Irish College of Ophthalmologists

Eye Doctors of Ireland

Protecting your Vision

ICO Winter Meeting and Annual Montgomery Lecture **2021**

December 10, 2021

Programme

3pm **WELCOME**
Prof Colm O'Brien, Chair ICO Scientific & Continuing Professional Development Committee

PAPER PRESENTATIONS

3.02pm **The role of αvβ3 integrin and its inhibition in lamina cribrosa cell mechanotransduction in glaucoma**
Sarah Powell

3.10pm **Outcomes of genetic screening of an Irish paediatric inherited retinal degeneration population**
Julia Zhu

3.18pm **Validating circulating miRNA biomarkers for AMD in an Irish population**
Ian Brennan

3.26pm **An evaluation of the safety and effectiveness of telephone triage in prioritising patient visits to an ophthalmic emergency department – the impact of COVID-19**
Glynis Hanrahan

3.34pm **Redefining Alport's syndrome: ocular phenotypes in type IV collagen disorders**
Liam Tomás Mulcahy

3.42pm **Candida blood stream infection: to screen or not to screen?**
Amy O'Regan

3.50pm **The efficacy of retinal pneumopexy in releasing vitreomacular traction**
Matthew O'Riordan

3.58pm **6 year retrospective study of the trends of anti-vascular growth factor therapy in retinal disease in University Hospital Limerick**
Eabha O'Driscoll

4.06pm **Repeated corneal collagen – crosslinking (CXL) In Keratoconus in long-term outcome**
Tayseer Mohamad

4.14pm **Management of traumatic canalicular lacerations: comparison of bicanalicular silicone tube and monocanalicular Mini-Monoka repair at Cork University Hospital**
Edward Ahern

4.22pm **Ophthalmology input and ocular findings in patients with facial bone fractures in St Vincent's University Hospital: January 2020 – November 2021**
Michael Troy

4.30pm **POSTERS**

5.00pm **COFFEE BREAK**

5.15pm **Welcome & Introduction of the Annual Montgomery Lecture 2021 by Mr Tim Fulcher, President, ICO**

5.20pm **Annual Montgomery Lecture 2021**
Title "Developing a clinical research program - 30 years of Acanthamoeba keratitis"
Prof John KG Dart MA DM FRCOphth
Hon. Consultant Ophthalmologist, Hon. Professor, University College London,
Moorfields Eye Hospital, London

6.00pm **Q&A**

6.30pm **MEETING CLOSE**

Annual Montgomery Lecture 2021

"Developing a clinical research program - 30 years of Acanthamoeba keratitis"

Prof John KG Dart MA DM FRCOphth
Hon. Consultant Ophthalmologist, Hon. Professor, University College London,
Moorfields Eye Hospital, London

Prof John Dart has been researching Acanthamoeba keratitis disease for 30 years. Although it is a relatively rare disease most ophthalmologists will have seen a case and know how severe it is. Prof Dart began his research on the condition in the mid 1980's when cases first started to increase and in his lecture, will discuss what he, and others, have done to answer the questions about the causes, environmental factors, development of diagnostic techniques and development of treatments from then to the preliminary results of their current treatment trial.

The focus will be on how a clinical research programme developed as a response to a new disease and an insight into what can be achieved.

Biography

John Dart has been a Consultant Ophthalmologist at Moorfields Eye Hospital since 1987 and an Honorary Professor of UCL, at the Institute of Ophthalmology since 2011, providing a tertiary referral service for patients with Corneal and External diseases until 2020 when he retired from clinical work. He has continued with his research focused principally on microbial keratitis and cicatrising conjunctivitis.

His current studies, including a Phase II/III randomized trial of a new formulation of PHMB for the treatment of Acanthamoeba keratitis, are aimed at providing the first licensed therapy for this disease, and the development of topical ALDH inhibition to control the unmet need of scarring in cicatrising conjunctivitis. He has over 220 peer-reviewed publications, has trained 38 Corneal and External disease Fellows and 8 PhD/MD students; four of these now hold Chairs in Ophthalmology or Optometry. He has given 19 eponymous lectures including the EuCornea Medal 2015, the Bowman Medal (RCOphth) 2016 and the Castroviejo Medal (Corneal Society) 2019.

Paper Presentations

The role of αvβ3 integrin and its inhibition in lamina cribrosa cell mechanotransduction in glaucoma

Authors:
Sarah Powell[1,2], Mustapha Irnaten[1], Ellen Gaynor[1], Colm O'Brien[1,2]
[1]*Catherine McCauley Research Centre, University College Dublin*
[2]*Department of Ophthalmology, Mater Misericordiae University Hospital, Dublin.*

Objectives

Glaucoma is characterized by optic nerve head (ONH) cupping, loss of retinal ganglion cells (RGC) and progressive, irreversible visual field loss. There is extracellular matrix (ECM) accumulation and fibrosis of the lamina cribrosa (LC) in the ONH, and consequently increased tissue stiffness of the LC connective tissue. Integrins are cell surface proteins that provide the key molecular link connecting cells to the ECM and serve as bidirectional sensors transmitting signals between cells and their environment to promote cell adhesion, cell migration, proliferation and remodelling of ECM. Integrins sense, respond to and interact with ECM of differing properties. Here, we examine the expression of integrin αVβ3 in normal LC cells (NLC) and glaucoma LC cells (GLC), and study the role of tissue stiffness on ECM differential gene expression in NLC cells, and also investigate the effect of Cilengitide (a known αVβ3 inhibitor) on ECM gene expression in normal LC cells grown on soft and stiff substrates.

Methods

GLC cells were compared to age-matched non-glaucomatous controls to determine differential expression levels of αVβ3 Integrin, ECM genes (Col1A1, a-SMA, and fibronectin), and proliferation rates. NLC cells were cultured on soft (4kPa) and stiff (100kPa) Collagen-1 coated hydrogel substrates in the presence or absence of Cilengitide (10 μM, 24 hours) and their responses examined by, quantitative real time RT-PCR, immunoblotting, and immunohistochemistry, respectively. Proliferation rates were examined in normal and glaucomatous LC cells by MTS assays with and without Cilengitide.

Results

αvβ3 integrin gene and protein expression levels were significantly enhanced in glaucoma LC cells when compared to normal LC cells ($p<0.05$; $n=3$). The levels of αvβ3 integrin were significantly increased when NLC cells were cultured in stiff substrate (100 kPa) compared to soft (4 kPa) substrate. Cilengitide pre-treatment inhibited the stiffness-induced profibrotic ECM gene expression including Col1A1, a-SMA and fibronectin. Cilengitide also reduced the increased proliferation rate seen in GLC cells.

Conclusion

Targeting αvβ3 expression and signalling may represent a potential avenue for treating glaucoma-associated LC fibrosis.

Outcomes of genetic screening of an Irish paediatric inherited retinal degeneration population

Authors:
Julia Zhu[1], Kirk Stephenson[1,2], Jacqueline Turner[1], James O'Byrne[1], Susan Fitzsimon[2], Ian Flitcroft[1,2], David Keegan[1,2]
[1]Mater Clinical Ophthalmic Genetics Unit, Mater Misericordiae University Hospital, Dublin
[2]Children's University Hospital, Temple Street, Dublin.

Objectives

Inherited retinal degenerations (IRDs) accounts for over one third of the underlying causes of blindness in the paediatric population. Patients with IRDs often experience long delays in getting their diagnosis, on average, patients see 8 clinicians before the final diagnosis is made. To date, the majority of patients recruited to the Irish national IRD programme (Target 5000) have been adults. Herein, we describe the first focused effort in Ireland to clinically and genetically diagnose a cohort of children and adolescents with IRDs and describe the pathway used to facilitate ready-access to genetic testing in preparedness for clinical trials in gene therapies.

Methods

The electrophysiology records of a tertiary referral paediatric ophthalmic hospital (Children's University Hospital, Temple Street, Dublin, Ireland) from 2007 – 2020 were screened (n=1045) for features consistent with IRD. 87 reports (8.3%) consistent with IRDs were identified and a retrospective chart review was conducted to ensure the clinical phenotype matched their electrophysiology result. Patients or parents were contacted over the phone to obtain family history as well as consent for genetic testing. A saliva sample kit for genetic analysis (Oragene DNA OG-500/OGD-500) was sent directly to the patient's home. A next generation sequencing analysis was performed by an accredited laboratory (Blueprint Genetics, Helsinki, Finland) comprising a panel of 322 IRD-implicated genes as well as the mitochondrial genome. Results from genetic testing were discussed in a multidisciplinary team setting comprising ophthalmologists, clinical and molecular geneticists and genetic counsellors to ensure correlation of the phenotype with genotype prior to the feedback of their genetic results to the patients/parents by the genetic counsellor.

Results

87 individuals were identified by electrophysiology features consistent with IRD (e.g., rod and/or cone photoreceptor dysfunction). Out of the 87 individuals, 70 patients from 57 pedigrees underwent genetic testing. Of 70 patient samples from 57 pedigrees sent for genetic testing, a causative genetic variant(s) was detected in 60 (85.7%) probands from 47 pedigrees. Of the 60 genetically resolved IRD probands, 38.3% (n=23) are eligible for approved or clinical trial-based gene therapies including RS1 (n=7), RPGR (n=5), CEP290 (n=2), CNGA3 (n=3) and CNGB3 (n=6) retinopathies.

Conclusion

This is the first systematic coordinated genetic assessment of a paediatric IRD cohort in Ireland which resulted in an 85.7% detection rate in keeping with other NGS studies. The early introduction of genetic testing in the diagnostic pathway in children with clinical and/or electrophysiologic findings suggestive of IRD is critical for genetic counselling for the children and parents of these children for those that could be suitable for upcoming gene therapy trials.

Validating circulating miRNA biomarkers for AMD in an Irish population

Authors:
Ian Brennan, Hanan ElShelmani, David Kelly, David Keegan
Mater Misericordiae University Hotpital, Dublin.

Objectives

This study characterised the expression of miRNAs that have been linked to age-related macular degeneration (AMD) and aimed to validate them as biomarkers in an Irish population.

Methods

Total RNA was extracted from sera from patients with dry AMD (n = 12), wet AMD (n = 14), and healthy controls (n = 10) with dry AMD. 42 miRNAs identified from the literature as potential AMD biomarkers were co-analysed using a miRCURY LNA miRNA SYBR® Green PCR kit via quantitative real-time polymerase chain reaction (qRT-PCR) to validate their presence.

Results

AMD serum specimens had a distinct miRNA profile than healthy controls, according to unsupervised hierarchical clustering. The differently regulated miRNAs in serum from AMD patients versus controls were satisfactorily validated. When dry AMD patients were compared to healthy controls, eight miRNAs (hsa-let-7a-5p, hsa-let-7d-5p, hsa-miR-23a-3p, hsa-miR-301a-3p, hsa-miR-361-5p, hsa-miR-27b-3p, hsa-miR-874-3p, hsa-miR-19b-1-5p) showed higher circulating serum concentration.

Conclusion

Increased levels of some miRNAs in the blood of AMD patients suggest that these miRNAs could be exploited as diagnostic AMD biomarkers and as potential therapeutic targets in the future. The identification of significant serum miRNA biomarkers in AMD patients would provide a simple screening tool for those at risk.

An evaluation of the safety and effectiveness of telephone triage in prioritising patient visits to an ophthalmic emergency department – the impact of COVID-19

Authors:
Glynis Hanrahan, Cathriona Ennis, Marcus Conway, Patrick Murtagh, Donal Brosnahan
Royal Victoria Eye and Ear Hospital, Dublin.

Objectives
During the COVID-19 crisis, a new nurse and doctor-led telephone triage model of care was evaluated as a method of prioritising essential visits to the ophthalmic accident and emergency department in the Royal Victoria Eye and Ear Hospital. This new method of service is known as "Telehealth" or "E-Health". Therefore the aim of this project was to assess the safety and efficacy of a Telehealth model of care utilised during the COVID-19 pandemic.

Methods
A prospective study was undertaken in the Royal Victoria Eye and Ear Hospital where the telephone triage records were examined over a 28-day period during the COVID-19 pandemic from 19 March 2020 to 16 April 2020 inclusive.

Results
During this period, 1120 telephone calls were received by the call centre. A total of 739 patients attended the emergency department over the 28-day period compared to 2247 during the same period in 2019.

Conclusion
To reduce risk of transmission, the COVID-19 pandemic has necessitated novel ways of interacting with patients and sharing healthcare information. Our new mode of service provision in the RVEEH portrays the effectiveness of Telehealth. This study gives us further scope to improve this model of care into the future.

Redefining Alport's syndrome: ocular phenotypes in type IV collagen disorders

Authors:
Liam Tomás Mulcahy[1], Elhussein Elhassan[2,3], Gianpiero Cavalleri[4], Katherine Benson[4], Omri Teltsh[4], Peter Conlon[2,3], Tim Fulcher[1]
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[2]Department of Nephrology and Transplantation, Beaumont Hospital, Dublin
[3]Department of Medicine, Royal College of Surgeons in Ireland
[4]Department of Pharmacy and Biomolecular Sciences, Royal College of Surgeons in Ireland.

Objectives
Alport Syndrome (AS) is an inherited disorder characterized by progressive chronic kidney disease (CKD), sensorineural hearing loss and ocular abnormalities. AS is caused by variants in the COL4A5, COL4A4, and COL4A5 genes resulting in loss of the type IV collagen α3α4α5 found in the basement membranes of the glomerulus and cochlea, as well as the retina, lens capsule, and cornea. Common ocular manifestations include dot-and-fleck retinopathy, temporal macular thinning, and lenticonus. Increasing clinical use of genetic sequencing technologies has implicated COL4A5, COL4A4, and COL4A3 genes in a wide range of kidney disorders other than classical AS. A new genetic classification system for type IV collagen disorders has suggested reclassification of AS to encompass all disorders arising from abnormalities in collagen IV α3α4α5; such a change would result in AS/type IV collagen disorders becoming one of the most common forms of genetic kidney disease.

Methods
In this study, twenty-six adult patients who were identified as having type IV collagen mutations (COL4A5, COL4A3, or COL4A4 variants) on genetic sequencing following recruitment to the Irish Kidney Gene Project underwent ophthalmic assessment including dilated slit-lamp examination, fundus photography and OCT assessment for temporal macular thinning (Zeiss CIRRUS HD-OCT 500). Renal biopsy results for referred patients were reviewed by an independent renal histopathologist for diagnostic features of AS.

Results
Of the twenty-six patients, seven (26.92%) had a priori clinical diagnoses of AS. Twenty-four patients (92.31%) had histopathological features of AS on renal biopsy. Twenty-three (88.46%) patients had COL4A5 variants, two (7.69%) had COL4A3 variants, and one (3.85%) had a COL4A4 variant. We identified seven patients (26.92%; 7/24) with one or more AS specific ophthalmic findings. Six (23.08%; 6/24) had temporal macular thinning, three (11.54%; 3/24) had fleck retinopathy, and two (7.69%; 2/24) had anterior lenticonus. Among those with ophthalmic findings, half (3/6) had a priori diagnoses of FSGS and half (3/6) of Alport's Syndrome. Six had histopathological features of AS on renal biopsy while one patient with temporal macular thinning only had FSGS. All six patients had COL4A5 variants. Of note, the incidence of end-stage renal disease (ESRD) requiring renal replacement therapy in patients with ophthalmic manifestations was 84.71% (6/7) compared to 53.85% (14/26) in the overall cohort. Incidentally, ten (38.46%) were found to have cataracts, including four patients with posterior sub-capsular cataracts all of whom had received renal transplants.

Conclusion
Ophthalmic findings in Alport's Syndrome complement existing histopathological and genetic diagnostic methods in establishing prognostic classification and should be taken into consideration as subcategories of COL4A5 (X-linked) type IV collagen disorders are developed.

Candida blood stream infection: to screen or not to screen?

Authors:
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Department of Ophthalmology, St Vincent's University Hospital Department of Microbiology, St Vincent's University Hospital, Dublin.

Objectives

Endogenous ocular involvement is a rare but sight-threatening complication of candida bloodstream infection (BSI). Recent studies have shown that the prevalence of ocular candidiasis is much lower than previously reported. New guidelines from the RCOphth and AAO do not recommend routine ocular screening for all patients with candida BSI as was previously advised, rather targeted screening of those at increased risk or those with symptoms/signs of ocular involvement. In accordance with international microbiology guidelines however, an ophthalmology consult is advised in SVUH for all patients with candida BSI. We wished to determine the proportion of patients with candida BSI that are seen by ophthalmology in SVUH, and establish the prevalence of ocular involvement.

Methods

A retrospective chart review was carried out on all patients who had candida BSI in SVUH over a one-year period. We obtained data on patient demographics and clinical status, candida species, anti-fungal treatment, ophthalmology consultation and ocular findings. Based on our results, we have proposed new guidelines for ocular screening in candida BSI.

Results

There were 79 positive blood cultures for candida in 38 patients in 2018. Data was available for 89% patients. 66.7% were treated with fluconazole. Ophthalmology consulted on 55.9% patients. The majority of patients not seen had died prior to consult. 26.3% patients seen were sedated and intubated in ICU, the remainder were alert. None of the patients were noted to have new visual symptoms. 68% patients had a completely normal ocular exam. No patients had evidence of candida endophthalmitis or chorioretinitis. 32% had unrelated ocular findings such as cataract, diabetic retinopathy, and AMD.

Conclusion

There were no cases of candida endophthalmitis or chorioretinitis. Similar to recent studies, our audit shows that the need for routine ophthalmic screening of all patients with candida BSI may not be justified. With the assistance of our microbiology colleagues in SVUH, we are developing new guidelines for ocular screening in the setting of candidaemia. We recommend ophthalmology consultation in the following cases: alert patients with new onset decreased vision in either eye or an abnormal bedside examination, and non-alert patients with an abnormal bedside examination or increased risk factors. Selective screening of patients on a case-by-case basis should reduce unnecessary examination and intervention which could cause harm.

The efficacy of retinal pneumopexy in releasing vitreomacular traction

Authors:
Matthew O'Riordan, Kwabena Frimpong-Ansah
Royal Eye Infirmary, University Hospitals Plymouth NHS Trust, United Kingdom

Objectives
To assess the efficacy of retinal pneumopexy in releasing vitreomacular traction in an ophthalmic unit.

Methods
Patients who underwent retinal pneumopexy for vitreomacular traction syndrome between 2016 and 2020 by a vitreoretinal surgeon Mr Frimpong-Ansah were identified. Data including surgical indication, pre-operative visual acuity, operative detail, post-operative visual acuity, release status and complications were extracted from patient notes.

Results
15 eyes of 14 patients had retinal pneumopexy performed for vitreomacular traction (VMT) syndrome. 13 of 15 (87%) were injected with C3F8 gas, with 2 (13%) receiving C2F6 gas.

13 (87%) eyes were successfully released at follow up. 1 patient developed a retinal detachment requiring surgical intervention and subsequently had VMT release. 1 eye remained refractory to retinal pneumopexy. The mean improvement in visual acuity was 0.4 logMar.

Conclusion
Retinal pneumopexy is an effective therapy for vitreomacular traction syndrome, with low complication rates.

6 year retrospective study of the trends of anti-vascular growth factor therapy in retinal disease in University Hospital Limerick

Authors:
Eabha O'Driscoll, Marie Hickey-Dwyer
University Hospital Limerick, Limerick.

Objectives

The rising burden of treatment of retinal diseases with intravitreal anti-vascular endothelial growth factor (VEGF) injection (IVT) therapy is a national and global problem. So far in Ireland, the trends of anti-VEGF use in ophthalmology have not been described. The aim of this study was to characterise the types of anti-VEGF therapy and the treatment population in the era of the commencement of the Diabetic Retinopathy Screening (DRS) programme in University Hospital Limerick (UHL).

Methods

Data was examined between January 2014 to December 2019 from the ophthalmology theatre ledgers (OTLs) and Hospital In Patient Enquiry (HIPE) data. This data was used to compare operative work against administrative hospital acquired information.

Results

According to the OTLs in 2014, there were 1865 IVTs per 532 unique patients (UPs) compared to 3387 ITVs per 928 UPs in 2019. This represents a 182% increase over the 6 years. The drug of choice changed from Bevacizumab, 62.8%, in 2014 to Ranibizumab, 31.1%, in 2019. The number of UPs recorded between the data sets were conflicting. HIPE under represented an average of 402.5 UPs/year compared to the OTLs. According to HIPE, there was a marked increase, 209%, in the number of IVTs due to diabetes from 435 in 2014, to 913 in 2018. The majority, 78.8%, of all IVTs over the 6 years were due to 'other retinal disorders'. HIPE failed to adequately categorise the majority of IVT events.

Conclusion

This study demonstrates that the treatment of medical retinal disease poses an increasing burden on the ophthalmology services in UHL. It identifies shortcomings in the recording of procedures and their indications. Thus, highlighting a serious weakness in the HIPE data. Such a deficit has far reaching consequences for both hospital funding and resource planning and is not in keeping with HIQA's 2018 recommendations.

Repeated corneal collagen – crosslinking (CXL) In Keratoconus in long-term outcome

Authors:
Tayseer Mohamed, Billy Power, Conor Murphy, Diana Malata
Royal Victoria Eye and Ear Hospital, Dublin.

Objectives

To evaluate the long-term outcome of corneal collagen crosslinking (CXL) in patients with keratoconus who were treated in Royal Victoria Eye and Ear Hospital (RVEEH) in Dublin and need to repeat the procedure.

Methods

A retrospective audit was conducted in patients who underwent CXL in the period between (01/01/2008-31/12/2020). Patients charts on DOCMAN data system were reviewed. A number of 1200 eyes of patients were included in this audit. Patients who had repeated CXL in the same eye were identified. Follow-up of those patients was reported. During each visit, VA, K max and corneal thickness were recorded. As -well risk factors like eye rubbing, hay fever, Asthma, eczema and Down syndrome were reported.

Results

Overall 6 eyes out of 1200 eyes (0.5%) had repeat CXL. The period between the first and second procedure was around 4 years or more. Four patients were males and 2 were females. One patient was 41-year old, the rest were < 35. Four patients had a repeat operation in 4 years, 1 had repeat in 7 and 1 in 8 years-time. Three of the patients had repeated operation in the Right eye and 3 of them in the left eye. All of them had bilateral keratoconus. No significant changes for corrected VA in the period between first and second procedure for 5 of them, only one patient had deteriorated VA. Maximum keratometry (Kmax) value after first procedure was 56.7± 2D for all patients and K max before the second procedure was 60.2±2D for all of them, progression of 4D on average in Kmax was determined. Corneal thickness of thinnest point was decreased from 468±µm for all patients after first procedure to 368+µm before the second procedure .Three patients had Asthma, 2 had eczema, 3 had hay fever and 5 had eye rubbing. One patient had no medical or ocular issues. There was no Down syndrome patient among them. There is only patient had PKP on the other eye. All of them had no family history of keratoconus.

Conclusion

CXL is an effective treatment in the long- term stabilization of keratoconus. The study showed that there were only 6 patients (0.5%) had repeated CXL in the same eye. Some of them had atopic diseases and there was no family history of keratoconus among them.

Management of traumatic canalicular lacerations: Comparison of bicanalicular silicone tube and monocanalicular Mini-Monoka repair at Cork University Hospital.

Authors:
Edward Ahern, Kealan McElhinney, Zubair Idrees
Department of Ophthalmology, Cork University Hospital, Cork.

Objectives
To compare the outcomes of traumatic canalicular laceration repair using silicone bicanalicular intubation to Mini-Monoka monocanalicular intubation.

Methods
A retrospective chart review of patients presenting between December 2015 and October 2021 was performed. Data analysed included: time and date of injury and repair, mechanism of injury, other ocular injuries sustained, technique of repair, post-operative complications, functional outcomes in terms of symptomatic epiphora and patient satisfaction with cosmesis.

Results
Fourteen patients who underwent repair of canalicular lacerations were included. Seven were in children. The lower canaliculus was involved in 12 presentations, 1 involved the upper and 1 involved both canaliculi. Mechanism of injury varied amongst adults however dog bites caused 6 out of 7 lacerations in children. The majority (64%) of patients were operated on within 24 hours of injury with the remainder being operated on within 48 hours. Five were repaired by bicanalicular silicone intubation by the same consultant surgeon. One case experienced post-operative irritation at the stent site. Nine were repaired with Mini-Monoka by different consultant surgeons. One case was complicated by tube extrusion. All patients in both groups reported satisfactory cosmetic outcomes and had appropriate lid alignment. One patient in each group reported persistent epiphora post-operatively. Comparison by anatomical testing with lacrimal irrigation was not possible due to the large proportion of paediatric patients.

Conclusion
The technique of bicanalicular silicone intubation is safe and effective in canalicular laceration repair with similar results to repair with Mini-Monoka. There was a low incidence of epiphora and post-operative complications in both groups.

Ophthalmology input and ocular findings in patients with facial bone fractures in St Vincent's University Hospital: January 2020 – November 2021

Authors:
Micheal Troy, Brian Woods, Noel Horgan
St. Vincent's University Hospital, Dublin.

Objectives
To investigate the prevalence of ocular complications arising from facial bone fractures in affected patients. Facial bone fractures, especially those of the orbits, can lead to ocular injury and may require ophthalmic review to rule out major ocular manifestations. However, despite imaging-diagnosed orbitozygomatic fractures, the majority of patients remain asymptomatic and may not require immediate formal ophthalmic review.

Methods
This retrospective chart review assessed all patients referred to ophthalmology services in St. Vincent's University Hospital for formal review following imaging-diagnosed facial bone fracture after trauma between January 2020 and November 2021. The following were assessed: (i) self-reported ocular manifestations, (ii) objective assessment (including visual fields, visual acuity, range of ocular motion, fundoscopy), (iii) investigations requested and (iv) whether or not maxillofacial review occurred prior to ophthalmic review.

Results
A total of 27 referrals of patients with facial fractures were made to ophthalmology services between January 2020 and November 2021. Of patients with self-reported ocular manifestations, a lower proportion described new abnormalities following facial bone trauma. A higher proportion had minor ocular manifestations, which were self-resolving and did not require any intervention. None of the patients who were asymptomatic had any objective findings on formal ophthalmic review.

Conclusion
We have found that ocular manifestations following facial bone fracture are uncommon and, in this series, always associated with symptoms. Patients without symptoms following facial bone trauma did not have objective findings upon formal ophthalmic review, and this correlated with the absence of entrapment on imaging. Routine ophthalmic review may not be necessary in the clinical assessment of asymptomatic patients (or in patients with existing ophthalmic disease without new symptoms) following facial bone fracture. Formal ophthalmic review under these circumstances could potentially be more appropriately replaced with case discussion following maxillofacial assessment.

Posters

Apocrine carcinoma of the eyelid, a potential clinical and pathological mimic

Authors:
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[1]Department of Ophthalmology, Cork University Hospital
[2]Department of Neuropathology, Cork University Hospital.

Objectives

Apocrine carcinoma (AC) of the eyelid is a rare sweat gland derived tumour which can be challenging diagnostically from a clinical and pathological standpoint. Reporting of cases is vital to accumulate data to guide diagnosis, management and treatment. A 79 year-old-Female presented with a one-year history of a slowly enlarging nodular mass of the left upper eyelid. She had no relevant past medical history. Examination revealed a firm, dome-shaped, mass with an apical purple cystic head and prominent telangiectatic vessels. There was no associated lymphadenopathy. A local excisional biopsy was performed. Histopathological examination revealed a tumour with pale eosinophilic cytoplasm showing tubule and gland formation. Focally, apical snouting was observed. Mitoses including atypical forms were seen. Morphologically the tumour was an apocrine carcinoma. A primary tumour arising from Moll's glands was favoured but the differential of a secondary metastatic deposit from a primary elsewhere was considered, particularly from breast. In this situation immunohistochemistry is largely unhelpful and close multidisciplinary input is vital to ensure the appropriate diagnosis is reached as treatment plans may vary. Only 28 cases of AC of the eyelid are previously reported. From both a clinical and pathological perspective these cases are challenging and merit reporting to ensure sufficient data are accumulated to guide diagnosis, treatment and management.

Methods

Case Presentation as above in objectives

Results

Case Presentation as above in objectives

Conclusion

Case Presentation as above in objectives

A case report of a bilateral penetrating eye injury secondary to road traffic accident in the modern era.

Authors:
Christine Goodchild, John Doris
Department of Ophthalmology, University Hospital Waterford.

Objectives

To report the case of a bilateral penetrating eye injury post road traffic accidents.
To educate regarding the different types of glass used in automotive construction.

Methods

Case report illustrating the devastating ocular effects current car windows can have post road traffic accident.

Results

19 year old man presented with a severe left ruptured globe and a right penetrated globe with an inferior scleral entry wound from a road traffic accident. He was driving a 2010 car and was hit with the passenger side window.

Right visual acuity at presentation was 6/24and left visual acuity of no perception of light. Urgent CT scan showed evidence of foreign bodies in both globes. He had a right primary repair of scleral laceration, TPPV, removal of foreign body and insertion of oil and left primary repair of scleral and corneal lacerations. A week later he had a left enucleation and insertion of orbital implant. Currently the patient's vision is 6/7.5 with +5 lens in RE and prosthesis in LE.

Conclusion

The difference in laminated versus tempered glass is little known. Laminated glass, which is found in the windscreen, has a middle layer of flexible plastic membrane with keeps the glass intact. However tempered glass, which is found on side windows, breaks into small pieces and shatter. To our best knowledge a case of bilateral penetrating eye injury has not been reported in Ireland in the last 5 years. This case highlights that tempered glass can still cause devastating ocular injuries.

Clinical audit: diabetic retinopathy screening in T2DM patients

Authors:
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[1]School of Medicine, University of Limerick
[2]Glenard Clinic, Mountmellick, Co. Laois
[3]St. Vincent's Hospital, Dublin.

Objectives

Our aim was to see if patients were being invited for diabetic retinopathy screening and subsequently, if they were attending.

Methods

A sample population of a random 100 patients was taken after applying filters of 'HBA1c > 48' and 'Age 65+' within the previous year to the HEALTH-one database. Data was retrospectively collected and electronic charts were investigated to see whether patients had been referred for diabetic retinopathy screening and then whether they had attended. This occurred in Glenard Clinic, Mountmellick, Co. Laois. Framework laid out by the Irish College of Ophthalmologists in 2008 was used as practice standards.

Results

100% of patients had been referred for diabetic retinopathy screening. 83% of patients had previously attended a screen at least once which meets acceptable practice standards. Only 17% of patients had attended in the previous year which falls short of practice standards.

Conclusion

Diabetic retinopathy screening is imperative to identify damage at an early stage before it becomes irreversible. The continuation of attendance to screening is critical in preventing vision loss in our affected population. Patients who don't attend screening are at a higher risk of diabetic retinopathy going unidentified so screening makes this risk preventable. The COVID-19 pandemic affected results between appointment cancellations and patients' fear of leaving their homes. Continued education is required on the importance of screening and education should help patients stay motivated to attend screens for their chronic disease.

Glare and haloes associated with Collamer (Visian ICL with central hole) posterior chamber phakic IOL implant

Authors:
Azher Aldouri, Michael O'Keeffe
Ophthalmology Department, Refractive Surgery Research Centre, Mater Private Hospital, Dublin.

Objectives

To evaluate the glare and haloes associated with collamer phakic IOL for correcting myopia and astigmatism.

Methods

A retrospective observational comparative interventional case series of PIOLs implanted over a course of 3 years for correction of high myopia (>6 diopter) in patients unsuitable for laser correction. A Staar Collamer PCPIOL was implanted in 171 eyes of 103 patients with a mean age of (38.5) years (range from 22–55 yrs old). (32) were men and (71) were women. Preoperatively, each patient had a thorough assessment including general, personal, social, refractive and ocular histories. Examination included visual acuity, refraction, applanation tonometry, Endothelial Cell Count, Anterior Chamber Depth, corneal topography, biometry, pupil size in dim illumination, Slit lamp biomicroscopy and posterior segment evaluation. The vision quality was recorded pre and post phakic ICL implantation for objective measurements of glare and haloes in (17) myopic eyes. The incidence and severity of glare and haloes were evaluated postoperatively.

Results

At 3 months post-operative follow up, all implanted eyes had a dramatic increase in unaided visual acuity, enabling all but 9 patients (17 eyes) to comfortably conduct their daily activities without glasses.Glare and haloes occurred in (9) patients.

Conclusion

Posterior chamber phakic staar collamer intraocular lens is safe and effective in correcting high myopic refractive errors. The incidence of postoperative visually significant glare and haloes is 9.94%.

Spontaneous post-partum lateral rectus hemorrhage

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Objectives

Spontaneous orbital hemorrhage is a rare condition whereby hemorrhage develops within the orbit in the absence of preceding trauma. It may occur at any age and is commonly associated with vascular abnormalities or systemic predisposing factors. Typical presentation is with acute proptosis, ophthalmoplegia, pain, nausea and vomiting. Imaging is essential to determine the location of the hemorrhage. Urgent decompression is indicated in cases where there is potential optic nerve damage due to compressive ischemia.

Methods

We present a case of severe, spontaneous lateral rectus haemorrhage in a 39 year old woman one week post-partum requiring timely surgical intervention to restore vision. Examination revealed left exophthalmos and ophthalmoplegia with marked resistance to retropulsion of the left globe. Visual acuity was reduced to no perception of light in the affected left eye and a relative afferent pupillary defect was present. CT orbits showed an enhancing retrobulbar lesion, suggestive of a lateral rectus hemorrhage.

Results

An emergency lateral canthotomy and inferior cantholysis was performed. A day later, MRI showed expansion of the left lateral rectus with significant mass effect on the globe. As the visual acuity remained reduced at counting fingers and there was a persistent RAPD, an exploratory orbitotomy and hematoma evacuation was performed.

Conclusion

Three days post-operatively, the visual acuity had returned to 6/6. Eye movements then normalised two weeks later and follow-up imaging revealed near complete resolution of the hematoma.

Surgical management of anomalous head posture in paediatric nystagmus

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Objectives
Congenital nystagmus can result in a marked anomalous head posture (AHP), depending on the position of the null point. This can be associated with limitations of neck movement, as well as negative emotional and social consequences for children. We aimed to assess the success of the Anderson procedure in addressing AHP in nystagmus.

Methods
Retrospective review of the use of strabismus surgery, namely the modified Anderson procedure, to treat an AHP associated with nystagmus in four paediatric patients. A large retro-equatorial recession of two yoke muscles was used to relocate the null position of gaze in the direction of AHP. Pre-operative and post-operative measurements were reviewed including vision and degree of head posture.

Results
Face turn was significantly reduced or eliminated in all patients.There were no complications; including the development of restricted eye movements or new strabismus.

Conclusion
With careful patient selection, strabismus surgery can be successful in addressing AHP in nystagmus.

Patient satisfaction with telehealth triage system in the eye emergency department

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Objectives

To determine whether the telehealth model of care as an alternative to a walk-in service is acceptable to service users in the eye emergency department (EED) of the royal victoria eye and ear hospital (RVEEH).

Methods

In March 2020, dramatic measures had to be undertaken to reduce footfall in our EED for staff and patient safety. A Telehealth triage system replaced the walk-in service. Service users phone to request appointment, and are asked to send a photograph of the affected eye. They are then contacted by a triage nurse/doctor who will either manage their condition over the phone (if appropriate) or make an appointment for the service user to be seen within an appropriate time frame. For 18 days in February/March 2021, a patient satisfaction questionnaire was sent by text to 921 patients who interacted with the telehealth service during that time

Results

The response rate was 31%. 51% of respondents waited less than 30 minutes for a call-back from a nurse or doctor. 41% of respondents availed of the facility to email a photo of the affected eye to a secure email address. 64% of respondents were given an in-person appointment to attend ED after their phone-call. 91% of respondents were either 'very satisfied' or 'satisfied' with their experience. 54% of respondents would have opted to partake in a video consultation instead of a phone-call, given the option. 'Very satisfied' or 'satisfied' patients were more likely to have gotten through to the telehealth service in under 10 minutes. They were also more likely to have been given an in-person appointment.

Conclusion

ED Telehealth as an alternative to a walk-in eye emergency service is acceptable to the majority of service users. The use of a patient satisfaction questionnaire is an efficient way to assess service user satisfaction. A proposed improvement to the telehealth system is a video consultation facility.

Brolucizumab in neovascular AMD: a case of treated occult CNV with a near complete reduction of drusen burden

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Objectives

Background: Brolucizumab, a humanised single chain antibody fragment, is the newest anti-VEGF agent to be approved for the treatment of neovascular AMD (nAMD) based on similar efficacy compared to other anti-VEGF agents but with the benefit of possible longer injection intervals. Other anti-VEGF agents can treat occult CNV, but no evidence exists for concurrent reduction of drusen burden.

Methods

Case Presentation: MC, a 68 year old woman, was confirmed with new onset bilateral AMD. BCVA was 6/12 OD and 6/7.5 OS with normal IOP and cup:disc ratio. Medical history revealed that she is a current smoker, taking Atorvastatin 10mg OD, and has a family history of AMD in a first degree relative. Clinical examination, fundus photography and OCT scan revealed extensive soft confluent drusen and hyperpigmentation throughout both macula with a large vascular (vPED) involving the right fovea with a vertical height of 2.3mm measured on OCT. A loading dose (3 intravitreal injections total at 4 weekly intervals) of Brolucizumab 6mg in the right eye was commenced. Repeat findings showed the vPED reduced in height, now measuring 1.1mm. Of note, a dramatic reduction in macular drusen volume was evident clinically and on imaging.

Results

Discussion: Other anti-VEGF agents can treat vPEDs but no significant improvement in VA was noted in these studies. RPE tear (leading to an acute decrease in VA) is a significant complication. Recent studies have shown that the morphology of a vPED influences its activity level, with a taller, peaked PED more active than a flatter, "wrinkled" PED. Anti-VEGF treatment has not been proven to reduce drusen burden. This case demonstrated a large reduction in PED height with no associated RPE tear and a significant volume of soft confluent drusen that dramatically reduced post Brolucizumab loading dose, leading to an improvement in VA.

Conclusion

Conclusion: This case highlights the reduction of drusen and the treatment of a vPED using Brolucizumab in a treatment naïve eye with nAMD. Further work is needed to explain how Brolucizumab may cause resolution of macular drusen. Ongoing in vitro work is focusing on the effect of Brolucizumab on cell models including monocytes and RPE cells. Brolucizumab may influence biochemical pathways (other than reducing VEGF) that slow progression of disease and prevent further vision loss.

Atypical late onset dehiscence of sclerotomy with high IOP in a Marfan patient

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Objectives
Case report

Methods
Pre-op photos, intraoperative movie, post-op photos, close follow up

Results
Patient operated with scleral graft with successful closure of sclerotomy and stable IOP

Conclusion
Marfan patients need long term follow up for the risk of spontaneous globe rupture or wound dehiscence in vitrectomized eyes.

Implementation of a specialist referral form for ophthalmology at St. James's Hospital

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Objectives

Ophthalmology departments in Ireland face an increasing number of referrals.1 The introduction of an electronic system is imperative for meeting such demands. In order to address this challenge, we propose the implementation of an ophthalmic specialised referral form, with required minimum information to ensure safe and effective triage of patients. This pilot study will facilitate integration into the hospitals electronic patient record (EPR) system in 2022, in line with the recommendations of the most recent Model of Eye Care by the National Clinical Programme for Ophthalmology.1

Methods

Following approval, a prospective cohort study of all inpatient referrals will be included over a two week period. Clinical data will be collected from the referral letter including demographics; reason for referral and subsequent diagnosis. Collected data will then be pseudonymised and entered into an electronic database. A specialist referral form created in line with HIQA standard national Outpatient General Referral form with the addition of ophthalmology-specific questions will be made available. Main outcome measures of this proposed study are the reduction of unnecessary referrals and the introduction of a specialist referral form with the aim of transformation to EPR in 2022.

Results

Anticipated results from this study would include inconsistency in referral details received, with absence of relevant details for triage.

Conclusion

The introduction of a specialist referral form with focused questions will allow better triage of patients and minimisation of unnecessary referrals, increasing efficiency of the referral process. This pilot study will serve as a foundation for the implementation of an electronic based referral system, an essential part of the Ophthalmology strategy noted both in the most recent Model of Eye Care and the Primary Care Review Document.2

References

1. Power W, Barry P, Moriarty P, Kelly S. National clinical programme for ophthalmology: Model of eye care: Draft report.
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Red eye – don't know why? The case for including inclusion conjunctivitis in your differential diagnosis

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Objectives

A 24 year old gentleman presented to our service with a 9 month history of bilateral, recurrent, red, irritated eyes with watery discharge having been treated for conjunctivitis on multiple occasions in the interim. The patient denied any sexual contacts but stated that his symptoms began after sleeping on a "dirty couch".

Methods

On examination he had large follicles prominent in the inferior fornix and also in the upper tarsal conjunctiva. There was superficial punctate keratitis bilaterally. Of note, he also had significant bilateral preauricular lymphadenopathy.

Results

Swabs were sent for RNA-based nucleic acid amplification testing (Aptima Combo 2) which confirmed the diagnosis of chlamydia trachomatosis and the patient was started on empirical treatment with azithromycin topically and orally. The patient had no symptoms of urethritis and, interestingly, urine sampling failed to detect chlamydia.

He was referred to the Infectious Disease team for assessment and after three weeks of treatment his symptoms had greatly improved.

Conclusion

Chlamydia trachomatis is an obligate intracellular bacteria. It is responsible for trachoma, inclusion conjunctivitis, and lymphogranuloma venereum. The adult inclusion conjunctivitis is caused by serotypes D-K. Chlamydia trachomatis is the most common cause of chronic follicular conjunctivitis. It is a sexually transmitted disease occurring most commonly in young adults, females being more susceptible than males. The disease is usually transmitted via the hand-to-eye spread of secretions from the genitals and has an incubation time of one to two weeks. Due to the fact that the presenting features of chlamydia conjunctivitis mimic those of viral and other bacterial conjunctivitis, many of these patients tend to have been previously treated with topical antibiotics without any symptomatic relief. Chlamydia may resolve spontaneously and this may be the reason for the failure to detect chlamydia on urine testing in this case. Upon diagnosis, sexual partners of the patient should be contacted and evaluated. Coinfection with other sexually transmitted diseases should also be considered.

A rare case of bilateral primary ocular lymphoma

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Objectives

To present a case of bilateral intraocular lymphoma, a rare but important differential for posterior uveitis.

Methods

A 47-year-old man presented to CUH eye casualty with a 6-week history of decreased visual acuity and associated headaches. Medical history was significant for pulmonary TB, treated in 2017. Exam showed bilateral cataracts and old vitreous debris. On review 4 weeks later BCVA had decreased to R 6/12 and L 6/18 despite no acute active inflammation. Uveitic screen was normal.

Results

The patient proceeded to left cataract extraction and diagnostic vitrectomy. Following surgery BCVA improved to 6/6. Cytology from the vitreous biopsy showed a high grade diffuse large B-cell lymphoma (DLBCL). The patient underwent right cataract extraction and vitrectomy soon after which also showed DLBCL. Systemic workup including PET CT, bone marrow aspirate, lumbar puncture showed no evidence of lymphoma outside the vitreous. Due to bilateral involvement the patient was commenced on combination MATRIX chemotherapy and is currently on his third cycle of same.

Conclusion

Lymphoma initially isolated to the vitreous is a rare entity with an estimated annual incidence of 0.047 / 100,000. The diagnosis can be delayed as it can mimic commoner infectious or inflammatory uveitides. Prompt diagnosis is important as CNS involvement follows vitreous involvement in 60-90% of cases with a median survival of 12–35 months. Our case highlights the importance of considering this rare masquerade condition.

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