Irish College of Ophthalmologists

Eye Doctors of Ireland

Protecting your Vision

ICO Winter Meeting and Annual Montgomery Lecture 2022

November 18, 2022

Albert Lecture Theatre,
Royal College of Surgeons in Ireland

Programme

ICO Winter Meeting 2022

2.00pm **WELCOME:**

Mr Tim Fulcher, President,
Irish College of Ophthalmologists

SHORT PRESENTATIONS

Chair: Prof Colm O'Brien

2.05pm **Role of the PI3Kinase/mTOR Signalling Pathway in Lamina Cribrosa Fibrosis in Glaucoma**
Amy Coman

2.11pm **Yamane Sutureless Flanged Scleral-Fixated Intraocular Lenses: The Limerick Experience**
Grace McCabe

2.17pm **Measure of Inflammatory Cytokines in the Tear Fluid of Patients with Chronic Ocular Graft-Versus-Host Disease**
Emily Greenan

2.23pm **A Retrospective Comparison of the Efficacy of iStent, XEN and CyPass in the Treatment of Glaucoma to Aid Surgical Decision Making in Similar Patient Groups**
Eva Sharkey

2.29pm **3-Year Retrospective Study of Early 25G Vitrectomy for Vitreous Haemorrhage of Unknown Aetiology in University Hospital Limerick**
Matthew O'Riordan

2.30pm **Eyelid, Lacrimal and Orbital Grand Rounds**

Moderator: **Mr Tim Fulcher**

Panel: **Prof. Timothy Sullivan**
Professor of Ophthalmology, University of Queensland

Ms Elizabeth McElnea
University Hospital Galway

Mr Michéal O'Rourke
Royal Victoria Eye and Ear Hospital, St James's Hospital and CHI Crumlin

Mr Gerry Fahy
Galway Clinic

Clinical Case Presentations:
Dr Aaron Donnelly & Dr Liam Mulcahy
ICO Surgical Trainees

3.30pm **Refreshments**

4.00pm **SHORT PRESENTATIONS**

Chair: Miss Yvonne Delaney and Ms Janice Brady

4.00pm **Outcomes of Paul Tube Glaucoma Implants in the Mater Misericordiae University Hospital**
Ian Brennan

4.06pm **Optic Neuritis: Investigation Yield in Typical and Atypical Presentations**
Brendan Cummings

4.12pm **Efficacy and Safety of Mitomycin C 0.4 mg/mL for 5 Minutes with PRESERFLO MicroShunt**
Eamonn T Fahy

4.18pm **Pterygium Excision Outcomes over 5 Years**
Adan Khan

4.24pm **Outcome of Carotid Dopplers in Patients with Asymptomatic Retinal Arterial Emboli**
Jay Jun Lee

4.30pm **Peri-Papillary Atrophy and RPE Cell Myofibroblast Transition in The Optic Nerve Head in Glaucoma**
Eabha O'Driscoll

4.36pm **Reporting the Ocular Side Effects of Dupilumab in the Treatment of Atopic Dermatitis in an Irish cohort**
Grace Collins

4.42pm **Clinical Utility of Mobile Ultra-Widefield Retinal Imaging (Optos) for Screening of etinopathy of Prematurity (ROP)**
Amanda Le

4.48pm **Quality of Life Study to Evaluate the Prevalence of Ocular Toxicities in PatientsReceiving Systemic Anti-Cancer Therapy (SACT)**
Hadia Paryani

Virtual Poster Presentation

NK/ T-Cell EBV Positive Lymphoma - A Rare Facial Presentation
Qirat Qurban

First Trimester Diabetic Retinopathy Screening Attendance by Pregnant Type 1 Diabetics – Are We Meeting Current Guidelines?
Mark Forristal

Case Report: Unusual Presentation of Oculomotor Nerve Palsy
Doa Essayef

Moraxella Nonliquifaciens Infectious Scleritis
Sarah Powell

Renal Retinal Syndromes in Ireland: Collaboration Between National Clinical Genetic Programmes
Liam Mulcahy

Unilateral Mooren's Ulcer in a Young Child
Eilaf Bakri

The Impact of Cataract Surgery on Intraocular Pressure
Luke O'Brien

Orbital Cellulitis and Osteomyelitis Secondary to Odontogenic Infection with Campylobacter Rectus: A Case Study
Pragya Goswami

Visual Field Defects in Dual Pathology: A Case of Pituitary Macroadenoma and Ocular Albinism
Fionn O'Leary

The Darker Side of Diamox
Ravleen Channa

Adrenoleukodystrophy: A Rare Disease with Important Ophthalmic Manifestations
Ravleen Channa

The Effects of Reminder and Information Letters on Non-Attendance to a Diabetic Retinopathy Screening Clinic for Pregnant Patients
Aditi Chaturvedi

A Rare Cause of Fungal Keratitis
Aoife Smyth

Primary Type 3 Retinal Arteriovenous Communication
Ian Brennan

Retrospective Audit of Ocular Trauma Score Application Among

Ophthalmology Registrars in Emergency Room at El Walidain Charity Eye Hospital, in the Period of July 2022 to August 2022
Eilaf Bakri

Spot the Difference: Unilateral Roth Spots Provide Insight Into Mechanism of Post-Flow Diversion Microhaemorrhages
Liam Mulcahy

Delayed Vision Loss and Neuropathy Following Exposure to Carbon Monoxide: Discussion of a Case and Review of the Literature
Emilie Mahon

A Functional B12 Deficiency Contributing to Optic Neuropathy
Pádraig O'Connell

Annual Montgomery Lecture 2022

5.30pm **Drinks Reception**

6.00pm **Welcome & Introduction of the Annual Montgomery Lecture 2022**

Mr Tim Fulcher, President, ICO and Prof Camilla Carroll, RCSI Council

"2022: An Orbital Odyssey"

Lecturer: Professor Timothy Sullivan, MB, BS, FRANZCO, FRACS, FRCOPHTH
Professor of Ophthalmology, University of Queensland, Australia

Biography

Timothy Sullivan completed his Ophthalmology training in 1988, then undertook further subspecialty Fellowship Training in Oculoplastics, Eyelid, Lacrimal and Orbital Disease at Moorfields Eye Hospital, London and Paediatric Ophthalmology in Toronto at The Hospital for Sick Children.When he returned to Brisbane in 1992 he joined the Terrace Eye Centre, to provide tertiary and quaternary level subspecialty care. Since then he has also worked in the public sector, conducting the Orbital Clinic at the Royal Brisbane and Women's Hospital and the Queensland Children's Hospital.

While focusing on clinical care, he has always conducted clinical research to be abreast of and push latest developments. He has published over 130 papers in peer reviewed journals, book chapters and 400 presentations at National and International meetings. He is on the editorial boards of Clinical Experimental Ophthalmology, Ophthalmic Plastic and Reconstructive Surgery and the Asia Pacific Journal of Ophthalmology.

Complementing his clinical and research efforts he is involved in medical student, registrar and Fellow teaching as Professor of Ophthalmology for the University of Queensland. He is a former President of the Australian and New Zealand Society of Ophthalmic Plastic Surgery and the Asia-Pacific Society of Ophthalmic Plastic and Reconstructive Surgery, and an active Fellow of the American and European Societies of Oculoplastic and Reconstructive Surgery. He is on the board of the International Thyroid Eye Disease Society. With this academic background, he continues to provide first class care to his patients. It is a great honour for the ICO to welcome Professor Sullivan to Ireland to present the this year's Annual Montgomery Lecture.

ABOUT THE MONTGOMERY LECTURE

The establishment of the Montgomery Lecture in 1916 was of great significance to the specialty of ophthalmology in Ireland. Dr Robert Montgomery served as an ophthalmic surgeon to St Mark's Hospital and the Royal Victoria Eye and Ear Hospital until his passing in 1912.

The Montgomery Lecture was the first medical lecture to be founded in Trinity College Dublin.

Robert Montgomery established the prize with £5000 pounds, a large sum but with few conditions bar insertion of the name "Mary Louisa Prentice" (his mother's name) in its title and that it should rotate between Trinity College Dublin and the Royal College of Surgeons in Ireland.

Initially the lecture was given as a research lecture by early career ophthalmologists but since the second war the Annual Montgomery Lecture has been delivered by the leading figures in ophthalmology both from Ireland and abroad, and including neurologists, behavioural scientists and molecular ophthalmologists.

Through this lectureship, the small Montgomery family have retained their influence in ophthalmology and the name of Robert Montgomery has become widely known, particularly in contemporary ophthalmology, alongside other ophthalmological luminaries such as Dr Sir Arthur Jacob and Dr Sir William Wilde.

Podium Presentations

Role of the PI3Kinase/mTOR Signalling Pathway in Lamina Cribrosa Fibrosis in Glaucoma

Coman A, Irnaten M, O'Brien C.
[1]Mater Misericordiae University Hospital, Dublin, 2School of Medicine, University College Dublin, Dublin.

Objectives:

There is extracellular matrix (ECM) accumulation and fibrosis of glaucoma lamina cribrosa (LC) in the optic nerve head (ONH). We have previously shown that glaucoma LC fibroblast cells contribute significantly to the profibrotic ECM remodeling and proliferate at a higher rate than normal LC cells. The PI3K/Akt/mTOR signalling pathway which is one of the most integral pathways linked to cell metabolism, autophagy, proliferation and apoptosis. The PI3k/mTOR signalling pathway is dysregulated in a variety of diseases, including cancer and fibro-proliferative diseases. Our goal is to examine the role of PI3K/Akt/mTOR signalling pathway in the production and transcription regulation of ECM fibrotic genes.

Methods:

Human LC cell lines, obtained from age matched normal and glaucomatous donors, were cultured from passage 4 to passage 9. PI3K, Akt, and mTOR gene transcription levels were measured using quantitative real-time RT-PCR.

Results:

The results showed that PI3K, (and other downstream genes involved in the signalling pathway, including IP3R, CaMKII) and mTOR gene transcription levels are significantly ($p < 0.05$) enhanced in glaucoma LC cells versus normal non-glaucomatous LC cells.

Conclusion:

We found elevated expression levels of PI3K and mTOR genes in glaucomatous LC cells. This is novel evidence in glaucomatous LC cells. Inhibiting these pathological pathways would be a potential therapeutic in optic nerve cupping in glaucoma.

Yamane Sutureless Flanged Scleral-Fixated Intraocular Lenses: The Limerick Experience

McCabe G, O'Riordan M, Kennelly K.
University Hospital Limerick, Limerick.

Objectives:

Scleral fixation of posterior chamber intraocular lenses (IOLs) is a surgical option where capsular support has been lost. It represents an alternative to angle-supported or iris-fixated anterior chamber IOLs. We report the outcomes of all Yamane scleral-fixated IOLs performed by a single surgeon (KK) in UHL.

Methods:

A retrospective chart review was carried out of all cases performed from May 2019 – July 2022. Data recorded included patient demographics, surgical indication, pre-operative and post-operative Snellen visual acuity, biometry, predicted versus observed refractive outcomes and complications.

Results:

16 eyes of 15 patients underwent Yamane scleral-fixated IOL implants. Mean age was 73 years (range 37-98). 50% were male. Indications included subluxed/dislocated IOL 44% (7/16), complicated cataract surgery 31% (5/16), subluxed/dislocated crystalline lens 19% (3/16), aphakia post-traumatic globe rupture 6% (1/16). All operations were combined with 25G pars plana vitrectomy. 38% (6/16) were performed under local anaesthetic and 62% (10/16) under general anaesthetic. The SRK/T biometric formula and MA60AC (Alcon) IOL was used in all cases. Post-operative observed refraction demonstrated 38%, 50% and 69% were within 0.5D, 1D and 1.5D of their predicted refractive target respectively. Mean pre-operative visual acuity was 6/60 (range 6/7.5- HM). Mean post-operative corrected visual acuity was 6/10 (range 6/7.5 - CF). 81% (13/16) of patients achieved a post-operative visual acuity of 6/12 or better. One patient had a retinal tear treated intra-operatively with no further sequalae. One patient had IOL optic capture in the pupil which required subsequent repositioning and pupilloplasty. Post-operative cystoid macular oedema (CMO) occurred in 63% (10/16) of eyes. 9/10 cases resolved fully with topical treatment alone, and one patient needed intravitreal steroid. There were no incidences of IOL dislocation.

Conclusion:

The Yamane scleral-fixated IOL technique offers a safe and effective option with good visual outcomes in patients with insufficient capsule to support in-the-bag or sulcus IOLs. Refractive outcomes are less predictable than conventional cataract surgery. There is a high incidence of post-operative CMO in this complex patient cohort. However, this responds well to treatment and should be assessed for at all follow-up visits.

Measure of Inflammatory Cytokines in the Tear Fluid of Patients with Chronic Ocular Graft-Versus-Host Disease

Greenan E[1,2], Vandenberghe E[3], Conneally E[3], Ní Gabhann-Dromgoole J[2], Murphy C[1,2].
[1]*Royal Victoria Eye and Ear Hospital, Dublin,*
[2]*School of Pharmacy and Biomolecular Sciences, Royal College of Surgeons in Ireland, Dublin,*
[3]*Department of Haematology/ Oncology, St James Hospital, Dublin.*

Objectives:

To investigate the tear cytokine profiles of patients with chronic ocular graft versus host disease (GvHD) and evaluate their association with clinical disease severity.

Methods:

Consecutive patients attending the Haematology outpatient department in St James Hospital with a known or suspected diagnosis of chronic ocular GvHD were invited to partake. To be included, patients had to fulfil either or both of the National Institute of Health (NIH) or the International Chronic Ocular Graft-vs-Host-Disease Consensus Group (ICCGvHD) diagnostic criteria. Those with a history of ophthalmic comorbidities beyond that of a refractive error were excluded as well as those using topical immunosuppressive agents.

Clinical parameters recorded during ophthalmic examination included best correct visual acuity (BCVA), schirmers I test, tear break up time (TBUT), and Oxford surface staining (OSS) along with the overall grading of ocular GvHD severity as defined by the ICCGvHD. Ocular tear samples were collected and levels of cytokine production (IFN-γ, IL-1β, IL-2, Il-4, IL-6, IL-8, IL-10, IL-12p70, IL-13, and TNF- α) were assayed using Meso Scale Discovery (MSD) Multi-Array technology. The results were compared to that of healthy matched controls using unpaired t test. Results were also correlated with clinical parameters using both Pearson r formulation. Statistical analysis was undertaken using GraphPad Prism version 9.3.1.

Results:

A total of thirteen patients took part in the study (8 male (61.5%), 5 female (38.5%) with an average age of 43.9 years (± 13.4). With regards to ocular examinations, patients were found to be heavily dependent on lubricant eye drops (average 8.5 times/ day). Patients suffered from both aqueous deficient and evaporative DED with an average schirmer's measurement of 4.2 mm (± 5.7, range of 0 – 21) and average TBUT of 3.8 seconds (± 1.3, range 1 – 6). The average Oxford surface staining score was 7.9 (± 4.2, range of 0 – 15). According to ICCGvHD grading system, and using the average data across both eyes, seven of the patients had 'Mild/ Moderate' disease (53.8%) and the remainder had 'Severe' disease (n= 5, 38.5%).

The levels of IFN-γ, IL-1β, IL-2, IL-6, IL-8, IL-10, IL-12p70, IL-13, and TNF- α were found to be statistically elevated when compared to healthy age and gender matched controls (FDR p value< 0.05). In those with early stage disease (n= 5), IFN-γ was found to strongly correlate with lubricant usage (0.98, p= 0.03), and IL-2 with the severity of ocular surface staining grade (1.00, p= 0.03), implying that these cytokines in particular may play a role in the development of chronic ocular GvHD and represent promising treatment targets for patients in the initial stages of disease.

Conclusion:

This study demonstrates that ocular tear cytokines are statistically elevated in patients with chronic ocular GvHD, reiterating the role of inflammation in the pathogenesis of disease. Furthermore, the correlation of IFN-γ and IL-2 with clinical parameters of disease severity suggest that they play a role in early disease development. These findings support the implementation of anti-inflammatory treatment such as topical calcineurin inhibitors, in conjunction with tear replacement and preservation to avoid irreparable damage to the ocular surface, and this may be best utilised in the initial stages of the disease development.

A Retrospective Comparison of the Efficacy of iStent, XEN and CyPass in the Treatment of Glaucoma to Aid Surgical Decision Making in Similar Patient Groups

Sharkey E, Ford R, Hovan M.
Warrington and Halton Hospital, UK.

Objectives:

This study aims to retrospectively compare the safety and efficacy of the MIGS: iStent, XEN and CyPass implants (removed from market, 2018), in a single glaucoma unit, Warrington and Halton Hospitals NHS Trust United Kingdom. The goal of this study is to provide information that will assist surgical decision making in similar patient groups.

Methods:

Data was collected from a single centre, from two surgeons, September 2015 to September 2022. Intraocular pressure (IOP) was recorded at intervals from day 1 post-operatively to 5 years, as well as the percentage of patients achieving success at different timepoints according to the World Glaucoma Association reporting guidelines. Topical glaucoma medications were recorded preoperatively and if recommenced. Patients were categorised as complete success, qualified success, complete failure, or qualified failure. Data was compared between the groups and compared with data from the Treatment Outcomes in the Tube Versus Trabeculectomy (TVT) Study After Five Years of Follow-up (2019. Gedde, S., Schiffman, J., Feuer, W., Herndon, L., Brandt, J. and Budenz, D.)

Results:

Data was analysed from 78 iStent, 76 XEN and 3 CyPass patients following exclusion. XEN showed a steady continuation in mean IOP percentage reduction from 1 month (-18.72%) to 1 year (-33.71%) and maintained this level to 5 years (-32.04%). CyPass mean IOP plateaued between 6 months (-48.35%) and 1 year (-45.89%), with its percentage of IOP reduction diminishing and continuing to reduce at 5 years (-16.38%). iStent had a peak of IOP lowering capability at 6 months (-26.93) with the IOP percentage reduction lowering to vary minimally from listing at 5 years (-2.66%). XEN showed the greatest number of failures (18.58%). This is still lower than that of the Tube (32.88%) or Trabeculectomy (50%) groups of the TVT trial.

Conclusion:

The CyPass group was small therefore data analysis must be reviewed with caution. XEN showed the most consistent IOP lowering ability over 5 years. However, XEN also showed a larger rate of failures. iStent had the greatest complete success rate overall, however, the IOP lowering ability diminished to negligible by 5 years. Each MIGS has different qualities that enable the optimum selection for individual patients' ocular and quality of life needs.

3-Year Retrospective Study of Early 25G Vitrectomy for Vitreous Haemorrhage of Unknown Aetiology in University Hospital Limerick

O'Riordan M, McCabe G, Kennelly K.
University Hospital Limerick, Limerick.

Objectives:

To evaluate the surgical and visual outcomes of patients undergoing early vitrectomy for vitreous haemorrhage (VH) of unknown aetiology. To retrospectively analyse the causes of VH in this patient cohort.

Methods:

A retrospective chart review was performed of all patients who underwent early vitrectomy for VH by a single consultant surgeon in University Hospital Limerick over a three-year period from April 2019 to April 2022. Early vitrectomy was defined as surgery within 10 days of onset of symptoms. Patients with fundus-obscuring VH of no definite pre-operative aetiology were included. Patients with known proliferative diabetic retinopathy in either eye or a cause of VH diagnosed pre-operatively were excluded. Data collected included patient demographics, symptoms, clinical findings, operation details, pre- and post-operative Snellen visual acuities and complications.

Results:

20 patients met the inclusion and exclusion criteria. Mean age was 62 years (range 48 – 75 years). 60% were male. 80% of eyes were phakic and 20% pseudophakic. 90% of patients underwent 25G pars plana vitrectomy within 2 days of presentation and 10% between 3 to 4 days. Intraoperative diagnoses were: retinal tears without retinal detachment (55%); peripheral localised rhegmatogenous retinal detachment (30%); neovascularization secondary to previous retinal vein occlusion (10%); and posterior vitreous detachment without a retinal break (5%). Mean visual acuity improved from 6/95 (range 6/6 to PL) pre-operatively to 6/12 (range 6/6 to 6/120) post-operatively. 81% of phakic eyes developed visually significant cataract. 15% of eyes required subsequent epiretinal membrane peeling. 1 patient (5%) developed a retinal detachment one year post-operatively.

Conclusion:

A very high incidence of retinal tears and localised rhegmatogenous retinal detachments were diagnosed intraoperatively. In cases of VH of unknown aetiology, early vitrectomy should be strongly considered in order to prevent subsequent progression to visually significant retinal detachments.

Outcomes of Paul Tube Glaucoma Implants in the Mater Misericordiae University Hospital

Brennan I, Dervan E.
Mater Misericordiae University Hospital, Dublin.

Objectives:

To assess the outcomes of Paul tube glaucoma implants in the Mater Misericordiae University Hospital from 2021-2022.

Methods:

This audit involved a retrospective patient chart analysis for every Paul tube implant procedure in the Mater since they were first performed in 2021. Change in intraocular pressure (IOP) was the primary outcome measure. The number of IOP-lowering medications prescribed and ophthalmic complications were secondary outcome measures. Demographic information was also collected. Multiple paired t-tests were used to assess significance of continuous variables, while chi squared tests were used to analyse categorical variables.

Results:

27 Paul tubes were implanted over the study period with 3 patients receiving implants to both eyes. There was a significant decrease in IOP which was sustained up to one year out from surgery. Additionally, the mean number of medications required to maintain target IOP ≤18mmHg was significantly reduced and this too was sustained up to one year from surgery.

Conclusion:

Paul tube glaucoma implants achieved a sustained IOP reduction with an additional reduction of medications in patients with advanced glaucoma in the Mater.

Optic Neuritis: Investigation Yield in Typical and Atypical Presentations

Cummings B, Smyth A, Qurban Q, Cassidy L.
Royal Victoria Eye and Ear Hospital, Dublin.

Objectives:

Optic neuritis is a relatively common presentation to eye emergency departments across the country. We looked at cases of optic neuritis presenting to RVEEH over the past 2 years and divided them into typical and atypical. The clinical diagnostic criteria for typical optic neuritis is as follows: Patient between 15 and 45 years of age (male or female) who is otherwise well with no history of cancer, vasculitis or autoimmune disease. One eye only is symptomatic and the onset of symptoms is acute. The patient describes blurred vision which worsens rapidly over hours to days with associated eye or orbital pain, usually increasing with eye movement.

There is no diplopia or other neurologic symptoms (apart from those associated with previous episodes of multiple sclerosis). On examination of the affected eye there is an RAPD, normal appearance of the optic nerve head or mild to moderate swelling. There is no disc pallor, hard exudates, cotton-wool spots, haemorrhages, uveitis or other intraocular disease. Eye movements are normal and there is no proptosis, enophthalmos, ptosis or changes in corneal or facial sensation. Perimetry of the affected eye shows a field defect of any sort. If the patient meets all these criteria they are diagnosed with typical optic neuritis. If they do not meet these criteria, they are labeled as an atypical optic neuritis.

Methods:

In our hospital, all cases of optic neuritis are offered admission for 3 days of IV Methylprednisolone and we perform a series of investigations including MRI brain and orbits with contrast, chest x-ray, Octopus visual fields, EDTs, serological tests for Anti-MOG, Anti-NMO, ACE, auto-immune screen, and an infectious screen including Lyme, Syphilis, Quanteferon and Bartonella. We also perform FBC, U&E, LFTs, Bone Profile, CRP and ESR as standard. In this audit we reviewed 50 consecutive admissions of optic neuritis and investigated the outcomes of these investigations and their yields in typical vs atypical cases.

Results:

The majority of cases were typical (X/50). MRI Brain and orbits with contrast revealed evidence of possible demyelination in (X/50). The infectious screen yielded a positive result which contributed to management in (X/50) cases. Positive anti-MOG or anti-NMO antibodies were detected in x/50 typical and x/50 atypical cases.

Conclusion:

To follow (data gathering not complete).

Efficacy and Safety of Mitomycin C 0.4 mg/mL for 5 Minutes with PRESERFLO MicroShunt

Fahy E, Tan I, Garg A, Sheng Lim K.
Glaucoma Service, St Thomas' Hospital, London.

Objectives:

Optimal dose and duration of mitomycin C (MMC) during PRESERFLO MicroShunt surgery is debated. High strength MMC with trabeculectomy may attenuate fibrosis but risks hypotony and anterior avascular bleb formation. The MicroShunt may circumvent these risks through an integrated flow restrictor and a long tube creating a posterior bleb. We hypothesise that high dose, long duration of MMC with MicroShunt may be optimal in reducing fibrosis while avoiding complications. The purpose of this study is to report the safety and efficacy of MicroShunt implantation with MMC 0.4 mg/mL for 5 minutes to a follow-up time of 12 months.

Methods:

We performed a retrospective, interventional case series of consecutive patients receiving the MicroShunt with MMC 0.4 mg/mL for 5 minutes. The primary outcome measure was the proportion of eyes achieving complete success at 1 year, defined as IOP of less than 21 mmHg or more than 20% reduction below preoperative IOP, with no glaucoma medications. Additional outcomes included mean IOP, number of medications, complications and reoperations.

Results:

46 eyes were included. Mean age was 70 years; 48% were female. 32% of patients were of African or Caribbean ethnicity. Mean preoperative IOP was 24.7 mmHg and mean number of glaucoma drops was 3.2. 61% achieved complete success and 81% achieved overall success (with or without medications). Mean IOP at 1 year postoperative was 13.2 mmHg, significantly reduced from preoperative IOP ($P<0.0001$). Mean number of drops decreased significantly to 0.6 ($P<0.0001$). Median BCVA was not significantly different at 1 year. 4 eyes had early surgical complications requiring reoperation for MicroShunt obstruction. 3 eyes developed temporary hypotony-related choroidal detachments which resolved spontaneously. 1 patient required surgical revision for MicroShunt exposure.

Conclusion:

MicroShunt with MMC 0.4 mg/mL for 5 minutes effectively lowered IOP while maintaining a safety profile comparable to other studies in the literature. Mean IOP at 1 year with this MMC protocol may be lower than comparable studies using lower strength MMC.

Pterygium Excision Outcomes over 5 Years

Khan A, Kamel K, Murphy C.
Royal Victoria Eye and Ear Hospital, Dublin.

Objectives:

To evaluate the outcomes of pterygium surgeries and the factors which contribute to the outcomes, in the Royal Victoria Eye and Ear Hospital, from March 2015 – March 2020.

Understanding these factors which might predispose a patient to recurrence is vital in improving the outcomes of pterygium surgeries to ensure shorter hospital stays, rapid recovery times and preventing repeat procedures in the future.

Methods:

This audit is a retrospective review of 26 patients, analysing the factors surrounding the patient's surgery and the way in which they contributed to their outcomes.

N=26 patients were identified with confirmed previous pterygium surgery.

N=29 procedures were included in this review.

Paper patient charts were reviewed to gather the variables contained within this study. Patient charts were retrieved from medical records within the hospital and data was logged according to a criteria list for each patient.

Results:

There was a recurrence rate of 6.9% (2 cases) post-op. It is of significance to note that the same patient had a single recurrence to both eyes. 3.45% developed post-operative conjunctivitis. 6.9% developed a conjunctival cyst.

Conclusion:

In conclusion, this study supports that pterygium excisions can have a number of complications, with recurrence being quite common. Pterygium surgery is an important treatment that can enhance a patient's quality of life. There are multiple factors which can influence the outlook of these surgeries. Adjusting the treatment of the patient to cater to these factors can vastly improve the patient's future prospects.

Outcome of Carotid Dopplers in Patients with Asymptomatic Retinal Arterial Emboli

Jun Lee J, Townley D.
Galway University Hospital, Galway.

Objectives:

Retinal arterial emboli are associated with an increased risk of morbidity and mortality from cerebrovascular disease. It has an incidence of up to 3% in the older population.

Patients with asymptomatic retinal emboli are often detected by the Diabetic Retinal Screening service. However, there is no consensus in investigating and managing patients with asymptomatic retinal emboli.

The current protocol in the Diabetic Retinal Treatment (DRT) clinic at Galway University Hospital is to book a carotid doppler at the time of referral. The aim of this study is to analyse the outcome of the scans to determine if there is any benefit of routinely imaging everyone with carotid arterial emboli.

Methods:

This is a retrospective case series follow-up of patients who were referred to the DRT (104) from January 2020 to April 2021 with retinal arterial emboli.

A chart review of these patients who had carotid Dopplers (77) was performed to collect information on their degree of diabetic retinopathy, medications, and diabetic control.

The carotid dopplers results were divided into normal, less than 50% stenosis with plaques, 50-69% stenosis, 70 - 99% stenosis, and complete occlusion.

Results:

Diabetic retinopathy grading for most eyes was r0 (61%) and r1(37%). 75% of patients were on at least one hypertensive medication and 83% were on at least one cholesterol-lowering agent.

Out of the 153 carotid dopplers included, most of the carotid arteries had plaques present but less than 50% stenosis (63%), followed by no significant stenosis (24%) and 50-69% stenosis (8%). Only 6 carotid arteries had significant occlusion.

Of the 6 patients, 3 of them were already known to the vascular service for extensive peripheral vascular disease. The other 3 were newly referred to them for further management.

Conclusion:

Although only a small number of patients were referred to the vascular service. A majority of patients had their medications optimised including starting on aspirin. Whether carotid ultrasound should be performed routinely for all patients with asymptomatic retinal emboli remains uncertain.

Peri-Papillary Atrophy and RPE Cell Myofibroblast Transition in The Optic Nerve Head in Glaucoma

O'Driscoll E, Irnaten M, O'Brien C.
Mater Misericordiae University Hospital Dublin.

Objectives:

Optic nerve head (ONH) cupping is a clinical feature of glaucoma associated with extracellular matrix (ECM) remodelling and lamina cribrosa (LC) fibrosis. Peripapillary atrophy (PPA) occurs commonly in glaucoma, and is characterised by loss of retinal pigment epithelium (RPE) adjacent to the ONH. What is happening to these RPE cells in PPA? Under pro-fibrotic conditions epithelial cells throughout the body can differentiate into fibroblast-like cells through epithelial to mesenchymal transition (EMT) and contribute to ECM Fibrosis. This is investigated in the context of glaucoma.

Methods:

RPE cells were cultured on soft (4kPa) and stiff (50kPa), collagen 1-coated polyacrylamide hydrogel substrates. The differential gene transcription levels of the epithelial tight junction marker zona occludens 1 (ZO-1), mesenchymal markers alpha smooth muscle action (α-SMA) and vimentin were assessed in RPE cells grown on soft and stiff substrates using real time quantitative RT-PCR.

Results:

Stiff substrates significantly ($p = 0.04$) downregulated ZO-1 transcription levels, while the transcription levels of α-SMA and vimentin were found to be significantly upregulated ($p = 0.04$) under stiff conditions.

Conclusion:

Stiff substrate caused significant decrease of ZO-1 transcription levels and a significant increase of α-SMA and vimentin transcription levels. This suggests that during PPA, RPE cells are capable of undergoing EMT, migrating to the ONH and become myofibroblast-like. This would significantly contribute to the ECM fibrosis in the LC in glaucomatous ONH cupping.

Reporting the Ocular Side Effects of Dupilumab in the Treatment of Atopic Dermatitis in an Irish cohort

Collins G[1], Stefanovic N[2], Killion L[2], Doyle A[1,3], Irvine A[2,4], O'Rourke M[1,3,4].

[1]Department of Ophthalmology, St James's Hospital, Dublin,
[2]Department of Dermatology, St James's Hospital, Dublin,
[3]Royal Victoria Eye and Ear Hospital, Dublin,
[4]Children's Health Ireland at Crumlin, Dublin.

Objectives:

Approximately one third of patients commenced on Dupilumab in Ireland attend SJH and CHI Crumlin dermatology services. This study aims to determine the proportion of Dupilumab patients in this large cohort who developed ocular side effects, to grade the severity and treatment and specifically report on those who ceased Dupilumab due to ocular side effects.

Methods:

The relevant information was extracted from the Dupilumab electronic patient database. Where further information was required, patient medical notes were reviewed.

Results:

The database includes a total of 55 patients commenced on Dupilumab since 2016. The mean age is 35.1 (SD=14.5) with 63.6% male. Of this cohort, 40% were found to have symptomatic ocular side effects necessitating referral to ophthalmology. The most common side effects were conjunctivitis in 27.2% of patients, as well as symptomatic blepharitis, periocular eczema, meibomian gland inflammation and dry eye.

Following a literature review for treatment of such cases, periocular tacrolimus 0.1% was used to treat periocular eczema, topical ciclosporin was used for periocular disease and lid margin disease was treated in a step wise approach, depending on severity, with lid hygiene and oral tetracyclines. All patients reported improvement in ocular side effects. One patient, 1.8%, developed severe cicatricial conjunctival disease with symblepharon and distichiasis but refuses cessation of treatment due to the profound effect on his systemic eczema. He is undergoing close monitoring by ophthalmology. 3.6% of patients overall had their Dupilumab stopped due to ocular side effects.

Conclusion:

Our results show a high prevalence of ocular side effects in this patient cohort. Although the majority were mild, ophthalmic assessment was necessary to grade and commence appropriate treatment to manage their eye symptoms. Severe cicatricial side effects may occur and require intensive monitoring and potentially drug cessation. While Dupilumab has had a profound impact on the treatment of eczema, these life-long conditions will likely need life-long treatment once commenced. Increased awareness regarding Dupilumab amongst ophthalmology colleagues to manage the ocular side effects of this lifelong treatment is required.

Clinical Utility of Mobile Ultra-Widefield Retinal Imaging (Optos) for Screening of Retinopathy of Prematurity (ROP)

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Oxford Eye Hospital, Oxford.

Objectives:

The purpose of this study is to demonstrate that mobile non-contact ultra-widefield imaging (Optos) is a safe and effective method to routinely screen susceptible neonates and is a useful modality for guiding clinical decisions in ROP.

Methods:

We performed a retrospective review of 340 examinations from 135 patients who underwent ROP screening over the last year at Oxford University Hospital. Of these, 240 of these examinations were performed with our Oxford Optos imaging protocol with modified "flying baby" technique. The images acquired from these babies were analysed. Examination findings were recorded as well as specific exam parameters including cardiorespiratory indices, time of image acquisition, and early termination of Optos examination.

Results:

Optos-led screening of neonates encompassed a wide range of patients in low, high, and intensive care units. Mean duration of image acquisition was 170 seconds. Cardiorespiratory indices recorded during examination showed 0% apnoeic episodes, 0.58% bradycardic episodes, 3.51% desaturation, 11.7% tachycardic episodes. We were able to acquire ultra-widefield fundal images in 240 examinations and the images obtained demonstrated all stages of ROP disease in the posterior pole and peripheral retina with clear progression/regression of disease.

Conclusion:

Routine screening of ROP with non-contact ultra-widefield imaging (Optos) is a safe method of screening vulnerable neonates, with comparable cardiorespiratory indices to that of conventional binocular indirect ophthalmoscopy. Furthermore, detailed acquisition of ROP progression with Optos imaging allows for nuanced decision making as well as monitoring of disease regression after treatment.

Quality of Life Study to Evaluate the Prevalence of Ocular Toxicities in Patients

Receiving Systemic Anti-Cancer Therapy (SACT)

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Objectives:

1. To assess the prevalence and severity of ocular toxicities with focus on dry eye disease in patients receiving Systemic Anti-Cancer Therapy (SACT)
2. To investigate the impact of the toxicity on the quality of life (QOL)
3. To differentiate between individual therapies and related toxicities
4. To increase awareness and formulate guidelines in conjunction with ophthalmologists on screening and management of SACT-related ocular toxicities.

Methods:

An anonymous, questionnaire-based observational study using two validated questionnaires – National Eye Institute Visual Functioning Questionnaire (NEIVF-25) and the Ocular Surface disease Index (OSDI) will be distributed to patients at one time-point only. Patients who attend the Oncology Day ward in the four-week assessment period for SACT/Immunotherapy +/- hormone therapy, in the neoadjuvant, adjuvant or metastatic setting will be assessed.

Results:

Over the four week period, 47 patients completed the questionnaires. The median OSDI score was 6.25 with 9 patients demonstrating a score of >20 with symptoms of mild to moderate dry eye disease. Provisional results suggest an incidence of ocular toxicity may increase with 5FU and Taxane treatment. We hope further evaluation may clarify between individual therapies and related toxicities.

Conclusion:

Following on from the study, the results will aim to guide regarding introduction of screening tools and providing education to patients to allow for early diagnosis and management.

NK/ T-Cell EBV Positive Lymphoma - A Rare Facial Presentation

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Royal Victoria Eye and Ear Hospital, Dublin.

Objectives:

To present a rare case of an 18 year old young female with unresolving mid facial swelling.

Methods:

More than 3 month old history of unresolving tender mid facial and periorbital swelling with multiple hospital admissions and treatment with multiple antibiotics and steroids both at home and during hospital admissions; it remained undiagnosed despite performing CT and MRI imaging along with blood tests for infectious, inflammatory and non inflammatory markers. Ophthalmology as well as ENT teams were involved. FESS procedure was performed to clear the sinuses and biopsy taken for culture / sensitivity and histopathology.

Results:

Sinus Biopsy was taken during FESS procedure which came out to be NK/ T-Cell EBV Positive Lymphoma. Patient referred to Haematology for further management / Chemotherapy.

Conclusion:

The possibility of rare tumors should always be considered in the differentials of unresolving midfacial and periorbital swellings especially in young patients.

First Trimester Diabetic Retinopathy Screening Attendance by Pregnant Type 1 Diabetics – Are We Meeting Current Guidelines?

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Objectives:

Current guidelines suggest 1st trimester Diabetic Retinopathy screening for all pregnant type 1 diabetics. We hypothesised that current screening rates may be suboptimal. This audit aimed to assess compliance rates for 1st trimester diabetic retinopathy screening in type 1 diabetics who attended the Diabetic Day Centre (DDC) in Galway University Hospital between January 2018 and December 2021, potentially leading to service improvements.

Methods:

Our audit commenced on the 31/10/21 and concluded on the 19/12/21. Our chosen population was pre-gestational type 1 diabetics in their first trimester of pregnancy. 36 patients who attended the diabetes antenatal clinic between January 2018 and December 2021 were audited, which included 39 pregnancies that were suitable for 1st trimester Diabetic Retinopathy screening. Pregnancies that miscarried prior to completion of the 1st trimester were not included. Data was collected retrospectively using the Diamond Clinical Database in the DDC, GUH. This data was then compared to records in the Ophthalmology department, looking at attendances for Optical Coherence Tomography (OCT) on the Heidelberg OCT Database, which records every attendance for retinal screening by diabetic patients. This cross-referencing review method ensured accuracy of attendance records and allowed assessment of record keeping of retinal screening in the DDC.

Results:

Of the 39 pregnancies audited, 18 pregnancies received 1st trimester Diabetic Retinopathy screening, representing a 46% attendance rate. Of the 38 pregnancies audited for 2nd and 3rd trimester retinal screenings, 68% (n=26) of pregnancies received 2nd trimester screenings, while 79% (n=30) of pregnancies received 3rd trimester screenings. 33% (n=13) of pregnancies were first screened in their 2nd trimester, while 13% (n=5) were first screened in their 3rd trimester. 28% of pregnancies (n=11) were screened in each trimester, while 8% (n=3) pregnancies received no screening during the course of their pregnancy. 15% (n=6) of pregnancies developed diabetic retinopathy requiring treatment during their pregnancy. Fragmented recording of retinal screening was apparent in the DDC records, with records suggesting much lower attendance rates in comparison with actual screening attendance rates confirmed through the OCT database.

Conclusion:

Our audit showed a significantly reduced attendance rate of 46% for 1st trimester Diabetic Retinopathy Screening compared to the HSE guideline recommendation of 100%.

- We propose that the causation of this poor rate of attendance is multifactorial and linked to systemic issues in current referral pathways for retinal screening.
- Current referral pathways for retinal screening are through GP referral or through antenatal diabetic clinic attendance. Many patients are referred from their antenatal clinic appointment for retinal screening and are often seen in the diabetic clinic late in their first trimester. Their subsequent retinal screening is often delayed until the second or third trimester.
- Patients with poor antenatal attendance records can often be missed for retinal screening, as the current referral pathways do not allow for self-referral.

- Record keeping of retinopathy and retinal screening on the Diamond database was unsystematic and user-dependent with many patients who attended for retinal screening recorded as being screened in the incorrect trimester or not being screened.
- The paper-based referral pathway, which currently exists between the diabetic day centre and the retinal screening service, does not provide any recording of referral receipt and there is no option to feedback screening results.
- Communication of retinal screening findings by the Ophthalmology department to the Endocrinology Clinic is often through dictated OPD letters and often only sent if the patient requires active treatment of their retinopathy. This poor feedback of screening results may exacerbate the current discrepancies in retinal screening record keeping on the Diamond database.
- Delays in retinal screening represent an orange risk rating to patients while discrepancies in retinal screening recording represent a yellow risk rating.

Recommendations:

- We propose that greater credence should be placed on retinal screening in pre-pregnancy clinics to ensure 1st trimester retinal screening takes place. Current delays in screening can lead to progression of retinopathy and presents a potentially sight threatening danger to patients.
- Self-referral for retinal screening, providing patients are made aware of this option in the pre-pregnancy clinics, could provide a viable solution to current delays in arranging retinal screening. This may also provide screening access for patients who are non-attenders for antenatal clinic appointments.
- Electronic referral forms from the DDC would allow earlier processing of requests for retinal screening and confirmation of referral receipt, while potentially providing a method of feedback of results of retinal screening to the DDC.

Case Report: Unusual Presentation of Oculomotor Nerve Palsy

Essayef D.
Sligo University Hospital, Sligo.

Objectives:

Surgical Oculomotor Cranial Nerve palsy unusual presentation may lead to delayed diagnosis and treatment of an emergency.

Methods:

Case report, multiple casualty reviews and imaging.

Results:

Referral for intervention.

Conclusion:

New lessons learned.

Moraxella Nonliquifaciens Infectious Scleritis

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Objectives:

We present the first case of infectious scleritis caused by Moraxella nonliquifeaciens.

Methods:

A 53 year old male presented to eye casualty with a two week history of bilateral red, painful eyes for which he was diagnosed with bacterial conjunctivitis by his general practitioner. His background medical history was significant for HLA-B27 associated ankylosing spondylitis (AS) and chronic lymphocytic leukemia, diagnosed in 2020. He had a background ocular history of HLA-B27 associated acute anterior uveitis (AAU) which was diagnosed in 2009. He had been subjectively asymptomatic from an AAU standpoint since 2017.

On presentation, visual acuity in his right eye (RE) was 6/6 unaided, and 6/24 (pinhole 6/10) left eye (LE). Slitlamp examination of the RE anterior and posterior segments was unremarkable, whilst examination of the LE demonstrated significant upper lid oedema, conjunctival chemosis, fine keratic precipitates in the cornea, 3+cells and 3+flare in the anterior chamber, as well as 270 degrees of posterior synechiae. Intraocular pressure was 27mmHg. He was diagnosed with a presumed flare of LE HLA-B27 associated AAU, and was commenced on a tapering dose of guttae (g) prednisolone forte hourly, as well as g cyclopentolate three times daily, g azarga twice daily and g chloramphenicol four times daily to his LE.

Over the next four weeks he visited the emergency department six times, complaining of worsening symptoms despite topical therapy and reduced visual acuity (objective VA counting fingers LE). He received two subconjunctival injections of mydracaine and dexamethasone, and was referred to the outpatient uveitis clinic.

On presentation to clinic, his visual acuity was still counting fingers LE, although he did not report any subjective pain. Slitlamp examination revealed a nasal scleral melt and infiltrate that had not been previously documented, associated with surrounding scleral injection and a fibrin membrane across pupil. Our suspected diagnosis was infectious scleritis with a scleral melt.

Results:

Microbiological scrapings were positive for Moraxella nonliquifaciens, sensitive to ceftazidime and ofloxacin. On examination six weeks after the commencement of antibiotic therapy visual acuity remained counting fingers but the infiltrate had resolved. There was a bluish hue noted from the sclera and the patient had developed a deprivation exotropia.

Conclusion:

To our knowledge, we present the first case of infectious scleritis caused by the gram-negative organism, Moraxella nonliquifaciens (M. nonliquefaciens). Less than 5 cases of corneal infections secondary to M. nonliquefaciens have been reported in the literature.

The diagnosis of infectious scleritis may pose diagnostic and treatment challenges, often masquerading as an immune-mediated disease process. It is important that a prompt diagnosis of infectious scleritis is made and the causative organism identified, in order to commence timely treatment and negate potentially devastating sight-threatening complications.

This case identified moraxella nonliquifaciens as a cause of infectious scleritis, and should be considered in the differential diagnosis of scleritis causing microbial pathogens.

Renal Retinal Syndromes in Ireland: Collaboration Between National Clinical Genetic Programmes

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[8]Department of Medicine, University College Dublin, Dublin.

Objectives:

Renal Retinal Syndromes represent a spectrum of inherited renal disorders with co-morbid ocular pathology. The significance of the presence of ocular pathology in this cohort of patients is multifactorial and can be of direct clinical significance due to visual impairment, and indirectly through associations between ocular findings and modes of inheritance, renal prognosis, and their diagnostic utility as well as providing insights into pathogenesis.

In Ireland, parallel clinical genetics programmes have been developed in Nephrology (Irish Kidney Genome Project; Beaumont Hospital, Dublin) and Ophthalmology (Target 5000; Mater Misercordiae Hospital, Dublin). Both services provide national referral services for patients with suspected genetic disorders in their respective specialties to provide access to genetic subspeciality services.

Collaboration between these programmes would enable direct access to the relevant subspecialty clinicians. The nature of any collaboration will depend on the volume of patients in this cohort in Ireland as well as the nature of their unique clinical needs.

Methods:

An audit was performed of patients currently enrolled in the Irish Kidney Genome Project and the Target 5000 programmes with diagnoses associated with dual renal and ophthalmic pathology.

Results:

Seventy-one patients were identified. Forty-six (65%) of patients were identified through their enrollment in the Irish Kidney Gene Project, twenty-five (35%) via the Target 5000 project. The largest cohorts were patients with Alport's Syndrome (26; 37%), Nephronophthisism (Senior Loken syndrome) (13; 18%), and Fabry Disease (11; 15%). The remainder of the group consisted of colomboma and renal failure without specific diagnoses (6; 8%), Alstrom Syndrome (3; 4%), Cystinosis (3; 4%), MIDD Syndrome (2; 3%), LCHAD deficiency (2; 3%), MELAS Syndrome (1; 1.4%), Refsum Syndrome (1; 1.4%), Von Hippel Lindau Syndrome (1; 1.4%), Ehlers Danlos Syndrome (1; 1.4%), and CHARGE Syndrome (1; 1.4%).

Conclusion:

A significant cohort of patients with conditions associated with dual renal and ophthalmic pathologies are currently enrolled in national clinical genetic programmes in nephrology and ophthalmology. The next step for this project is to 1) recruit patients who may not yet be included in either clinical genetic programmes and 2) establish guidelines for referral between programmes for each of the diagnoses.

Unilateral Mooren's Ulcer in a Young Child

Bakri E, Salih A.
Elobied Teaching Eye Hospital, Sudan.

Objectives:

To report a case of unilateral mooren's ulcer in a young child.

Methods:

Case report.

Results:

A 15-year-old male, presented with a one-week history of right ocular pain, photophobia, blurring of vision, and tearing, A Slit-lamp examination revealed a crescent-shaped peripheral corneal ulcer with vessels in the corneal ulcer bed as well as conjunctival inflammation, bilateral unaided V/A was 6/5, the examination of the other eye was unremarkable, Patient was given Gatifloxacin eye drop 4 hourly, dexamethasone 2 hourly, lubricant eye drop with vitamin C for 14 days. The patient was seen after two weeks and he had responded well to topical treatment. Photophobia, ocular pain, and tearing in addition to limbitis subsided.

Conclusion:

Mooren's ulcer is a rare condition. The most common presentation in young children is a bilateral aggressive pattern, but unilateral can occur as well. Good anatomical results and stable visual outcomes can be achieved with appropriate topical therapy.

The Impact of Cataract Surgery on Intraocular Pressure

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University Hospital Limerick, Limerick.

Objectives:

Cataract surgery has been reported to decrease intraocular pressure (IOP) by 16.5%.1 The aim of this study was to determine the average IOP reduction following cataract surgery in a cohort of patients at our institution.

Methods:

We conducted a retrospective study of 30 patients at our institute that underwent cataract surgery between May and July 2022. Patient demographics, pre-operative IOP and IOP at the review clinic 4 weeks post-op were recorded.

Results:

Sample size for this study was 30 patients (N=30); 12 males (40%) and 18 females (60%). The median age was 77 (IQR 71.5-83). The left eye was affected in 17 patients (56.7%) and the right eye in 13 patients (43.3%). A monofocal lens was implanted in 18 patients (60%) and a toric lens in 12 patients (40%). Only four of the patients were on IOP-lowering drops (13.3%). Mean pre-operative IOP was 16.9 mmHg, mean post-operative IOP was 14.1 mmHg, with a mean reduction in IOP of 2.8 mmHg (16.6% reduction). Looking at each subgroup, monofocal lens patients had a mean pre-operative IOP of 16.6 mmHg, a mean post-operative IOP of 13.8 mmHg and therefore a mean reduction in IOP of 2.8 mmHg (16.9% reduction). Toric lens patients had a mean pre-operative IOP of 17.7 mmHg, a mean post-operative IOP of 14.8 mmHg and a mean reduction in IOP of 2.9 mmHg (16.4% reduction).

Conclusion:

Cataract surgery is a well-established treatment for lowering intraocular pressure in patients with ocular hypertension and glaucoma. Our results demonstrated a mean reduction in IOP of 16.6% which is consistent with published data from other studies. There was no significant difference in IOP-reduction when comparing the subgroup who had monofocal lenses implanted compared to the subgroup with toric lenses implanted.

Orbital Cellulitis and Osteomyelitis Secondary to Odontogenic Infection with Campylobacter Rectus: A Case Study

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Sydney Eye Hospital, Sydney, Australia.

Objectives:

Orbital osteomyelitis is a rare, but important entity that originates from a chronic infection that has been inadequately treated. The objective is to describe a unique case of Campylobacter rectus osteomyelitis and cellulitis of the right orbit with intracranial involvement, which is the first reported case of campylobacter orbital osteomyelitis. Literature review is included.

Methods:

We report a 50-year-old man who presented with a 3-week history of painful, unilateral periorbital swelling, erythema and proptosis, an isolated febrile episode and right-sided jaw pain. His background was significant for chronic alcoholism, poor dental hygiene and a 40-pack-year smoking history. His visual acuity on presentation was 6/4 in each eye. Intraocular pressure was normal. There was a complete right ptosis, associated with periorbital swelling, warmth, erythema, significant proptosis and reduced extraocular motility. Anterior segment exam was unremarkable except for a small amount of superotemporal conjunctival injection. Dilated fundus exam was normal. Dental examination revealed the right sided second molar was severely eroded. Orthopantomogram demonstrated a large carious lesion of the same tooth requiring extraction.

Computed tomography (CT) of the orbits revealed a right intraorbital and extraconal heterogeneous soft tissue lesion involving the right lacrimal gland with osteolytic involvement of the greater wing of sphenoid corresponding to a superotemporal extraconal/temporal fossa abscess with associated localised dural enhancement on MRI. Biopsy and drainage were performed via anterior orbitotomy revealing purulent fluid of the superolateral orbit. Histopathology demonstrated granulation tissue with suppurative inflammation lacking cholesterol granulomas or giant cells. Culture yielded a pure growth of Campylobacter rectus.

Results:

Following a 6-week course of intravenous ertapenem and 4-week course of oral amoxicillin/clavulanic acid and moxifloxacin, the patient's orbital symptoms resolved. Progress MRI demonstrated absence of the phlegmon and resolution of the dural enhancement. We hypothesised that contiguous spread of periodontal infection with C. rectus seeded infection to the orbit in an immunocompromised condition (chronic alcoholism). On review of the literature, of the 16 cases of non-oral invasive C. rectus infections, 6 (38%) have had underlying immuno-compromising conditions and 8 (50%) had poor dental health or recent tooth extraction.

Conclusion:

This case demonstrates an unusual presentation of C. rectus manifesting as secondary orbital osteomyelitis and cellulitis with dural spread from a primary dental infection, which resulted in full resolution of disease after surgical debridement, tooth removal and prolonged parenteral and oral antimicrobial therapy. It should be considered as a rare cause of a patient presenting with an orbital lesion and bony changes particularly on a background of poor dental health.

Visual Field Defects in Dual Pathology: A Case of Pituitary Macroadenoma and Ocular Albinism

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Beaumont Hospital, Dublin.

Introduction:

A key component of the visual field pathway involves the decussation at the optic chiasm of nasal retinal fibres to the contralateral hemisphere. In contrast, temporal fibres do not decussate at the chiasm and continue to the ipsilateral hemisphere.

Pituitary tumours with suprasellar expansion can cause compression of the optic chiasm, resulting in characteristic bitemporal hemianopia's or superior quadrantanopia's. However other field defects are not uncommon, including unilateral temporal defects, homonymous hemianopias, quadrantanopia's, general field reduction and field constriction.

Albinism is an autosomal recessive condition resulting in dysfunctional melanocyte function and subsequent decreased melanin production. Ocular manifestations include nystagmus, iris transillumination, foveal hypoplasia, a tessellated fundus and retinal fibre over decussation, with some estimates suggesting up to 90% of retinal fibres cross at the chiasm to the contralateral hemisphere. Visual field defects have been reported in ocular albinism, but no specific field loss is defined in the literature.

Case:

A 58 year old male presented to the neuro-ophthalmology service in Beaumont hospital following neurosurgical referral with an incidental MRI finding of a pituitary macroadenoma. He was asymptomatic but reported longstanding poor vision since childhood. No eye exam had taken place since childhood.

MRI brain revealed mild suprasellar extension of the adenoma, with displacement of the infundibulum to the right, but no evidence of chiasmal compression.

O/e visual acuity was 6/18 in the right and 6/60 in the left. Horizontal latent right beating nystagmus, extensive bilateral iris transillumination and bilateral tessellated fundus were present. These findings suggested a clinical diagnosis of ocular albinism. Octopus visual fields were performed with a kinetic target. The right eye was full to III 3e stimulus, but a 360 degree constricted field was evident on II 2e stimulus. The left eye was also full to III 3e stimulus, but a significant inferonasal defect was noted on II 2e stimulus.

Discussion:

Various field defects have been reported in ocular albinism. The relative decrease in temporal retinal fibres could result in the nasal field defects, as evident in the case above. Pituitary lesions not only result in bitemporal field defects but can result in generalised bilateral field constriction, and in some cases nasal field defects. However without chiasmal compression this is highly unlikely, as was evident in this patient's adenoma. In many cases, the ophthalmologist's clinical impression of vision loss in patients with pituitary adenomas can be the difference between neurosurgical decision to surgically resect or not. Therefore this case illustrates the importance of clinician knowledge of ocular manifestations of albinism and accurate visual field interpretation in dual pathology.

The Darker Side of Diamox

Channa R, Khan S, Bonnar J, Knox A.
Royal Victoria Hospital, Belfast.

Objectives:

To highlight a rare but potentially fatal side effect of Diamox (Acetazolamide).

Methods:

This is an observational case report study.

Results:

A medically healthy 30-year-old gentleman presented to Eye Casualty due to a gradual reduction in visual acuity in Oculus Uterque. Intra-ocular Pressure's (IOP) were elevated at 56mmHg and 43mmHg in the Right and Left eyes, respectively. A diagnosis of Pigmentary Glaucoma was made and systemic Diamox and topical IOP lowering drops were commenced. His IOP's subsequently improved, but two days later he developed symptoms of systemic upset.

After another two days of worsening symptoms, blood tests demonstrated severe Acute Kidney Injury, with a shockingly low estimated Glomerular Filtration Rate (eGFR) of 7ml/min/1.732. Pre eGFR was within normal limits. Diamox was stopped and the patient received haemodialysis with a return of renal function back to baseline in three days. A diagnosis of Iatrogenic Haemorrhagic nephritis, due to Diamox, was made. Unfortunately, IOP's rose again after cessation of the medication, and the patient required emergency trabeculectomy for both eyes.

Conclusion:

This case report highlights the importance of checking baseline renal function prior to commencing Diamox in any patient, irrespective of their medical history. It is also important to warn patients who are started on Diamox of potential serious side effects, including those indicative of nephrotoxicity.

Adrenoleukodystrophy: A Rare Disease with Important Ophthalmic Manifestations

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Objectives:

To describe a case of Adrenoleukodystrophy (ALD), a very rare genetic condition with important ophthalmic manifestations.

Methods:

This is an observational case report study.

Results:

A 25-year-old gentleman presented to ophthalmology due to rapidly deteriorating vision. This was on a background of childhood adrenal insufficiency, for which the patient was taking daily maintenance steroids for. On examination, Visual Acuity was reduced at 6/20 and 6/36 in the right and left eyes respectively, and there was bilateral Optic Disc pallor. Visual Field testing revealed bilateral central scotomas, and Optical Coherence Tomography imaging demonstrated bilateral optic nerve Retinal Nerve Fibre Layer thinning. Baseline bloods and extensive laboratory screening for infectious and immunological causes were initially unremarkable.

Magnetic Resonance Imaging (MRI) of the Brain demonstrated abnormal prolonged T2 signal intensity within multiple areas of the brain bilaterally, extending to optic radiations. The patient was admitted under neurology, where further investigations demonstrated abnormal Very Long Chain Fatty Acids (VLCFA). The history of adrenal insufficiency, the MRI and VLCFA findings, collectively pointed to a diagnosis of ALD. The patient was referred to a clinical geneticist, who confirmed a pathogenic mutation in the ABCD1 gene.

Conclusion:

ALD is a rare genetic disorder that leads to loss of vision. It carries a poor prognosis, but prompt diagnosis and treatment may improve quality of life. Unfortunately, this is often delayed due to rarity of the condition and consequent lack of knowledge. This report describes a myriad of clinical features that should raise the suspicion of ALD, and prompt further investigation.

The Effects of Reminder and Information Letters on Non-Attendance to a Diabetic Retinopathy Screening Clinic for Pregnant Patients

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[2]*School of Medicine, University College Dublin, Dublin.*

Objectives:

Sight-threatening diabetic retinopathy may be asymptomatic. Pregnancy is known to accelerate diabetic retinopathy. Regular attendance to a diabetic retinopathy screening programme (DRS) during pregnancy is essential to detect and manage retinal pathology. This audit aims to review whether sending a reminder and information letter to pregnant women due to attend DRS has any impact on nonattendance rates.

Methods:

This was a retrospective comparative analysis of pregnant patients who missed one or more DRS appointments. The groups were divided into those who did not receive a reminder or information letter between April and August 2019, and those who received a letter one week prior to their appointment in the same time frame for 2022. A subset of this patient cohort was defined as never-attenders.

Results:

In 2019, 92 out of 267 patients (34%) did not attend their scheduled appointments. Following the introduction of a reminder and information letter in 2022, 13 out of 72 patients did not attend (18%). This finding achieved statistical significance ($p<0.01$). The mean ages of the two cohorts were 34 and 32 years respectively.

Reminder and information letters did not show any statistically significant impact on reducing the rate of never attendance.

Conclusion:

The positive impact of both patient education and reminding our patients of their appointments is clearly demonstrated in this audit. Improved attendance rates benefit our patients' ocular health and allow for better allocation of healthcare resources. We also identified a subset of patients who did not attend DRS, further analysis of this group is warranted to identify potential barriers to patient engagement with DRS.

A Rare Cause of Fungal Keratitis

Smyth A, Murphy C.
Royal Victoria Eye and Ear Hospital, Dublin.

Objectives:

To report a case of a keratitis caused by an atypical dematiaceous fungal species.

Methods:

A 71 year old patient who presented to the eye emergency department with a red, uncomfortable left eye. She had a history of Fuch's Endothelial Dystrophy (FED) and previously underwent bilateral penetrating keratoplasty (PKP) in the early 90s. She subsequently underwent a left DSAEK but developed secondary bullous keratopathy. Slit lamp examination revealed a left corneal epithelial defect and early corneal infiltrate. Vision was counting fingers (CF). The patient was commenced on topical ofloxacin hourly and chloramphenicol ointment nocte and a bandage contact lens(BCL) was placed.

Results:

Despite antibiotic therapy, the defect persisted. She began to develop a small brown deposit on her cornea, resembling a corneal foreign body, which was removed at the slit lamp. She was observed over the coming weeks, with minimal clinical improvement. At follow-up 28 days later, the patient reported her vision had decreased significantly. It was now HM. A large brown deposit was noted on the anterior corneal surface as well as brown staining on the BCL. The deposit was peeled, revealing multiple infiltrates and a swollen posterior lamellar graft with dehiscence at the graft interface. The patient was admitted and commenced on topical antibiotic and antifungal therapy. Microbiology identified fungal colonies on the brown pigmented plaque and the patient was commenced on hourly topical natamycin 5% and amphotericin B 0.15%. The causative fungus was identified as Cladophialophora Boppii, a dematiaceous fungus sensitive to amphotericin B and natamycin. Despite topical antifungals, there was minimal clinical improvement and ultimately the patient required a left therapeutic PKP from which she has recovered well, with visual acuity of.

Conclusion:

This case reports an unusual clinical presentation of fungal keratitis and a particularly rare causative organism of human infections.

Primary Type 3 Retinal Arteriovenous Communication

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Objectives:

Case report of a type 3 retinal arteriovenous communication in a young caucasian Irish woman with no significant past medical or ophthalmic history.

Methods:

30 year old female patient presented with a left eye blurriness of vision with associated intermittent headache. Dilated fundus exam along with CFP revealed a widespread saccular arteriolar dilatations potentially explaining her symptoms. FFA revealed rapid filling of the vascular anomalies without leakage. MRI and phlebotomy was unrevealing for any systemic disease manifestations.

Results:

The identified lesion was diagnosed as a type 3 retinal arteriovenous communication using the classification system outlined by Archer et al. in 1973. Differential diagnosis includes Wyburn-Mason syndrome, capillary retinal haemangiomas and Von Hippel-Lindau disease.

These lesions are usually stable, but require monitoring for complications including intraretinal haemorrhage, central and peripheral retinal vein occlusions, neovascular glaucoma, and vitreous haemorrhage.

Conclusion:

This is an unusual case of retinal arteriovenous communication. This case exemplifies the differential diagnosis for vascular abnormalities in the retina and the classification and complications of retinal arteriovenous communication.

Retrospective Audit of Ocular Trauma Score Application Among Ophthalmology Registrars in Emergency Room at El Walidain Charity Eye Hospital, in the Period of July 2022 to August 2022

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Objectives:

To improve ophthalmology residents' performance in the emergency room of El-walidain Charity Eye Hospital towards ocular trauma scoring.

Specific Objectives:

To estimate ophthalmology residents' knowledge about ocular trauma scoring. To improve counseling of patients as it helps them to understand their visual prognosis. To improve documentation in the medical records and therefore follow-up. To allow ophthalmology residents with varying levels of experience to have a common understanding of close and open globe injury patients' prognosis.

Methods:

Study design, the study will be a retrospective interventional study. Study duration, the study will be carried out during the period from July 2022 To August 2022. Study area will be conducted at Elwalidain Charity Eye Hospital, Omdurman, Khartoum, Sudan. Study population: Ophthalmology residents at Elwalidain Charity Eye Hospital

1. Inclusion criteria
   Ophthalmology residents who are joining the training program in ophthalmology specialty
2. Exclusion criteria:
   Specialists, Consultants, medical officers, and nurses.

Sampling technique and sample size:

1. Sampling technique:
   Selection of doctors who fulfill the inclusion criteria of this study.
2. Sample size:
   Total coverage for all registrars who work in the study area. (50 doctors).

Data collection tools: Data will be collected electronically via a highly confident well constructed questionnaire using Google Forums, filled by doctors in the emergency room at El-walidain eye hospital.

Data analysis and presentation: The collected data will be analyzed by computer using Statistical Package for Social Science (SPSS), version 25. Descriptive statistics in terms of frequency tables with percentages and graphs. Means and standard deviations will be presented with relevant graphical representation for quantitative data. P. value of 0.05 or less is considered statistically significant.

Results:

Improve patients outcome,follow up visual acuity.

Conclusion:

Ocular trauma patients are in need to be counseled about their visual outcomes to have realized and logical expectations based on the severity of the condition. We chose to conduct the audit among the ophthalmology residents because they are the closest medical staff to the ocular trauma cases as they are covering the ocular emergency department 24 hours all the day of the week. The outcome was astonishing by introducing this system in the Hospital.

Spot the Difference: Unilateral Roth Spots Provide Insight Into Mechanism of Post-Flow Diversion Microhaemorrhages

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Objectives:

To present the first reported case of unilateral Roth Spot's following endovascular treatment of an intracranial aneurysm with implications for the pathophysiological understanding of the emerging phenomenon of post-endovascular intervention micro haemorrhages.

Methods:

This case report was compiled with consent from the patient and includes a summary of clinical notes, procedural videos, advanced neuroimaging results, fundus photographs, and octopus visual field results.

Results:

A 51-year-old man underwent elective coiling and flow diversion of a large (16mm diameter), complex left terminal internal carotid artery (ICA) aneurysm. He had no past medical or past ophthalmic history.

A 4 x 25 mm Pipeline Vantage Flow Diverting Stent was deployed over the aneurysm neck extending from the left M1 middle cerebral artery (MCA) bifurcation to the infraophthalmic ICA covering several branches including the ophthalmic artery without compromising patency. Multiple large coils were then placed into the aneurysmal sac.

Three days post-procedure the patient presented with a two-day history of severe, sharp, frontal headache with associated expressive dysphasia, diplopia in upgaze, neck stiffness, and fever. MRI brain with contrast-enhanced intracranial MR angiography which showed ipsilateral cortical areas of ischaemia and micro haemorrhage with small volume subarachnoid haemorrhage (SAH).

On assessment the patient had isolated right superior rectus weakness. Unaided visual acuity was 0.0 LogMAR bilaterally. Optic nerve assessment was normal. Dilated fundus examination showed cotton wool spots and Roth Spots in the left eye. Octopus visual fields were performed which showed right incongruous homonymous hemianopia.

The patient's symptoms improved through a six-day admission during which he had a negative septic work up, repeat neuroimaging and ophthalmic assessment all of which showed no evidence of further haemorrhagic or ischaemic events.
He was seen in the neuro-ophthalmology clinic six weeks following discharge. His visual field defect, superior rectus weakness and fundus changes had resolved.

Conclusion:

Complications associated with FD use include ischaemic stroke secondary to stent thrombosis (necessitates prophylactic dual-antiplatelet therapy (DAPT)), aneurysm rupture or recurrence, vessel perforation, side branch occlusion and haemorrhagic stroke (Rouchaud et al., 2016; G. K. C. Wong et al., 2011). An increasingly recognised post-operative phenomenon is the development of micro haemorrhages in the distribution of the instrumented

vasculature (McGuinness et al., 2015). These may be asymptomatic or associated with TIAs or CVAs. The mechanism behind this phenomenon has not yet been elucidated and may represent either primary micro haemorrhage or haemorrhagic transformation. The uncertainty regarding this has confounded efforts to adapt the procedural technique to reduce its incidence.

Roth spot is an eponym referring to a white-centred, round, ovoid or flame-shaped retinal haemorrhage which represent a ruptured capillary with surrounding retinal haemorrhage and a fibrin-platelet plug at the site of rupture rather than foci of infection despite their initial description in association with bacteraemia (V. G. Wong & Bodey, 1968). They are seen in a diverse range of systemic conditions with the unifying theory explaining their histological features and disease associations is that they are the result of endothelial dysfunction (Ling & James, 1998).

The features of post-endovascular intervention microhaemorrhages on neuro-imaging bear a striking resemblance to the fundal appearance of Roth Spots, namely small vessel occlusive foci with associated haemorrhage. This case report is the first to show their temporal correlation with this phenomenon following endovascular intervention involving the ICA in the region of the ophthalmic arteries origin. This raises the possibility of a shared mechanism between the phenomena and highlights that endovascular dysfunction should be an avenue of investigation in elucidating the pathophysiology of post endovascular microhaemorrhage and in guiding efforts at adapting technique to minimise their occurrence.

Delayed Vision Loss and Neuropathy Following Exposure to Carbon Monoxide: Discussion of a Case and Review of the Literature

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Objectives:

The objectives of this case study and literature review aimed to assess the optimal treatment options for patients suffering from carbon monoxide poisoning by reviewing the literature, investigating both management of the acute and delayed neurological sequelae of carbon monoxide poisoning. The case described is of a 29 year-old patient presenting to University Hospital Limerick two weeks following exposure to carbon monoxide in the workplace. Initially presentation was of horizontal diplopia and general fatigue, with bilateral visual acuity of 6/6 unaided. Four weeks post exposure to carbon monoxide right visual acuity had reduced to count fingers, associated with muscle power MRC grade 3 of the right upper and lower limb, and reduced sensation along the right ulnar distribution.

Methods:

Following retrieval of the case patient's details from his paper chart and physical examination, the literature was reviewed on the topic of both acute and delayed carbon monoxide poisoning recognition and management. Various databases were searched including Medline, Embase and Pubmed, as well as Public Health England and American College of Emergency Physicians guidelines.

Results:

Prompt recognition of acute carbon monoxide poisoning is key, as presentation can mimic influenza or food poisoning with symptoms ranging from headache and nausea to loss of consciousness (Public Health England, 2013). Initial management involves high flow 100% oxygen supplementation, and hyperbaric oxygen therapy should be considered for patients with loss of consciousness, neurological signs and arrhythmias. Patients may suffer from delayed signs of carbon monoxide exposure after two to four weeks, such as vision loss amongst other neurological sequelae, and hyperbaric oxygen therapy may improve patient outcomes (Cardoso PC et al., 2020) (Lin CH et al., 2018).

Conclusion:

Carbon monoxide poisoning may mimic other common conditions and can cause neurological sequelae including visual symptoms, and can present both acutely or delayed following carbon monoxide exposure. Hyperbaric oxygen therapy may be considered in patients presenting with severe carbon monoxide intoxication, or delayed neurological and visual signs and symptoms, and has been described to provide some visual benefit up to several years after symptom onset and should thus be considered in cases with debilitating visual loss presenting in a delayed manner.

A Functional B12 Deficiency Contributing to Optic Neuropathy

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Objectives:

Case presentation highlighting the potential role of a functional vitamin B12 deficiency in optic neuropathy.

Methods:

N/A

Results:

Mr. FP, is a 74 year old gentleman who presented to the ophthalmology clinic with a bilateral reduction in vision in April 2016. He had a background history of mild myopia. Family history was relevant for maternal glaucoma.

Best corrected visual acuity was 6/12 OD and 6/12 OS on presentation. Intra-ocular pressures (IOP) were recorded at 21 mmHg OD and 20mmHg OS. Pupils were equal and reactive to light and there was no RAPD noted. Slit lamp examination revealed pale discs bilaterally with a C/D ratio of 0.9 OD and 0.85 OS. Humphrey's Visual Field 24-2 testing established a loss of sensitivity in the superior field OD and the inferior field OS, with central involvement bilaterally.

The main differential diagnosis for this gentleman was Normal Tension Glaucoma (NTG). However, the reduced visual acuity and degree of optic disc pallor was atypical. Thus, a full optic neuropathy work-up was performed to exclude a dual pathology. This included an MRI brain, carotid ultrasound, electrophysiology, genetic screening, FBC, vitamin B12, ferritin and folate levels. All tests returned results within normal limits.

Given the negative work-up, this gentleman was commenced on IOP lowering agents for the treatment of NTG. However, over the subsequent 5 years, Mr. FPs visual acuity continued to deteriorate to 6/24 OD and 6/18 OS. His case was reviewed again and further investigations to consider a functional B12 deficiency - serum methylmalonic acid, homocysteine, vitamin B12 and folate - were performed. The results identified raised levels of methylmalonic acid in the presence of normal serum levels of vitamin B12, indicating a functional B12 deficiency.

Functional B12 deficiency represents a failure of transport of B12 at the cellular level despite the presence of normal serum levels. It can lead to neurological complications in the same way as a nutritional B12 deficiency but without the classically low serum levels. Mr. FP was treated with therapeutic doses of vitamin B12 and followed up regularly at the ophthalmology clinic. One year post treatment, Mr. FP's vision has stabilised at 6/24 OD and 6/18 OS.

Conclusion:

Dual pathology should be considered in atypical cases of NTG. Vitamin B12 deficiency cannot be out ruled despite the presence of normal serum levels of vitamin B12. Tests to exclude a functional B12 deficiency should be performed in relevant cases.

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