottingham University Hospitals NHS Trust

Purpose: To study the utility of dynamic digital subtraction dacryocystography (DSDCG) technique in paediatric epiphora.
Method: Retrospective study of 45 lacrimal drainage systems (LDS) of 32 children, between 2 and 12 years of age were studied. The presenting symptoms were persistent epiphora despite previous syringing and probing, presence of fistulae, dacryocystitis, or older children presenting for the first time to the clinic with epiphora. DSDCG was performed in all cases under general anaesthesia, using a 27G Rabinov catheter and N300 contrast medium. Intubation of the lacrimal system was carried out using a self-retaining monocanalicular Monoka silicone stent via the upper punctum (FCI, Issy-les-Moulineaux Cedex®, France).
Results: DSDCG identified the site of obstruction in 96% of our patients. In 25 LDS (45%) the obstruction was at the distal nasolacrimal duct, 9 LDS (20%) at the punctual/canalicular ducts, and 9 LDS (20%) at the proximal nasolacrimal duct. 2 LDS (5%) were patent. Apart from these findings, 5 fistulae were also identified. These results guided management accordingly with intubation of the nasolacrimal duct, canaliculus, canalicular trephination, dacryocystorhinostomy and fistulectomy.
Conclusions: Intraoperative DSDCG is useful to identify the exact location of the lacrimal drainage system obstruction in cases of failed probing or delayed referral for paediatric epiphora. It demonstrates the anatomy very well, and shows the calibre of the different structures. DSDCG also provides additional information, as shown in the cases that required fistulectomy. It demonstrated complete closure of the fistula tract postoperatively, which is useful information for the operating surgeon.

11.00AM: OPTOMETRY GUEST SPEAKER

PROFESSOR DAVID ELLIOTT, BRADFORD SCHOOL OF OPTOMETRY AND VISION SCIENCES, BRADFORD UNIVERSITY **'CATARACT SURGERY CHANGES TO FALLS RATES'**

David Elliott is the Professor of Clinical Vision Science at the Bradford School of Optometry & Vision Science. He is the Editor-in-Chief of Ophthalmic & Physiological Optics (JIF 2.66) and the editor of Clinical Procedures in Primary Eye Care, now in its 4th edition, in addition to chapters in several other standard textbooks (e.g., Borish's Clinical Refraction; The Oxford Textbook of Ophthalmology) and over 100 peer reviewed research papers in leading international journals of optometry, ophthalmology and gait.

His talk 'Cataract Surgery Changes To Falls Rates' will provide a review of the link between vision and falls in the elderly population will be presented with particular emphasis on falls rate changes due to cataract surgery, new spectacles and multifocals. Preliminary analysis of new data will be presented which may help explain why falls rates are not reduced as much as expected by cataract surgery.

11.25AM: CLINICAL AND TRANSLATIONAL RESEARCH PRESENTATIONS, PART 2

Chairs: Mr Winfried Amoaku and Professor Martin Rubinstein

11.25am: In-vitro Anti-Angiogenic Effects of Cryo-preserved Amniotic Membrane
Lana Faraj, University of Nottingham

11.35am: Investigating the use of dextran in corneal decellularisation
Samantha Wilson, University Of Nottingham

11.45am: Levator Resection for Congenital Ptosis
Ruth Chen, Nottingham University Hospitals NHS Trust

11.55am: A randomized controlled single centre open-label pilot trial in chronic anterior blephatitis by external use of Chinese herbal medicine
Wenqing Li, St James Hospital Leeds

12.05am: The contribution of vision to balance during smartphone use
Parnika Sharma, University of Leicester

12.15am: The introduction of an ophthalmic clinical officer in a rural Ugandan hospital: a reflection *Eleanor Crossley, University of Birmingham*

11.25am: In-vitro Anti-Angiogenic Effects of Cryo-preserved Amniotic Membrane

[1]Lana Faraj, [1]Elizabeth Stewart, [2]Réka Albert, [1]Claire Allen, [1]Harminder Dua, [1]Winfried Amoaku

[1]University of Nottingham, Academic Ophthalmology, Division of Clinical Neuroscience
[2]Department of Ophthalmology, University of Szeged, Szeged, Hungary

Background: Amniotic membrane (AM) has been used as a biological substrate in ophthalmology and other fields for several years. It has a valuable role in ocular surface burns and non-healing ulcers. It is known that AM is non-immunogenic and has anti-inflammatory and anti-fibrotic properties and supports epithelial cell proliferation and migration. These are supposedly mediated through a host of growth factors and cytokines. Despite its clinically accepted role in reducing corneal vascularisation when applied on the eye, there have been contradicting reports on the effect of AM on angiogenesis.
Methods: The effect of soluble factors released from clinically prepared cryo-preserved AM on cultured human umbilical vein endothelial cell (HUVEC) proliferation was quantified and angiogenesis assessed on matrigel. Soluble anti-angiogenic factors were identified using Searchlight protein arrays.
Results: AM conditioned medium (AMCM) was found to reduce HUVEC proliferation. Angiogenesis was reduced by direct application of AM, a gradient effect was observed, where HUVEC closer to the AM failed completely in forming any tubules. In addition, HUVEC failed to survive directly on the AM. Analysis of the soluble factors released by the amnion included high levels of anti-angiogenic factors, thrombospondin and tissue inhibitors of metalloproteinase (TIMP) 1 and 2.
Conclusion: AM in vitro has anti-angiogenic properties, validating some of the effects observed clinically.

11.35am: Investigating the Use of Dextran in Corneal Decellularisation

Wilson, S.L.[1], Lynch, A.[2], Ahearne, M.[2,3]

[1]Academic Ophthalmology, Division of Clinical Neuroscience, University of Nottingham,
[2]Trinity Centre for Bioengineering, Trinity Biomedical Sciences Institute, Dublin
[3]Department of Mechanical and Manufacturing Engineering, School of Engineering, Dublin

Purpose: Dextran is routinely used as a de-swelling agent during organ culture and for preservation of corneal tissue. 5% (w/v) dextran is commonly included in corneal decellularisation protocols to prevent swelling, since it acts to draw fluid out of the cornea, due to its high affinity for water. To date, there is no standardised and reproducible corneal decellularisation technique suitable for clinical translation. Since small changes to procedures may have large impacts on the decellularisation efficacy, the aim of this study was to systematically investigate the use of dextran in the decellularisation of adult porcine corneas.
Methods: Five groups of 8 mm adult porcine corneal buttons were investigated: (i) native cornea; (ii) freeze-thaw treatment using ultra-pure water; (iii) detergent treatment using 0.5% (w/v) sodium dodecyl sulphate and 1 % (w/v) Triton X-100; (iv) detergent/dextran treatment, as detergent treatment, with the addition of 5 % dextran used throughout the

procedure; (v) detergent/dextran-wash treatment; as detergent treatment, followed by an additional washing step in 5% dextran at the end of the procedure. Tissue transparency, thickness and mass pre/post decellularisation was measured. Removal of detectable cellular and immune reactive material was evidenced by histological and quantitative assays. Retention of corneal architecture and intrinsic biological cues (glycosaminoglycans) were assessed via histological, immunofluorescence, electron microscopy and biochemical analysis.

Results: Irrespective of the procedure used, all decellularised tissues experienced a significant reduction in transparency (more so when dextran was used in the procedure), mass, and residual DNA compared to native tissue, with dextran having no apparent effect on mass and residual DNA content. The use of dextran did however preserve/restore normal tissue thickness and maintained higher levels of glycosaminoglycans post decellularisation. Dextran use appeared to have a positive effect with regards to maintaining/restoring the collagen tissue microstructure. However, electron microscopy studies further revealed that the use of dextran throughout the whole decellularisation protocol (detergent/dextran treatment) was vital for maintenance of the nanoscale ultrastructural organisation, and that use of dextran at the end of the decellularisation protocol (detergent/dextran-wash) did not sufficiently preserve/restore the nanoscale ultrastructure of the corneal tissue.

Conclusions: This study highlights the importance of performing systematic, in-depth studies with extensive characterisation when devising appropriate decellularisation procedures for clinical translation. Seemingly small changes to procedures can have huge impacts on the resulting acellular scaffold which will ultimately affect the efficacy and biocompatibility upon recellularization either in vivo or in vitro. Future work will investigate the effect dextran use during decellularisation has on cell infiltration, behaviour and remodelling following recellularization.

11.45am: Levator Resection for Congenital Ptosis

Ruth Chen, Maria Amesty, Katya Tambe
Nottingham University Hospitals NHS Trust

Purpose: To evaluate the outcomes of anterior and posterior approach of levator resection for correction of congenital ptosis

Study design: Retrospective review looking at a consecutive series of 32 patients, who had levator resection surgery, over a 5-year period in a tertiary unit.

Methods: Congenital ptosis with levator function > 4mm were managed with levator palpebrael superioris resection. The anterior approach involves a skin crease incision, dissecting the levator, and resecting it to the tarsus. The posterior approach exposes the posterior surface of the levator muscle via a transconjunctival approach. This preserves the septum and leaves no visible scar.

These techniques were performed for congenital ptosis under general anaesthesia by the same surgeon. Data was collected on 39 eyes of 34 patients (age range 0 – 18). Outcome measures included measurements of preoperative and postoperative palpebral aperture, margin reflex distance (MRD1), symmetry of eyelid height, contour, complications and redo operations.

Results: Mean age was 9.1 years (2 years 5 months to 18 years 3 months). Mean levator function was 9.8mm. Mean difference between the preoperative and postoperative MRD1 was 2.5mm. There were 6 undercorrected cases, 4 with unsatisfactory eyelid contour, and 1 with a suture granuloma. Success rate considering the criteria of postoperative MRD1 >= 2mm and =<4.5mm was 85%, and postoperative palpebral aperture symmetry within 1mm of difference was 82%. Mean follow-up period was 8 months.
Conclusion: Anterior and posterior approach levator resection has a good success rate for correcting congenital ptosis with moderate and good levator function.

11.55am: A Randomized Controlled Single Centre Open-Label Pilot Trial in Chronic Anterior Blephatitis by External Use of Chinese Herbal Medicine

Wenqing Li, Bernard Chang
University of Leeds Teaching St James Hospital Ophthalmology Department

Background: Blephatitis is inflammatory disease associated with itchiness, redness and crusting of the margin of eyelids. It can lead to permanent alterations to the eyelid margin or vision loss from superficial keratopathy, corneal neovascularization, and ulceration. Most importantly, frequently cause significant ocular symptoms such as burning sensation, irritation, tearing, and red eye as well as visual problems such as photophobia and blurred vision. Blephatitis leads to high morbidity and accounts for 5% of all ophthalmological problems presenting in primary care and about 2-5% of GP consultations. Current therapies for blepharitis are 'good eyelid hygiene', warm compresses, and antibiotics (external: chloramphenicol eye ointment, fucidic acid eye drops or oral antibiotics). However, it is difficult to clinically prescribe targeted antibiotics. Considerable positive evidence from over 39 clinical trials including two reviews on the treatment of Blepharitis using Chinese herbal medicine (CHM) or integrated medicine has been described in detail. However, until now there has been no rigorous research into the clinical effectiveness of CHM for Blepharitis in the UK, hence the proposed research on treating Blepharitis using CHM. This may yield an effective result with possible long-term lower costs and risk.
Aims: To evaluate the safety and efficacy of CHM on signs and symptoms of blepharitis.
Study design: This study is an open-label, single centre pilot RCT. The target population in this trial will be from the UK. The 60 eligible Blepharitis participants who meet the inclusion and exclusion criteria will be randomly located to an intervention group (good eyelid hygiene + CHM) and a control group (usual good eyelid hygiene + warm compresses) after consenting. Total treatment duration was 4 weeks. Intervention: the CHM treatment is based on the Pharmacopoeia of People's Republic of China and the principles of Chinese Medicine, prescribed by Consultant Wenqing Li.
Outcome measures: Primary outcome: Data on the scale of signs and symptoms of Bletharitis. Secondary outcome: Standard ocular safety assessments (visual acuity, intraocular pressure and blood tests) photos of eye margin and patient's quality of life (SF-36 questionnaire), Follow up questionnaires (3months, 6 months). Ethics approval will be obtained from the NHS local Research Ethic Committee. Participants will be recruited and treated at the ophthalmology department of Leeds St James's university teaching hospital in the UK. Data Analysis: Data will be analysed using SPSS 21. Analysis will be by intention-to-treat.

12.05am: The Contribution of Vision to Balance during Smartphone Use

Parnika N. Sharma, Zhanhan Tu, Irene Gottlob, Frank A. Proudlock
University of Leicester

Purpose: Smartphones are the most popular mobile device with over 1.75 billion users worldwide. Studies demonstrate that smartphone use leads to postural instability during standing and walking although the causes are unclear. We use computerised dynamic posturography (CDP) to explore the role of vision in balance during smartphone use also comparing the effects of attentional load and biomechanics.
Methods: Postural stability was measured using CDP in 20 healthy adults standing inside a static full field patterned visual surround. The degree of instability during phone use was compared to baseline values of normal vision and no vision (eyes closed). To explore the effect of: (i) vision: a fixation target was viewed on the phone whilst handheld compared to the same task with the phone fixed in near space; (ii) attentional load: passive reading was compared to counting 4 letter words; (iii) biomechanics: the held phone was switched off and the surround attended to. Each task was performed with fixed base (FB) and under sway referenced (SR) conditions, which reduces somatosensory inputs.
Results: Postural stability during reading and texting was equivalent to reducing the contribution of vision to balance by 81% and 73% during the FB task and 54% and 59% during SR conditions, respectively (comparison to baseline of normal vision, $p<0.0001$). Viewing a fixation target on the held phone led to a similar reduction in stability as during reading and texting ($p<0.0001$). Changing attentional and biomechanical load did not significantly change stability ($p>0.95$, $p>0.25$).
Conclusion: Reading and texting leads to a significant reduction in postural stability. This is due to visual attention being paid to an object fixed to a body-centred rather than an earth-centred frame of reference. In comparison, attentional load and biomechanical factors do not significantly affect stability. These findings may help us in the prevention of accidents caused by smartphone use.

12.15am: The Introduction of an Ophthalmic Clinical Officer in a Rural Ugandan Hospital: A Reflection

E Crossley, L Roberts
University of Birmingham

Purpose: More than 90% of the world's blind population live in developing countries, with most in poor rural communities. Several authors have identified a need for simple rural eyecare to reduce preventable blindness, alongside eye health education. This reflective study aims to use the Kolb learning cycle to formally reflect on experiences to make recommendations for ophthalmic clinical officers' roles and future introduction, which may be of value to similar nations establishing ophthalmic clinical officer services.
Methods: The author undertook a four week placement based at a rural hospital in Uganda, Kasangati Health Centre IV, which introduced an ophthalmic clinical officer in October 2013, with further experiences at two urban referral ophthalmology departments. Immersion in ophthalmic care provision in rural Uganda enabled a detailed understanding of the patient pathway including barriers and facilitators to eyecare delivery.

Results: Three broad themes emerged from critical reflection which related to challenges to accessing eyecare (e.g. poor community knowledge, traditional therapy use, local drug stores), inadequacies in care provided and challenges faced by the care provider. These are discussed in turn using personal experiences and reflections to give context and validation to themes.

Conclusion: The author recommends the introduction of community-based education and posters highlighting early signs necessitating urgent eye clinic attendance, and sensitively addressing traditional medicine beliefs. Increased ophthalmic health education on radio and television would also help to minimise preventable blindness, in addition to continued efforts to introduce a school screening programme and increasing the frequency of the rural eye clinic.

POSTER PRESENTATIONS 1PM

1 Corneal stromal cells: A potential cell source for ocular surface regeneration
Laura Sidney, University of Nottingham

2 Evaluation of Preclinical Medical Students' Experience of the Hospital Visit Program at University Of Nottingham
Bina Kulkarni, Nottingham University Hospitals NHS Trust

3 Metastatic Neuroendocrine Carcinoid Tumour Presenting with an Orbital Mass: A Case Report
Rupa Patel, Blackpool Victoria Hospital

4 Corneal Collagen Cross-Linking in Ultrathin Keratoconic Corneas
Amreen Qureshi, North West Deanery

5 Tacrolimus: A novel steroid sparing treatment for resistant blepharokeratoconjunctivitis
Hanif Suleman, Midlands and Counties Eye Infirmary, Wolverhampton

6 Investigating the Use of Dextran in Corneal Decellularisation
Samantha Wilson, Academic Ophthalmology, University of Nottingham

7 LimboTox™: An Animal-Free Engineered Solution For Industrial And Pre-clinical Toxicity Testing
Samantha Wilson, Academic Ophthalmology, University of Nottingham

8 Developing a Visual Grading System for Drains Used in Orbital Surgery
Ruth jones, Royal Hallamshire Hospital

9 Expression of Toll-Like Receptors in Human Retinal and Choroidal Vascular Endothelial Cells
Elizabeth A Stewart, Academic Ophthalmology, University of Nottingham

POSTER PRESENTATION ABSTRACTS

The Poster Exhibition is located in the Main Conference Hall from 1pm

1: Corneal Stromal Cells: A Potential Cell Source For Ocular Surface Regeneration

Sidney, L. E., Dunphy S. E., Branch, M. J., Dua H. S. and Hopkinson, A.
Academic Ophthalmology, Division of Clinical Neuroscience, University of Nottingham, UK

Purpose: Keratocytes of the corneal stroma are quiescent, dendritic cells, which maintain the extracellular matrix. It is believed that there is a subpopulation of keratocytes that act as multipotent stem/progenitor cells in the limbal region. To utilise these cells in regenerative therapies, it is important to understand the effect of in vitro culture environment and the processes of dedifferentiation to a keratocyte phenotype. These cells may also play a role in rejuvenation of other layers of the cornea, such as the epithelium.
Methods: Primary human corneal stromal cells (hCSC) were extracted from corneal rims. Optimum culture media was determined from a selection available, and the effect of passage on cell phenotype was assessed. The potential for differentiation back into a stromal keratocyte phenotype was investigated by culture of hCSC on a 3D polymeric microfibre carrier. Potential transdifferentiation of hCSC into a corneal epithelial lineage was investigated using a specialised differentiation medium.
Results: Phenotype of hCSC is strongly affected by extraction, passage and culture media formulation. Under optimum conditions, hCSC show potential as a multipotent stem cell, expressing indicative markers and differentiating to mesenchymal lineages. hCSC cultured on microfibre scaffolds demonstrate a morphology and phenotype more similar to that of a keratocyte (CD34 and ALDH positive). CD34+ cells isolated from hCSC at low passage demonstrate a higher stem cell potential than the unsorted cells, with evidence of transdifferentiation to corneal epithelial cell morphology and high expression of key corneal epithelial markers.
Conclusions: Corneal stromal cells demonstrate stem cell potential, independent of the role they are traditionally associated with in the cornea. This potential depends upon in vitro culture environment and isolation of certain subpopulations. In future, these cells may have potential in the regeneration of the ocular surface in cases of disease or trauma.

2: Evaluation of Preclinical Medical Students' Experience of the Hospital Visit Program at University Of Nottingham

Dr Bina Kulkarni, Dr Mohsen Tavakol, Prof Harminder Dua, Prof Reg Dennick
Nottingham University Hospitals NHS Trust

Purpose: To address the GMC recommendations, set in "Tomorrows Doctors" guidance for achievement of professional awareness at an early stage of medical education basic sciences teaching was integrated with clinical practice, by attaching the medical students to the hospital specialty teams and general practices in the community as regular timetabled "hospital visits" from beginning of their medical education.
The purpose of this study is to evaluate the preclinical (1st and 2nd years) medical students' experience of the hospital based clinical teaching program between 2010-2012 at University

of Nottingham based on their feedback forms and to reassess their experience following suitable modifications to the hospital visit program.
Methods: This study is based on quasi-experimental design in which comparisons of pre-test feedbacks was made with post-test feedbacks following suitable modifications with 330 feedbacks in each group during 2010-2012. Quantitative based questions in the feedback were statistically analysis using independent T-Test and free text questions were qualitatively analysed and grouped into themes.
Results: Data analyses have shown significant difference (p value 0.000) between the pre and post-test groups. The main themes identified were number of the patients examined, organization of the visit, patient selection, introduction talk, briefing and debriefing before and after the visit. These themes are being analysed.
Conclusion: The structure of the hospital visit program is influenced by the available infrastructure, flexibility of access and delivery of clinical teaching. Potential benefits to the students and the staff was building up of professional attitudes and encourages independent learning.

3: Metastatic Neuroendocrine Carcinoid Tumour Presenting with an Orbital Mass: A Case Report

Dr Rupa Patel, Mr Vikesh Patel.
Blackpool Victoria Hospital

Purpose: To report a rare case of metastatic orbital paraganglioma and its management.
Methods: A 58year old man attended with vertical diplopia and proptosis of the left eye. With a known history of paraganglioma an orbital mass metastatic in origin was suspected. Initial treatment with radiotherapy failed and thus surgical resection with lateral orbitotomy was conducted due to worsening visual function.
Results: Histology confirmed the diagnosis of paraganglioma. The patient recovered full visual function but unfortunately passed away due to further metastatic disease 3 months later.
Conclusions: We report a rare case of orbital paraganglioma and outline the presentation, surgical management and controversies in management.

4: Corneal Collagen Cross-Linking in Ultrathin Keratoconic Corneas

Qureshi A[1], Rahman I[2]
[1] Ophthalmic specialist trainee North West Deanery [2] Consultant Ophthalmologist, Blackpool Victoria Hospital

Purpose: To evaluate the benefits of corneal collagen cross-linking (CXL) in patients with severe progressive keratoconus and ultrathin corneas.
Methods: Ten eyes of eight patients undergoing accelerated corneal cross-linking for treatment of severe keratoconus with ultrathin corneas at the Blackpool Victoria Hospital between July 2011 and September 2012 were identified and analyzed retrospectively. All CXL-treated eyes had a pre-operative corneal thickness less than 400µm at the thinnest point, as measured by Pentacam, prior to epithelial removal. Best corrected visual acuity,

refractions and corneal topography pretreatment and at least 12 month post treatment are presented.
Results: The mean age at cross-linking was 21.6 years (range: 17-29) and the mean follow up was 22 months (range: 12-32 months). 1 eye of one patient was lost to follow up and was excluded from the analysis. No intraoperative complications were noted. Re-epithelialization was complete within 1 week for all patients. Clinical examination at 1 week and 6 and 12 month review did not reveal a visible stromal demarcation line, haze, lens opacification or retinal damage. An observed improvement in the average K Max value at 12 months was -1.7D of flattening, (range: -9D to +5.5D). The mean BCVA improved to 6/9 or better in all patients. Additionally, patients commented on contact lens fitting being more comfortable with improved visual clarity. At final review, no complications as a result of the cross-linking were noted.
Conclusions: Our results show the potential benefits of cross-linking in ultrathin corneas including delaying corneal transplantation outweighed the potential risks.

5: Tacrolimus: A Novel Steroid Sparing Treatment For Resistant Blepharokeratoconjunctivitis

H Suleman, W Fusi-Rubiano, , M Awad, B Manoj, J Gandhewar
Midlands and Counties Eye Infirmary, Wolverhampton, UK

Aims: Prolonged courses of topical steroids can often lead to significant adverse effects. We wanted to establish the potential role of tacrolimus 0.03% eye ointment, as a steroid sparing agent, in the treatment of resistant symptomatic blepharokeratoconjunctivitis (BKC).
Methods: Retrospective case series of all patients with BKC prescribed tacrolimus 0.03% ointment from 2013 onwards. All patients/guardians had given verbal consent to try tacrolimus ointment as it is unlicensed for ophthalmic use. Case notes were reviewed to determine patient demographics, duration of BKC, previous and concurrent treatment regimens, tacrolimus therapy and visual acuity before and after therapy. Conjunctival and corneal findings on slit lamp examination, response to therapy and change in strength and/or dosage frequency of topical steroids were also evaluated.
Results: Fourteen patients were commenced on tacrolimus 0.03% ointment for resistant symptomatic BKC. Ages ranged from 6 to 45 years. Duration of BKC varied from 3 months to 13 years. Duration of treatment ranged from 4 weeks to 10 months. Visual Acuity, corneal signs and symptoms improved in most of the patients. No adverse effects were noted. The strength and/or dosage frequency of topical steroids was reduced in 11 out of 14 patients.
Conclusions: Tacrolimus 0.03% ointment is unlicensed for ophthalmic use but it is a useful treatment option in reducing the requirement for topical steroids in resistant BKC. We found that it improved symptoms, visual acuity and ocular surface signs and was also well tolerated. Further prospective study is warranted.

6: Investigating the Use of Dextran in Corneal Decellularisation

Wilson, S.L.[1], Lynch, A.[2], Ahearne, M.[2,3]
[1]*Academic Ophthalmology, Division of Clinical Neuroscience, University of Nottingham,*
[2]*Trinity Centre for Bioengineering, Trinity Biomedical Sciences Institute, Dublin*
[3]*Department of Mechanical and Manufacturing Engineering, School of Engineering, Dublin*

Purpose: Dextran is routinely used as a de-swelling agent during organ culture and for preservation of corneal tissue. 5% (w/v) dextran is commonly included in corneal decellularisation protocols to prevent swelling, since it acts to draw fluid out of the cornea, due to its high affinity for water. To date, there is no standardised and reproducible corneal decellularisation technique suitable for clinical translation. Since small changes to procedures may have large impacts on the decellularisation efficacy, the aim of this study was to systematically investigate the use of dextran in the decellularisation of adult porcine corneas.

Methods: Five groups of 8 mm adult porcine corneal buttons were investigated: (i) native cornea; (ii) freeze-thaw treatment using ultra-pure water; (iii) detergent treatment using 0.5% (w/v) sodium dodecyl sulphate and 1 % (w/v) Triton X-100; (iv) detergent/dextran treatment, as detergent treatment, with the addition of 5 % dextran used throughout the procedure; (v) detergent/dextran-wash treatment; as detergent treatment, followed by an additional washing step in 5% dextran at the end of the procedure. Tissue transparency, thickness and mass pre/post decellularisation was measured. Removal of detectable cellular and immune reactive material was evidenced by histological and quantitative assays. Retention of corneal architecture and intrinsic biological cues (glycosaminoglycans) were assessed via histological, immunofluorescence, electron microscopy and biochemical analysis.

Results: Irrespective of the procedure used, all decellularised tissues experienced a significant reduction in transparency (more so when dextran was used in the procedure), mass, and residual DNA compared to native tissue, with dextran having no apparent effect on mass and residual DNA content. The use of dextran did however preserve/restore normal tissue thickness and maintained higher levels of glycosaminoglycans post decellularisation. Dextran use appeared to have a positive effect with regards to maintaining/restoring the collagen tissue microstructure. However, electron microscopy studies further revealed that the use of dextran throughout the whole decellularisation protocol (detergent/dextran treatment) was vital for maintenance of the nanoscale ultrastructural organisation, and that use of dextran at the end of the decellularisation protocol (detergent/dextran-wash) did not sufficiently preserve/restore the nanoscale ultrastructure of the corneal tissue.

Conclusions: This study highlights the importance of performing systematic, in-depth studies with extensive characterisation when devising appropriate decellularisation procedures for clinical translation. Seemingly small changes to procedures can have huge impacts on the resulting acellular scaffold which will ultimately affect the efficacy and biocompatibility upon recellularization either in vivo or in vitro. Future work will investigate the effect dextran use during decellularisation has on cell infiltration, behaviour and remodelling following recellularization.

7: LimboTox™: An Animal-Free Engineered Solution for Industrial and Pre-clinical Toxicity Testing

Wilson, S.L.
Academic Ophthalmology, Division of Clinical Neuroscience, University of Nottingham

Purpose: Changing European directives and a global drive to limit the use of animals for toxicology testing has created a crucial need for reliable in vitro corneal alternatives. To date, due to the complexity of the tissue, there is no such realistic and validated substitute, thus creating a unique commercial and economic opportunity.
The purpose of this proof-of-concept study was to investigate the feasibility of bringing together corneal stromal cells with a porous collagen scaffold, Ologen™ collagen matrix to create a 3D corneal biomimetic tissue.
Methods: Corneal stromal cells were seeded throughout the Ologen™ collagen matrix. The constructs were cultured for up to 28 days in serum-containing media.
Cell viability/proliferation studies were used to demonstrate Ologen™ collagen matrix biocompatibility. Biochemical analysis was used to demonstrate the cellular secretion of glycosaminoglycans following prolonged culture periods. Histological staining was used to demonstrate cell infiltration and matrix remodelling.
Results: It was demonstrated that Ologen™ collagen matrix supports corneal cell proliferation for up to 28 days culture. Glycosaminoglycan content increased with increasing culture periods. The corneal stromal cells are able infiltrate throughout the thickness of the Ologen™ collagen matrix, remodel and contract the surrounding substrate.
Conclusions: The initial proof-of-concept studies have yielded promising results. Once complete, LimboTox™ will provide a reliable, animal-free biomimetic cornea, available for toxicology testing purposes, for use by toxicology testing facilities and academic research institutions. It is expected to be capable of providing superior, quantifiable data, in comparison to existing in vivo and ex vivo animal testing protocols. Limbotox™ will be developed as a standardised, in vitro manufactured, multicellular, cornea-mimetic collagen construct. The gross morphology and histology will be similar to that of a complete natural cornea, resulting in similar gene expression wound healing responses when compared to in vivo human responses.

8: Developing a Visual Grading System for Drains Used In Orbital Surgery

Ruth Jones, Kareem Mahgoub, Sachin Salvi
Royal Hallamshire Hospital

Introduction: Drains used in orbital surgery work through a negative pressure bellows system, currently the amount of fluid collected is monitored via “guesstimating” the quantity in the bellows. Priming the bellows prior to insertion distorts the drain making blood loss interpretation even harder.
The Mini Vac is the most commonly used Orbital drain and currently grading systems do not exist to aid in more accurate fluid loss assessments.
Purpose: To inform and correlate volume perceived in the bellows to actual quantity of fluid drained.

Methods: Maintaining the negative pressure system increasing known quantities of blood allowed into the drain. Pictures and distance measurements between drain corrugations were taken at 1ml and each 5ml increments thereafter. A visual grading table of known volumes was then created and presented to Ophthalmology Consultants and Trainees with varied experience in using these drains. Participates were asked to grade volumes of blood in the drain both pre and post presentation.

Results: Blood loss of less than 1ml will not make its way into the bellows and the drains limit is 38.9mls, just under the manufactures defined 40ml capacity. Average distance expansion between drain corrugations was 3.13 mm per 5ml volume increase. Estimation of drain volumes were calculated as average percentage difference from actual volumes. Preceding average percentage difference of 40% and following visual grading table 1.8%.
Conclusions: Estimating fluid loss is a difficult task but a comparative visual grading table does seem to help in more accurate volume estimations.

9: Expression of Toll-Like Receptors in Human Retinal and Choroidal Vascular Endothelial Cells

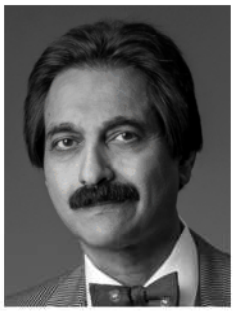
Elizabeth A Stewart, Ruoxin Wei, Matthew J Branch, Laura E Sidney and Winfried M Amoaku
Academic Ophthalmology, Division of Clinical Neuroscience, University of Nottingham

Purpose: Toll-like receptors (TLRs) are a family of proteins that initiate the innate immune response in reaction to invading microbes. Studies confirm the expression of TLRs in a variety of ocular tissues and cells, and it has also been suggested that selected TLRs may be associated with geographic atrophy and neovascularisation in age-related macular degeneration, diabetic retinopathy and other vascular and inflammatory diseases of the ocular posterior segment. However, TLR expression and localisation in the retinal and choroidal vasculature has not been defined. A better understanding of differential TLR expression in the choroid and retina, particularly in endothelial cells would improve our knowledge of vascular and inflammatory diseases in the posterior segment of the eye.
Methods: In this study the gene (mRNA) expression of TLRs 1-10 was investigated using RT-PCR and comparative qPCR and the protein expression and localisation of those which appeared most abundant (3, 4, 6 and 9) were examined using western blotting, flow cytometry and immunofluorescent staining. PCR showed gene expression of TLR1-6 and 9 in human choroidal endothelial cells (hCEC) and TLR2-6, 9 and 10 in human retinal endothelial cells (hREC).
Results: Western blotting detected TLR3, 4 and 9 proteins in both hCEC and hREC with higher levels in hCEC, whilst TLR6 protein was not detectable in either EC type. All four abundant TLRs (3, 4, 6 and 9) were found to be expressed on the cell surface and intracellularly, TLR6 expression was detectable but low. The expression and localisation of TLR3, 4 and 9 were confirmed by immunofluorescent staining in endothelial cells and whole tissue sections and the functionality tested by expression of IL-6 (ELISA) and ICAM, VCAM (qPCR) in response to stimulation with TLR ligands.
Conclusions: This study has, for the first time, identified the differential expression and localisation of TLRs in intraocular endothelial cells. This profiling will help inform our understanding of different retinal and choroidal vascular diseases, as well as the development of future treatments for intraocular vascular diseases.

1.30PM: THE 19TH NORMAN GALLOWAY LECTURE

'THE PLACE OF AESTHETIC SURGERY IN RECONSTRUCTIVE AND COSMETIC PATIENTS'

PROFESSOR BHUPENDRA PATEL, SALT LAKE CITY, UTAH



Professor BCK Patel MD, FRCS is Professor Ophthalmology and of Plastic Surgery, in the Department of Ophthalmology and the Department of Plastic Surgery. He is the Chief of Facial Cosmetic & Reconstructive Surgery at the University of Utah, USA. He has developed numerous surgical techniques and designed surgical instruments for us in reconstructive as well as cosmetic surgery.

The 19th Norman Galloway Lecture "The place of Aesthetic Surgery in Reconstructive and Cosmetic Patients" will present a method of systematic assessment of the face, together with videos of techniques that may be used to address involutional changes. The application of cosmetic techniques to reconstructive as well as aesthetic patients will be discussed.

THE HISTORY

The Norman Galloway Lecture was endowed in 1996, by Mr Nicholas R Galloway, Consultant Ophthalmologist at the University Hospital Queen's Medical Centre Nottingham (retired 2001), in memory of his father. This has since become a key feature of what is now a nationally recognised symposium.

Norman Patrick Galloway was born at Rhynie in Aberdeenshire on 27th March 1895 and died in Rempstone near Loughborough, Leicestershire on 2nd February 1976. He was a graduate of the University of Edinburgh and became a House Physician in the Edinburgh Royal Infirmary. During the First World War he served with the Army in South Africa, afterwards deciding to take up Ophthalmology. He obtained his DOMS in Oxford and during his time in Oxford met his future wife Eileen Thompson, the daughter of a general practitioner in Nottingham.

In 1922 he was appointed Clinical Assistant to the Nottingham and Midland Eye Infirmary and five years later, in 1927, he was elected Honorary Surgeon. He held this appointment through World War II and, in 1948, with the advent of the National Health Service, became Consultant Ophthalmologist. In the 1920's, Norman Galloway was an active member of the British Medical Association and helped to organise the meeting that was held in Nottingham in 1926. At a national level, for many years he supported the Midland Ophthalmological Society, regularly presenting papers, and in 1951 was appointed their President. He was also a member of the Council of the Oxford Ophthalmological Congress. He saw the introduction of antibiotics and steroids and, during the difficult post-war period, helped to steer the Hospital House Committee through the numerous negotiations involved with the formation

of the National Health Service. He was also instrumental in gaining funding for the Eye Hospital extension to the wards and outpatient department. From 1950 to 1951 he was President of the Nottingham Medico-Chirurgical Society.

During his working life, Norman Galloway saw and helped to implement great changes in the practice of Ophthalmology in Nottingham. The old outpatient system where the doctor stood by a desk facing a queue of patients was replaced by consulting rooms and the building of the new extension allowed the introduction of special clinics. Nottingham had an Ophthalmic Nursing School before the war and at an early stage had an Orthoptic Department. Norman Galloway retired from the hospital in March 1959 after 34 years of service. His patients remember him as a kindly man who preferred one-to-one relationships. He tended to avoid public speaking whenever possible.

Nicholas R Galloway

PREVIOUS NORMAN GALLOWAY LECTURES

2014: Professor Marie-José Tassignon, University Hospital Antwerp, Belgium. *Prerequisites for complex optics IOL implantation*

2013: Professor José Alvaro Pereira Gomes, São Paulo, Brazil. *New Perspectives for the treatment of Ocular Surface Disease*

2012: Professor Irene Gottlob, University of Leicester. *What is moving in Nystagmus?*

2011: Professor F Kruse, Erlangen, Germany. *Descemet Membrane Endothelial Keratoplasty, the Thinner, the Better*

2010: Professor D Wong, University of Liverpool and Hong Kong. *East and West*

2009: Prof IG Rennie, Sheffield. *The Good, the Bad and the Ugly: The Metastatic Potential of Uveal Melanoma*

2008: Professor A Fielder, London. *Paediatric Ophthalmology – Where Next?*

2007: Professor J-J De Laey, Ghent, Belgium. *Paraneoplastic Retinopathies*

2006: Mr JKG Dart, Moorfields Eye Hospital, London. *When Topical Steroids Fail: Managing Severe Anterior Segment Inflammation*

2005: Professor D Azar, Massachusetts Eye Infirmary, Harvard University, Boston, USA. *Wavefront-guided Keratrorefractive Surgery: Advantages and limitations*

2004: Professor R Hitchings, Moorfields Eye Hospital, London. *Normal Tension Glaucoma*

2003: Professor CNJ McGhee, University of Auckland, NZ. *Exploring the Topographic and Inner World of the Cornea to the Horizon of the Iris Plane: Contemporary Imaging of the Anterior Segment of the Eye*

2002: Professor AC Bird, Institute of Ophthalmology, University College London. *Prospects of Treating Inherited Retinal Diseases*

2001: Professor JV Forrester, University of Aberdeen. *Classification and Treatment of Posterior Uveitis*

2000: Professor PR Laibson, Wills Eye Hospital, Philadelphia, USA. *Herpes Simplex Viral Keratitis: What HEDS (Herpetic Eye Disease Studies) has taught us*

1999: Mr JRO Collin, Moorfields Eye Hospital, London. *Management of Traumatic Ptosis*

1998: Professor LA Donoso, Wills Eye Hospital, Philadelphia, USA. *Stargardt's Macular Degeneration*

1997: Professor DB Archer, Queen's University, Belfast. *Diabetic Retinopathy – a Tolerable Disease*

2.30PM: 19TH NOTTINGHAM EYE SYMPOSIUM

'LOOKING INSIDE AND OUTSIDE THE BOX': LIDS AND ORBIT

Chair: Katya Tambe

This year the symposium has the theme 'Looking inside and outside the box': Lids and orbit.

2.30pm: To fill or not to fill, non-aesthetic uses of fillers *Raman Malhotra, Queen Victoria Hospital, East Grinstead*

Raman Malhotra graduated in medicine and surgery from the University of Bristol, completed his basic ophthalmic surgical training at the Western Eye Hospital in London and went on to higher surgical training in Oxford. He became a Fellow in oculoplastic, orbital and lacrimal surgery at the Royal Adelaide Hospital and Women and Children's Hospital in Adelaide, Australia, in 2002. In 2003, he returned to the UK and was appointed Consultant Ophthalmic and Oculoplastic surgeon at the Queen Victoria Hospital in East Grinstead.
He is section editor of The British Journal of Ophthalmology and an editorial board member of Orbit and Clinical Experimental Ophthalmology.
He is a member of the British Oculoplastic Surgeons Society (BOPSS), European Society of Ophthalmic, Plastic and Reconstructive Surgeons (ESOPRS) and American Society of Ophthalmic, Plastic and Reconstructive Surgeons (ASOPRS).

During his talk "To fill or not to fill: non-aesthetic uses of fillers" he shall be highlighting how aesthetic fillers have transformed certain outcomes in ophthalmology and reduced the need for oculoplastic surgery. He will use examples from his personal experience, developing the use of these fillers in oculoplastics over the last 10 years.

2.55PM: IN THE PIPELINE

Updates on the most exciting new products coming to the market from some of our faithful sponsors

2.30PM: 19TH NOTTINGHAM EYE SYMPOSIUM CONTINUED

'LOOKING INSIDE AND OUTSIDE THE BOX': LIDS AND ORBIT

4.00pm: Jack in the box - orbital surprises *Geoff Rose, Moorfields Eye Hospital*

Geoffrey Rose graduated as Bachelor of Science in Pharmacology, with first-class honours, in 1976. He qualified in Medicine at King's College Hospital, London, in 1979 and subsequently gained experience in Internal Medicine with award of Membership of the Royal College of Physicians in 1982. Postgraduate ophthalmic training was undertaken at King's College Hospital, St Thomas Hospital and Moorfields Eye Hospital, with award of Fellowship of the Royal College of Surgeons in 1985 and the Royal College of Ophthalmologists at its foundation in 1988. In 1990 the University of London granted an MS doctorate for his research on corneal endothelial changes after cataract surgery and, in 2004, awarded him a Doctor of Science in Ophthalmology and Ophthalmic Surgery.

Appointed as consultant surgeon to Moorfields Eye Hospital in 1990, Geoffrey Rose has served as Director of the Adnexal Service, and is currently the senior consultant specialising in orbital and lacrimal diseases. The unique clinical case-mix at Moorfields has provided opportunity for widespread research interests and publication of over 200 papers and 30 chapters on adnexal disease. He lectures widely at national and international level, has presented various named and guest lectures. In 2004, he was awarded the Lester Jones Anatomy Award of the American Society of Ophthalmic Plastic and Reconstructive Surgery (of which he is an honorary fellow). Professor Rose is a Senior Research Fellow of the Biomedical Research Centre of the Institute of Ophthalmology with University College, London.

Professor Rose is President Elect for the European Society of Oculoplastic and Reconstructive Surgeons, and for 8 years served as the British Council member of this group. He is also a Past-President of the British Oculo-Plastic Surgical Society.

The topic of his talk is orbital surprises, the majority of orbital disease is relatively "bland" and routine, and the correct diagnosis can be elicited with a good history and examination (backed up by appropriate imaging). However, there are still some rare orbital conditions that present as "wolves in sheep's clothing" and it is for these conditions that the clinician needs to be extra vigilant.

4.25pm: The trinket box - paediatric sockets *Francesco Quaranta-Lioni, Rome, Italy*

Dr Quaranta-Leoni attended Medical School at Catholic University of Rome - A. Gemelli Hospital, graduating with first-class honours in 1988. His postgraduate ophthalmic training was undertaken at the Department of Ophthalmology of Catholic University of Rome. He was awarded the Diploma of Ophthalmology with first-class honours in 1992 and undertook further training in Ophthalmology with a Scholarship in Strabismus Surgery under the care of late Professor Bruno Bagolini in 1992-1994. In 1995-1997 he attended a two year Clinical Fellowship in

Oculoplastic, Lacrimal and Orbital Surgery at Moorfields Eye Hospital – University of London under the care of John Wright, Geoffrey Rose and Richard Collin and specialized in orbital, lacrimal and oculoplastic diseases and their surgery. He is the Director of the Adnexal and Orbital Service in the Dept. of Ophthalmology of Villa Tiberia Hospital in Rome and Professor of Adnexal and Orbital Surgery at University of Rome – Campus Biomedico, and has a commitment to teaching, actively participating in residents training in adnexal disease. He lectures at national and international level and is Full Member of the European Society of Ophthalmic Plastic and Reconstructive Surgery (ESOPRS), International Associate Member of the American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS), Italian Society of Ophthalmology (SOI), Italian Oculoplastic Surgery Society (SICOP) and American Academy of Ophthalmology (AAO). For four years (2005-2009), he served as the Italian Council Member of the ESOPRS and is Past-Secretary of the Italian Oculoplastic Surgery Society (SICOP). In 2014 he has been chosen to receive the ASOPRS Merril Reeh Pathology Award for his work on: Management of Porous orbital Implants Requiring Explantation: A Clinical and Histopathological Study. OPRS, March/April 2014.The management of the pediatric anophthalmic socket is challenging, because both socket and facial development are strictly dependent on orbital growth and there is not still a standard opinion in managing the anophthalmic socket in children.

The topic of his talk is paediatric sockets, in children affected by clinical congenital anophthalmia the aim of treatment is expansion of the lids, of the soft tissues of the socket and of the bony orbit: socket expansion, with either self-inflating expanders or custom-made conformers must be done before implantation, and dermis-fat graft positioning should follow an adequate lid and socket expansion. In these patients a dermis-fat graft may exert adequate orbital pressure, continues to expand the lids and the soft tissues of the socket, and may help orbital development.

4.50pm: The box wrapped up - eyelid malpositions *Maria Amesty, Moorfields Eye Hospital*

Maria Amesty studied Medicine at Universidad Complutense de Madrid and then at San Carlos University Hospital. She specialised in Ophthalmology at Puerta de Hierro University Hospital in Madrid. After that period in Madrid, she started her Oculoplastic training as a fellow in Ophthalmic, Plastic and Reconstructive surgery at Nottingham University Hospitals NHS Foundation Trust. She is currently continuing her surgical training in the Adnexal Service at Moorfields Eye Hospital in London. Her research into keratopigmentation using micronised mineral pigments led to her doctorate project, which is about to be awarded by the Universidad Autónoma de Madrid.

Her talk, entitled 'Eyelid malpositions' will give a review of the causes and surgical approaches to correct eyelid malpositions that clinicians encounter most often. Symptoms can range from none to tearing or severe pain. Patients can develop vision-threatening sequellae. Prompt evaluation and management will protect the eye and avoid complications difficult to treat.

PREVIOUS PRIZE WINNERS

NOTTINGHAM RESEARCH PRIZE

A rolling trophy and an individual shield awarded to the best presentation in the clinical research category considered by a panel of judges on the day.

2014: MS Elalfy, University of Nottingham. *Collagen Cross-linking with Photoactivated Riboflavin for the Treatment of Advanced Infectious Keratitis with Corneal Melting*

2013: H Lee, University of Leicester. *Characteristics of infantile nystagmus using hand-held ultra-high resolution spectral domain optical coherence tomography in infants and small children*

2012: G Maconachie, University of Leicester. *Effect of Compliance to Glasses Wear on Outcome of Visual Acuity after Refractive Adaptation*

2011: MG Thomas, University of Leicester. *High Resolution in-vivo Imaging in Achromaptosia*

2010: M Al-Aqaba, University of Nottingham. *Architecture and Distribution of Human Corneal Nerves*

2009: MG Thomas, University of Leicester. *Voluntary Modulation of Involuntary Eye Movements during Reading*

2008: A Bhan-Bhargava, University of Nottingham. *Glaucoma in an Elderly Caucasian Population (The Bridlington Eye Assessment Project)*

2007: A Shwe-Tin. *Digital Infrared Pupillometry for Comparing Cocaine with Apraclonidine Testing when Investigating Horner's Syndrome*

2006: MJ Hawker. *Linear Regression Modelling of Rim Area to Discriminate Between Normal and Glaucomatous Optic Nerve Heads: The Bridlington Eye Assessment Project*

2005: M Awan, University of Leicester. *Can Patching be Improved in Amblyopia Treatment?*

2004: VS Maharajan, University of Nottingham. *Amniotic Membrane Transplantation for Ocular Surface Reconstruction: A Seven Year Retrospective Analysis*

2003: M Awan, University of Leicester. *Effect and Compliance of Strabismic Amblyopia Monitored with the Occlusion Dose Monitor*

2002: D Squirrell. *A Prospective, Case Controlled Study of the Natural History of Diabetic Retinopathy and Maculopathy after Uncomplicated Phacoemulsification Cataract Surgery in Patients with Type 2 Diabetes*

2001: J Morgan, University of Nottingham. *The Detection of T-Cell Activation by Retinal Autoantigen in Uveitis Patients using Cytokine Flow Cytometry*

2000: C Weir. *Spatial Localisation in Esotropia - is Extra ocular Muscle Proprioception Involved?*

1999: P Hossain. *A Method to Visualise Leukocytes in the Retinal and Choroidal Circulation in vivo*

1998: C M Sloper, University of Nottingham. *Tacrolimus in High-Risk Corneal and Limbal Transplants*

1997: A R Sarhan, University of Nottingham. *Rapid Suture Management of Post-Keratoplasty Astigmatism*

DAVID MEYER RESEARCH PRIZE

A rolling plaque and an individual shield awarded to the best presentation in the basic science research category considered by a panel of judges on the day.

2014: M Al-Aqaba, University of Nottingham. *Ultrastructural Characterisation of a Newly Discovered Neuronal Structure in Human Corneas*

2013: J Rose, University Of Nottingham. *Evaluation of Electrospun Gelatin/ Polycaprolactone as a Material Suitable For Use in Corneal Regeneration*

2012: K Hashmani, University of Nottingham. *Corneal Stromal Stem Cells – A Mesenchymal Epithelial Transition*

2011: P Dhillon, University of Nottingham. *Characterisation of Corneal Stromal Cells as a Novel Mesenchymal Stem Cell Source*

2010: MG Thomas, University of Leicester. *High Resolution Spatial and Temporal Expression Profile of FRMD7 in Neuronal Tissue Provides Clues for Pathogenesis and Treatment*

2009: I Mohammed, University of Nottingham. *Interleukin-1 Beta induced RNase-7 Expression requires MAPK but not NF-kB Signalling*

2008: EA Stewart, University of Nottingham. *Human Choroidal Endothelial Cell Growth Factor Signalling in Age-Related Macular Degeneration*

2007: S Thomas, University of Leicester. *Mutations in FRMD7, a Novel Gene, Cause X-linked Congenital Idiopathic Nystagmus*

2006: A Hopkinson, University of Nottingham. *Amniotic Membrane for Ocular Surface Reconstruction: Donor Variations and Handling affect Membrane Constituents*

2005: KH Weed. *In vivo Confocal Microscopy: Corneal Changes Following Retinal Detachment Surgery with Intra-ocular Silicone Oil*

2004: A Browning, University of Nottingham. *The Isolation and Characterisation of Adult Human Sub-macular Inner Choroidal Endothelial Cells*

2003: RD Hamilton, University of Nottingham. *Characterisation of an In vitro Model for Studies into Age Related Macular Degeneration*

NOTTINGHAM POSTER PRIZE

An individual shield awarded to the best poster presentation considered by a panel of judges on the day.

2014: A Yeung, University of Nottingham. *Fibrin Glue in Corneal Epithelial Cell Migration*

2013: SL Wilson, Keele University. *Characterisation of Cultured Stromal Cells: In vitro Restoration of the Keratocyte Phenotype using Co-culture Approaches*

2012: MJ Branch, University of Nottingham. *Lymphocyte Proliferation Assay for Ophthalmology based Tissue Engineering*

2011: U Fares, University of Nottingham. *Correlation of Central and Peripheral Corneal Thickness in Healthy Corneas*

2010: I Mohammed, University of Nottingham. *Human Defensin 9, a 'Functional' Host Defence Protein*

2009: AM Otri, University of Nottingham. *Expression Pattern of Anti-microbial peptides (AMPs) in Acanthamoeba Keratitis*

2008: M Mathew, University of Nottingham. *Malignancies after Tacrolimus Therapy in the Management of Ocular Inflammatory Disease*

2007: JJ Gicquel, Poitiers, France. *A 24-month Follow-up of Severe Ocular Burns with Impression Cytology*

2006: P Ji. *Retinal Features in Children with Down's Syndrome*

2005: H Kolli. *Intravitreal Triamcinolone Acetonide in the Management of Refractory Uveitis*

2004: I Choudhari, University of Leicester. *National Survey of Management of Acquired Nystagmus*

2003: P Tesha, University of Leicester. *Interactive Teaching in Ophthalmology*

2002: D Thomas. *The Taut Thickened Posterior Hyaloid (TTPH)*

2001: R Amankwah, University of Nottingham. *Hyaluronic Acid Promotes the Migration of Corneal Epithelial Cells In vitro*

2000: IA El-Ghrably, University of Nottingham. *Quantitative Assessment of Cytokine mRNA and Secreted Protein in Proliferative Vitreoretinopathy*

1999: A Pearson. *Does Ethnic Origin Influence the Incidence or Severity of Keratoconus?*

1998: R Ahmed, University of Nottingham. *Modified Sheridan Gardiner Vision Test with Semi-transparent Card*

1997: D Raj, University Hospitals Nottingham. *Stem Cell Deficiency of the Corneosleral Limbus: a New Approach to Surgical Management*

HONORARY DELEGATES

Nomination of delegates as “Honorary delegates” of the Symposium was considered for the first time in 2006. This was to recognise individuals who had supported the meeting and contributed to it over the years. These delegates have the privilege of full participation and attendance in the meeting as guests of the Symposium.

Mr Nicholas R Galloway, Nottingham (2006)

Professor Larry Donoso, Wills Eye Hospital, Philadelphia (2010)

Mr A A Zaidi, Rotherham, UK (2011)

Professor Martin Rubinstein, UK (2012)

NEXT MEETING

The 20th Nottingham Eye Symposium and Research Meeting
***featuring the Norman Galloway Lecture* will be held on**
Friday, 29th January 2016

- *Research trainee abstract presentations (oral and poster) and prizes*
- *Guest presentation by a leading optometrists*
- *A symposium with talks from prestigious ophthalmologists*
- *The Norman Galloway Lecture*
- *Excellent conference facilities including free parking*
- *Tea, coffee and a hot buffet lunch provided*
- *All for a very reasonable registration fee!*

Contact the NES Meeting Co-ordinator: nes@nottingham.ac.uk to receive details on the next meeting and check out the website for details of previous and next year's meetings.
http://www.nottingham.ac.uk/conference/fac-mhs/medicine/nottingham-eye-symposium-and-research-meeting/index.aspx

For the latest news on the Eye Symposium
Follow us on twitter: twitter.com/eyesymposium
Like us on facebook: www.facebook.com/eyesymposium
and join us on linkedin: www.linkedin.com/groups/Nottingham-Eye-Symposium-3806753/about?trk=anet_ug_grppro

Original artwork supplied by Samantha L Wilson