Abstract Booklet

Wed 2 – Fri 4
October 2024

Hilton Newcastle Gateshead
Bottle Bank
Newcastle upon Tyne

North East
2-4th October 2024

Free papers and rapid fire presentations

Wednesday 02nd October

10.15 Session II (P)
Paediatric Free Papers
Moderated by: Mr Javid Suleman and Miss Neda Qurashi, Middlesbrough

10.18 Adalimumab failure in paediatric uveitis: Who, why and what next? - Alicia Canalejo Oliva

Alicia Canalejo Oliva, Sharon Cairns, Sunil Sampath, Alan Connor
Royal Victoria Infirmary, UK

Adalimumab (ADA) is a standard treatment in juvenile idiopathic arthritis associated uveitis (JIA-U) and non-infectious idiopathic uveitis (IU). The aim of this study was to describe the disease and treatment course in those whose disease was resistant to ADA.
Retrospective review of patients attending a tertiary paediatric uveitis service between 2022-2024 with JIA-U or IU and failed to achieve disease control on ADA.
Twenty-two patients (13 female, 9 male) were identified. JIA-U was more common (n=19) compared to IU (n=3). ADA failure was due to ongoing uveitis in 19, with 3 being intolerant to the subcutaneous injection. All patients previously received methotrexate (MTX) with 16 patients concurrently receiving DMARD (MTX, mycophenolate mofetil or azathioprine) at the time of ADA failure. Seven patients tested positive to adalimumab antibodies (AA); in this group 2/7 received concurrent DMARDs. After ADA failure, 15 patients switched to infliximab, and 1 patient each to abatacept, tofacitinib, tocilizumab, certolizumab and golimumab. One patient received MMF monotherapy, and one patient was lost to follow up. 17 of the 21 patients achieved disease remission at last follow up.
The development of ADA antibodies is a common cause of treatment failure. AA was detected in 32% patients with ADA failure and concurrent use of DMARD in this group was lower than those without AA. Concurrent use of a DMARD may reduce the development AA.
There is no consensus regarding treatment following ADA failure, but our series suggests that infliximab or other biological treatments can be used to achieve disease remission.

10.27 Surgical outcomes of paeditric uveitic cataract managed in a tertiary paediatric multidisciplinary team (MDT): Is it all doom and gloom? – Claire Dawson

Claire Dawson[1], Jessy Choi[1,2], Daniel Hawley[1]
[1]Sheffield Children's Hospital, [2]Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom

Historical literatures indicated cataracts developed in up to 70% of children and young people (CYP) with uveitis. This consecutive case series gives insight into the characteristics of visually significant uveitic cataracts requiring surgery managed at the MDT paediatric uveitis service by paediatric ophthalmologists and rheumatologists.
A preliminary retrospective observational review on all CYP presented between 2009-2024. Data was extracted from a uveitis database and patient electronic records.
13 CYP (16 eyes) were identified with cataract. 3 were excluded (1 visually insignificant, 2 operated elsewhere previously). 10 CYP (13 eyes) were analysed, 70% were male, average age was 8.2 years (2-15 years), 70% were asymptomatic. All visually significant cataracts requiring surgery were found at their first consultation- 50% referred from district general hospital, 30% from general paediatric ophthalmologists, 10% from another tertiary paediatric uveitis unit, and 10% at

juvenile idiopathic arthritis uveitis screening. Mean preoperative vision was 1.24 LogMAR (0.7-NPL), improved to 0.29 LogMAR (0.02-NPL) post-operatively. 85% of eyes demonstrated visual improvement. 46% of eyes remained suboptimal due to coexisting ocular comorbidities. 1 CYP was registered as severe visual impairment. All uveitic cataracts requiring surgical intervention presented to the MDT over the last 15 years were found at their initial presentation. Not all had demonstrable visual improvement after surgery, but the majority were beneficial.
Managing expectations is essential. The outcome is highly dependable on coexisting factors which are not always entirely known preoperatively. The pro-active management approach of uveitis in CYP within the MDT appeared to reduce the risk of developing cataracts substantially.

10.36 Service evaluation of paediatric patients with non-infectious optic neuritis seen within the paediatric ophthalmology department at the Evelina Children's Hospital – Neil Clough

Neil Clough, Paul Nderitu, Ailsa Ritchie
Evelina London Children's Hospital, London, UK

Paediatric optic neuritis is less common and less well described than adult. The Evelina Children's Hospital is a specialist neuro-inflammatory centre. We conducted a retrospective case-note review, collecting data on demographics, investigations, diagnosis, treatment.
We identified 19 patients over 5 years. Presentation age 6-17 years. Myelin oligodendrocyte glycoprotein antibody positive optic neuritis (MOG-ON) most common diagnosis (58%), then multiple sclerosis associated optic neuritis (MS-ON) (22%), neuromyelitis optica spectrum disorder (NMOSD) (10%), acute disseminated encephalomyelitis (ADEM) (5%) and clinically isolated syndrome (CIS) (5%). At presentation, all patients received intravenous methylprednisolone treatment, 21% received plasma exchange, and 47% received long term immunosuppression. 63% of affected eyes had normal (>0.16 logMAR) final VA, 16% had normal (>0.4 mm3) final mGCL and 16% had normal pRNFL (>90 μm) . Pearson correlation of VA to mGCL r = -0.452 (p = 0.079, R2 = 0.205), and VA to pRNFL r = -0.150 (p = 0.565, R2 = 0.023). 33% of patients had OCT abnormalities in an asymptomatic eye.
Compared to published data we found higher numbers of MOG-ON and MS-ON, lower numbers of CIS, and lower numbers with normal final VA: We assume this is due to Evelina being a neuro-inflammatory centre. VA may be falsely reassuring as a proxy for 'good outcome', as significant irreversible retinal changes are present on OCT in many patients with normal final VA, and in some asymptomatic contralateral eyes. We advocate for all paediatric patients with optic neuritis to have OCT scans done of both mGCL and pRNFL.

10.45 A review of the management and clinical outcomes of patients under 17 years of age with keratoconus at Manchester Royal Eye Hospital since 2020 – Elspeth Green

Elspeth Green, Susmito Biswas
Manchester Royal Eye Hospital, Manchester University NHS Foundation Trust

Keratoconus is a relatively common condition with an incidence around 2.2% and is often more severe in patients with earlier onset. We aim to present our experience of managing keratoconus in patients aged 16 years or under and their clinical outcomes. We identified all patients with keratoconus who were 16 years of age or under at the time of diagnosis and were assessed in the period January 2020 – November 2023 at

Manchester Royal Eye Hospital. We included one eye per patient. Patients that had undergone corneal cross-linking prior to 2020 were excluded. Corneal topography was measured using the Oculus Pentacam®.
During this period 26 patients with keratoconus were observed but not treated and 45 patients were listed for corneal collagen cross-linking. At the time of listing the median K2 was 54.7 (range 44.6-73.7) and median Kmax was 64.7 (range 47.1 – 88.2). 22 patients were listed at the first assessment and 13 of the patients listed met the KERALINK criteria. Belin ABCD met the 95% confidence interval for change in 12 patients listed for surgery (32%), and in 9 who were not listed for surgery (34%). None of the patients had a significant complication following cross-linking and none progressed following cross-linking.
Our clinical findings reflect the success of cross-linking. Compared to the KERALINK study fewer patients progressed following cross-linking. We discuss progress in cross-linking including evidence for intervention timing and steps to mitigate corneal thickness associated problems such as bandage contact lenses.

10.54 Neurodevelopmental outcomes of ultra-low dose intravitreal bevacizumab (0.16mg) on infants with retinopathy of prematurity at two years of age – Matthew Hartley

Matthew Hartley, James Convill, Theodora Mantzari, Roxane Hillier
Royal Victoria Infirmary, Newcastle, United Kingdom

Retinopathy of prematurity (ROP) is characterised by abnormal retinal blood vessel growth in very premature infants. Without treatment, this can lead to retinal detachment and blindness. Intravitreal bevacizumab (IVB) has emerged as an effective alternative to laser photocoagulation (LPC). The detection of systemic bevacizumab following IVB has raised concerns regarding potential side-effects on organ systems and neurodevelopment. The primary outcome of this study was to assess the effect of ultra-low dose (ULD) IVB (0.16mg, 1/8 of the adult dose) for the treatment of ROP on the neurodevelopment and mortality of premature infants.
A 3-arm retrospective comparative cohort study of preterm infants who had received primary treatment of ULD IVB or LPC for the management of ROP between 2013-2021. A 3rd control group consisted of contemporaneously managed infants who did not undergo treatment for ROP. Neurodevelopmental outcomes were determined for all infants at 24 months corrected age by the Bayley-III composite scores index.
159 infants will be included in the final analysis, which will complete in May 2024. 50 in the IVB group, 58 in the LPC group and 51 in the control group. The groups are well matched in terms of gestational age, birthweight, and other variables.
Our institution is the first globally to report utilisation of ULD IVB, and thus we are uniquely placed to provide neurodevelopmental outcome data for this vulnerable group. Given the rising prevalence of anti-VEGF agents as an intervention in the management of ROP, this data will be timely and influential.

11.03 Retinal detachment risk and outcomes in ocular coloboma in a large UK cohort – Daniel Jackson

Daniel Jackson, Dalia Abdulhussein, Mariya Moosajee
UCL Institute of Ophthalmology/Moorfields Eye Hospital

Ocular coloboma is a rare malformation resulting from incomplete closure of the embryonic fissure during early eye development. Vision can be impacted severely depending upon involvement of ocular structures and presence of complications. Retinal detachment is a known sequelae which has been reported in up to 40% of

patients in certain studies. This study aimed to calculate the risk of retinal detachment, management and visual outcome in a large UK cohort.
Retrospective review of all patients with any form of iris or chorioretinal coloboma seen at Moorfields Eye Hospital, London, UK. Patient records were accessed to determine if a retinal attachment occured at any point. Details regarding management of the retinal detachment and visual outcome following detachment were recorded. Wilcoxon matched paired signed rank test was performed to analyse visual acuity changes.
Over a 10-year period, 813 patients were seen with ocular coloboma. Of these, 63 eyes of 57 patients developed a retinal detachment, giving a retinal detachment rate of 7.7%. The mean age of onset was 22.8 +/- 18.7 years (range 0.6-51 years). Thirteen patients had pre and post retinal detachment visual acuities measured, which saw a statistically significant deterioration of +0.2logMAR visual acuity (p=0.045).
This is the largest UK cohort of retinal detachment in coloboma patients reported to date. Rates appear to be at the lower end of those reported and visual deterioration following detachment, whilst significant, is minimal. This data could be used to counsel and reassure parents and patients of the low risk of retinal detachment. Further exploration of the mechanism and management of colobomatous retinal detachment is however required.

15.00 Session V (P)
Paediatric rapid-fire presentations
Moderated by: Miss Yewande Babalola, Middlesbrough and Dr Panagiota Antonopoulou, Greece

15.02 Ophthalmology: Transition clinic from paediatrics to adult services - Michael Edwards
Michael Edwards, Lawrence Gnanaraj
Sunderland Eye Infirmary

A child can be first seen as a newborn and be under the care of Paediatric ophthalmological service throughout their young lives until the policy of the NHS requires them to be transferred to adult services. The advancement or “transition” from paediatric to adult services can be daunting to both a young person and their families. Meeting the expectations of the patient is key to ensuring that compliance with treatment is ongoing.
Sunderland Eye Infirmary (SEI) delivers tertiary level Paediatric Ophthalmology care. There is a need for a transition service for certain groups of patients who continue to be in our care for the management of congenital glaucoma, congenital cataracts, and some retinal dystrophies. We identified a need to develop a service that mirrors existing transition services such as; diabetes, epilepsy and oncology.
In preparation for developing the service, a series of telephone interviews, and where appropriate face to face, to a pilot group of 12 individuals will be undertaken. The study will use open-ended questions to discuss the expectations of the patient, expectations and support of other departments/organisations, and to gauge the patients’ apprehensions of the transition. Included will be a series of closed questions, using a Likert scale, to assess the patients’ perception of their health care so far.
To be discussed in the presentation.
The findings of the pilot study will dictate how this important service could be developed for this special group of patients.

15.07 Classifying differences in optic nerve head appearance pre and post calvarial remodeling surgery in patients with sagittal synostosis – Kristina Alexander

Kristina Alexander[1], Viral Sheth[1], Rachel Edminson[2], Lucy Dabbs[2], Shahida Kiani[2], David Johnson[2], Rosanna Ching[2], Greg Thomas[2], Jayaratnam JayaMohan[2], Shailendra Magdum[2], Ravi Purohit[2], Tim Lawrence[2]
[1]University of Sheffield, UK; [2]Oxford University Hospitals NHS Foundation Trust

Craniosynostosis is the premature fusion of sutures in the skull that can cause raised intracranial pressure (ICP). Optical coherence tomography (OCT) is used to identify changes in the optic nerve head (ONH) that indicate raised ICP. This study uses retrospective OCT data to compare optic nerve head metrics pre and post calvarial remodelling in sagittal synostosis.
67 eyes were analysed (32 Right; 35 left). Scans were selected from routine pre and post operative imaging within a 4-month time scale. Parameters analysed included: peripapillary RNFL thickness (nasal, temporal, and maximal), maximal rim height (nasal and temporal), cup depth, and Bruch's membrane classification. Secondary data collected included papilloedema status and clinical signs of raised ICP. The results will be statistically analysed with a linear mixed model.
Mean increase in cup depth was 30µm (median, 39µm; range, 16µm-127µm). Mean decrease in rim height was 17µm (median, 13µm; range, 0µm-113µm (Nasal rim mean, 24µm; median, 17µm; range, -9µm-113µm) (Temporal rim mean, 9µm; median 7µm; range, 0µm-56µm)). 63% of patients had a normal 'V-flat' classification of Bruch's membrane pre-operatively which increased to 82% post-operatively.
95% of patients did not have diagnosed papilloedema but did show ONH changes associated with resolving papilloedema post operatively which was outside normal limits expected for age.
This study demonstrates unexpected changes in ONH appearance pre and post calvarial remodelling. It adds depth to our understanding of OCT metrics in this population and offers an opportunity to improve our clinical interpretation of OCT data and how this relates to ICP changes.

15.12 Paediatric scleral-fixated lens implantation- long term outcomes. Fadi Ghazala

Fadi Ghazala[1], Sally Painter[1], Ashish Chikermane[1], Martin Galea[2], Manoj Parulekar[1]
[1]Birmingham Children's Hospital, UK, [2]Mater Dei Hospital, Malta

Scleral-fixated intraocular lens implantation is a recognized, but technically demanding procedure for children with ectopia lentis. We present a series of patients treated with scleral-fixated intraocular lens for the treatment of ectopia lentis and include outcome data.
A retrospective case series of scleral-fixated intraocular lens implantation was carried out by two consultant paediatric ophthalmologists, between 2014 – 2023, at a tertiary referral centre in the United Kingdom. Data was collected on age, gender, pathology, pre- and post-op vision, pre- and post-op refraction, complications and their management.
This series included 25 eyes of 15 patients. Ten patients underwent bilateral surgery. Median age of surgery was 5 years (range 2-16 years). Median follow-up was 5.5 years (1-10 years). Ectopia lentis was a result of Marfan's syndrome (N=8), Homocystinuria (N=1), Traboulsi syndrome (N=1), and ADAMTSL4 gene mutation (N=1). Lens subluxation was predominantly supero-temporal/temporal (N=15) and supero-nasal (N=9). Vision improved by average of 0.44 logMAR (pre-op 0.73 logMAR, post-op 0.29 logMAR). Mean post-operative refraction was +1.53 DS. Complications included prolene suture exposure (N=3), transient vitreous haemorrhage (N=2) and optic

capture from floppy iris in Marfan's syndrome (N=6). Optic capture was successfully managed by McCannell technique iridoplasty.
Scleral-fixated intraocular lens surgery for children with ectopia lentis provides stable results with excellent visual outcomes. Cases with Marfan's syndrome should be counselled about the risk of optic capture and potential need for McCannell iridoplasty.

15.17 Visual recovery following treatment of paediatric optic neuritis - Brinda Muthusamy

Brinda Muthusamy, Yunfei Yang, Karishma Mahtani, Benson Chen, Manali Chitre, Gautam Ambegaonkar
Cambridge University Hospitals NHS Foundation Trust, UK

We assessed the presenting visual acuity in paediatric optic neuritis (ON) and response to treatment with corticosteroids and adjuvant plasma exchange at a single tertiary centre paediatric neuroinflammatory service.
A retrospective case-note review of patients with a first diagnosis of ON under 18 years-old, between 2015 - 2023. Post-treatment Optical Coherence Tomography (OCT) retinal nerve fibre layer thickness (RNFL) is assessed as a marker of optic atrophy (OA). Seventeen patients were included, 7 male (41%) and 10 female (59%). Mean age was 11 years (range 3-16). Nine patients (47%) had bilateral ON. Sixteen eyes of 10 patients had anti-myelin oligodendrocyte glycoprotein antibodies (anti-MOG), 4 eyes of 4 patients had multiple sclerosis, 2 eyes of 1 patient had Neuromyelitis Optica (NMO) and 3 eyes of 2 patients had unclassified ON. Post-treatment MOG positive ON presenting acuity was LogMAR 1.94 improved to a final acuity of 0.15 ($p < 0.05$) and average final OCT RNFL thickness of 64.7 $\pm$ 9 μm; Multiple sclerosis ON average presenting visual acuity was LogMAR 0.50 improving to 0.13 ($p = 0.11$) and final RNFL thickness was 71.0 $\pm$ 11 μm. NMO ON average acuity was LogMAR 0.69 improving to -0.12 and RNFL thickness was 98 μm. Unclassified ON acuity was LogMAR 0.827 and reduced to 1.06.
This review shows MOG positive ON recover significant visual acuity following treatment but have greater OA on OCT. Further studies are required to explore the implications to long term visual function, implications of recurrent ON and decisions on disease-modifying therapies.

15.22 The orthoptist's role in facilitating ocular motor and sensory function in patients with Parkinson's disease – Cheryl McCarus

Cheryl McCarus, CO, COMT, OSA
Greater Baltimore Medical Center, Baltimore, Maryland USA

In 1817, James Parkinson, MD, described six cases of "Shaking Palsy", with characteristics of resting tremor, postural instability and rigidity, bradykinesia and progression of disease over time.
The patients now diagnosed with Parkinson's Disease commonly have ocular manifestations such as decreased saccades & pursuits, ptosis, blepharospasm, convergence insufficiency and diplopia. Studies over decades show that severity of symptoms fluctuate with dosage schedules of anti-Parkinson treatments.
Vision and ocular motor function are optimal during the "on stage", 90 minutes after the regular dosage of levodopa or carbadopa or 15 minutes after turning on deep brain stimulation. Worsening of symptoms occurs during the "off stage', just before the regular dosage of levodopa or carbadopa or 30 minutes after turning off the DBS.

This information arms the orthoptist with ideas for management of CI: consider the time of orthoptic exam as related to dosage of anti-PD medication, compare measurements in the" on and off "stages to help determine the amount of prism that will work for most valued activities, utilize Fresnel prisms and Bangerter filters to allow for variable measurements during the "on and off "stages, and suggest that patients correlate their near activities with the "on stage".
Finally, we can refer patients back to their neurologist to ensure that dosage is optimal for minimizing motor fluctuations.
References:
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15.27 Laser pointer induced Choroidal Neovascular Membranes in children: A case series - Aabgina Shafi

Aabgina Shafi [1], Ruth Darbyshire [2], Narendra Dhingra [1], Fahd Quhill [2].
[1] Mid Yorkshire Teaching Trust, Wakefield, UK., [2] Sheffield Teaching Hospitals, UK.

Laser pointers are a known cause of maculopathy in children for at least a decade now. However, public awareness of their dangers and the lack of regulation continues to pose a problem that may be getting worse.
We present a case series of 5 patients from Yorkshire, who had developed secondary choroidal neovascular membranes (CNVMs) due to laser induced breaks in Bruch's membrane; over a background incidence of many more children who had just "burns". The age range was 10-14 years, with a M:F of 3:2. Baseline visual acuity ranged from 6/6 to 6/60. The initial history identified the cause in only 1/5 children. Unfortunately, in none of these children were parents aware of the risks of these pointers. 1/5 children was picked up at a "routine" Optician test. 1 child was initially misdiagnosed as a vitelliform dystrophy. 4/5 children had procured the "toys" within the UK.
Except for 1 child, who had a fibrosed CNVM at presentation, all patient needed intravitreal anti-Vascular Endothelial Growth Factor (anti-VEGF) injections to treat the CNVM. None of the patients had any complications from the injections.
There was a treatment response to anti-VEGF in 4/4 children, with an improved visual acuity, however some residual visual compromise remained in most.
Laser induced maculopathy in children remains a major public health concern and we, as a scientific community need to ensure a more robust public health campaign. A BOSU study by 2 of the co-authors in the upcoming months is an important step in that direction.

15.32 Outcomes of late probing for congenital nasolacrimal duct obstruction (CNLDO) in children following Covid-19: older children share successful outcomes - Jone Tamosauskaite

Jone Tamosauskaite, Anugya Agrawal, Marco Piergentili, Vernon Geh
Southend University Hospital, United Kingdom

Nasolacrimal duct probing is standard treatment for CNLDO when conservative management fails. Literature reports indicate lack of consensus on the initial management of CNLDO in older children.
We aim to ascertain outcome of delayed probing procedures after the age of two and to identify factors predictive of poor outcome.

We performed a retrospective study of patients undergoing initial probing between January 2019 and March 2024 at Southend Hospital. This allowed comparison between ‘pre-Covid-19’ (January 2019–February 2020) and ‘post-Covid-19’ (March 2020–March 2024). Data was sourced from theatres logbook. Persistent symptoms were defined as failure, and these patients were identified from clinical notes.
Eighty-two children/123 eyes underwent nasolacrimal probing. Due to Covid-19 disruptions, children were having treatment for CNLDO at older ages. The range was 12 months to 8 years. Children 4 years old, or older were excluded from analysis (n=15). Median age at procedure was 26 months pre-Covid-19, and 30 months post-Covid-19. This difference was not statistically significant (p=0.085). 82% of children had a successful procedure pre-Covid-19, compared to 89% post-Covid-19 (p=0.368). Indeed, there was no difference in success rates when stratified by age groups, 1-2 versus 2-4 years old (p=0.115).
There is no significant difference in outcome of treatment for patients treated before and after Covid-19; patients who had delayed treatment between 2-4 years had promising results from initial probing.
We conclude that nasolacrimal probing can be offered as first line treatment in patients >2 years, in absence of risk factors, eg. craniofacial anomalies, trauma or Down syndrome.

15.37 A rare paediatric case of ANCA-associated vasculitis - Lu Jing Tan

Lu Jing Tan, Matthew Mo, Aravind Reddy
Aberdeen Royal Infirmary, Scotland

We report a rare case of paediatric-onset anti-Proteinase 3(PR3), cytoplasmic-anti-neutrophil cytoplasmic antibody(c-ANCA) vasculitis accompanied with extensive non-specific orbital inflammation and a poor visual prognosis. An 8-year-old boy, background of severe autism and non-verbal, presented with acute bilateral eye swelling, proptosis, and profound subconjunctival haemorrhage with history of flu-like symptoms and vomiting. Previous self-resolving episode of only left eye swelling after a COVID-19 infection was noted. On admission, an emergency bilateral lateral canthotomy was performed for orbital compartment syndrome. Multiple examination under anaesthesia(EUA) was executed. Fundoscopy showed bilateral ischaemic retinopathy and choroidopathy while forced duction test showed very restricted movement of extra-ocular muscles(EOM). Computed tomography(CT) confirmed EOM swelling but no retrobulbar haemorrhage or orbital cellulitis. Muscle biopsies showed necrotising inflammation of tissue and the only positive bloodwork result was for anti-PR3 antibody. Diagnosis was made as ANCA-associated vasculitis and he was treated with steroids, antibiotics, and biologics. 4 months post discharge, EUA showed right eye: unreactive pupil, white reflex, no fundal view while left eye: unreactive pupil, dense pigmentation of fundus, attenuated vessels, no view of disc. Orbital inflammation did not recur, but bilateral vision loss occurred. This case highlights the diagnostic challenges from this rare clinical presentation, prompting inquiries into the sequence of events. Specifically, the emergence of significant non-specific orbital inflammation and fundoscopic changes associated with vasculitis and raises questions regarding the role of COVID-19 as a potential trigger for autoimmunity in ANCA-associated vasculitis development. Understanding this relationship will offer valuable insights for future cases.

15.42 Anti-Adalimumab antibody development in children and young people treated for non-infectious uveitis and rheumatic diseases with Adalimumab biologic therapy - Charlotte Wilson

Charlotte Wilson[1], Scott Somerville[2], Jessy Choi[3], Daniel Hawley[1]
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Adalimumab is an effective first line biologic therapy used to treat Children and Young People (CYP) with non-infectious uveitis and juvenile idiopathic arthritis (JIA). However, development of anti-Adalimumab antibodies (AAA) may compromise its efficacy. All CYP treated with Adalimumab between 2015-2023, managed within specialist paediatric rheumatology services at a single tertiary centre, were included in this retrospective study. Potential factors influencing AAA development and its implications for CYP were explored.
Data was collected from hospital systems including patient databases, clinical records and blood test result software.
390 CYP initiated Adalimumab treatment between 2015-2023. 112/390 (28.7%) were tested for AAA, with 156 individual tests performed. 51/112 (45.5%) CYP had positive AAA (>10mG/L), with an average detection time of 2.4 years (range:0.3-5.8yrs). 52.3% (11/21) CYP without concurrent disease-modifying anti-rheumatic drugs (DMARD) and 44.4% (24/54) CYP on sub-therapeutic dose (<15mg/m2) methotrexate had detectable AAA, compared to 21.1% (12/57) on full therapeutic dose (15-20mg/m2) methotrexate. Within-patient fluctuations in AAA levels (range: 13-522mG/L) were observed in 7 CYP despite no changes to regular medications (excluding use of corticosteroids).
Notable AAA incidence is described amongst our cohort of CYP receiving Adalimumab, with no significant difference found between non-infectious uveitis and JIA cohorts. Concurrent DMARD use at full therapeutic dosage alongside Adalimumab may reduce risk of developing AAA. Within-patient fluctuations in AAA levels question the clinical relevance of a positive antibody test. Decisions regarding Adalimumab discontinuation should be based on comprehensive clinical review rather than AAA levels alone. Future multi-centre collaboration is necessary to explore this further.

15.47 Prematurity profile and response to intravitreal ranibizumab in infants treated for retinopathy of prematurity: a case series – Leticia Dujardin

Leticia Dujardin, Eva Gajdosova
University Hospitals Plymouth NHS Trust, United Kingdom

Reactivation of retinopathy of prematurity (ROP) frequently occurs following primary anti-VEGF treatment. We report our experience with intravitreal ranibizumab (IVR) and use prematurity descriptors to analyse our cohort of patients.
A retrospective review of 16 consecutive infants undergoing IVR 0.2mg/0.02 ml for ROP at a tertiary NICU in the South-West Peninsula, between January 2020 and December 2023.
Mean gestational age (GA) at birth was 24.31 weeks (23+0 to 25+3). Mean birthweight (BW) was 577.75 grams (393 to 842). 31.25% of infants had a GA≤23+6 weeks and 50% had a BW≤550 grams. Median postmenstrual age (PMA) at treatment was 34.57 weeks (31+5 to 38+5). There was regression of ROP and vascularization into zone III in 56.25% of eyes following one IVR alone. 37.50% of eyes required additional treatment due to ROP reactivation (10/32 eyes) or persistent avascular retina into zone II at PMA 70 weeks (2/32 eyes). Retreatment was delivered at a mean of 8.99±2.73 weeks after first IVR. One infant died of sepsis during follow-up.

Our retreatment rate was higher than in the RAINBOW study (31%) or the UK National Surveillance study (35.7%). This might be due to the higher degree of prematurity in our cohort when compared to the RAINBOW (mean GA 26.1 weeks, BW 834.4 grams) or UK Surveillance (mean GA 25 weeks, BW 706 grams) studies.
ROP reactivation following IVR typically occurs after 2-3 months. It is more likely in eyes with initial severe posterior disease, which is more common in the very extreme premature babies.

15.52 The Royal College of Paediatrics and Child Health Retinopathy of Prematurity Screening Guidelines (2022): A series of treated infants falling outside the updated criteria - Simranjeet Aulakh

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Screening for retinopathy of prematurity (ROP) is a core healthcare intervention in premature babies to avoid preventable sight loss. A variety of screening criteria are in place globally for this purpose. The Royal College of Paediatrics and Child Health recently updated the United Kingdom ROP screening guidelines (March 2022). A key change was the reduction in the gestational age (GA) to warrant retinal screening (from 32 to 31 weeks).
In the course of informal national surveillance during guideline development (2017-2022) and soon after, babies under our care falling outside the updated screening guidelines who underwent treatment for ROP were identified. A retrospective case review was carried out.
Six babies were identified as having undergone screening and treatment, prior to implementation of the new guidance. Screening and treatment would have been forfeited as per the March 2022 guidelines. All six had numerous systemic risk factors for developing ROP. Specifically, all had documented poor post-natal weight gain.
If screening by reduced GA criteria is to be maintained safely, incorporation of other known risk factors for ROP such as weight gain (and non-physiological confounders of this) must be incorporated. This, alongside careful considerations about the practicalities of implementing less binary criteria in a pressurised clinical environment. Failure to do so risks forfeiting the opportunity to diagnose and treat a preventable cause of life-long blindness.
We present this case series to bring forth an urgent discussion amongst the key stakeholders as to whether the new guidance, as it stands, is safe and fit for purpose.

Declaration
The Authors declare that this paper has been published in the Eye Journal in April 2024. There are no interests to declare.

North East
2-4th October 2024

Free papers and rapid fire presentations

Thursday 03rd October

10.15 Session II (P) (S)
Rapid-fire presentations
Moderators: Mr Alan Connor and Miss Helen Haggerty, Newcastle

10.17 Do you see what I see? Confidence in assessment for Cerebral Visual Impairment in children with profound and multiple learning disability – Louise Allen

Louise Allen[1], Rachel Pilling[2]
[1]University of Liverpool, UK, [2]University of Bradford, UK

Children with profound and multiple learning disability (PMLD) are a high risk group for developing Cerebral Visual Impairment (CVI). As part of a larger project to understand barriers to accessing care and improve diagnosis and support for PMLD children, we undertook a scoping survey to understand the baseline confidence in assessment for CVI amongst UK eye care professionals.
An anonymised survey was sent to three mailing lists comprising paediatric eye health professionals, both generalists and those with a specialist interest in PMLD. The questionnaire invited respondents to self-rate confidence and reflect on challenges of diagnosis of CVI in PMLD.
Due to overlap in list membership a response rate calculation was not possible. 67 responses were received (65% orthoptist; 23% ophthalmologist; 12% optometrists). 18% orthoptists rated themselves 'out of comfort zone' when assessing a child with PMLD, compared with 44% ophthalmologists. The area of highest confidence for both groups was 'risk factor identification'. Establishing visual attention and visual fields were considered the most challenging elements of assessment with 12% and 15% responding with no or minimal confidence. 'Inadequate Time' was rated the factor most associated with finding assessment challenging (55%). Themes for removing barriers to assessment were provision of a framework or checklist, clarity on interpretation of findings and access to training.
This initial scoping survey has revealed a spectrum of confidence in assessing children with PMLD for CVI. The results will inform the future direction of research and development of training resources for eye health professionals working in this field.

10.22 Presenting features, assessment, progression rates and underlying aetiology in infants and young children presenting with high myopia – Katie Williams

Katie M., Williams [1,2,3,4,] Anna, Seiko[1], Annegret, Dahlmann-Noor [1,3,5]
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We sought to ascertain typical features and aetiology in infants and young children presenting with high myopia at a dedicated UK ophthalmic hospital.
We performed a retrospective review of children with high myopia (-6D) age 5 years or younger identified using appropriate search terms from electronic medical records. Presenting features, family history, ocular imaging, biometry, electrodiagnostic tests and genetic testing were reviewed, together with progression rates where possible.
We identified 91 children with a mean age at presentation of 3.6 years (minimum 4 months). There was a slight male predominance (52%). When recorded, high rates of parental myopia overall and specifically high myopia were seen. Mean spherical equivalent (SE) at presentation was -7.70 D (SD 4.92), with maximum SE = -25D. Rates of imaging and/or biometry were low (n=4). Thirteen children had electrodiagnostic testing with an abnormality indicative of inherited retinal disease in

69%. Likewise, 13 children underwent genetic testing with positive findings in 7, including FBN1, RPGR, incomplete CSNB, PAX6 and Sticklers. Mean annual progression rate was -0.24D/year (SD 0.79) with a maximum of -2.46D/year. In comparison to a proximal tertiary paediatric hospital, we identified a slightly older age at presentation (3.6 vs 2.7 years) and lower rates of abnormal electrodiagnostics (9.8% vs 23%).
In this contemporaneous series of infants and young children with high myopia approximately 25% had mendelian or secondary myopia, but a large proportion appeared to have simple myopia with a strong family history. This may reflect global trends in myopia prevalence and age of onset.

10.27 Are Orthoptic Telephone Consultations an Effective Alternative? – Michelle Blyth

Michelle Blyth, Catherine Hudson, Jack Ellis
Newcastle Eye Centre, Royal Victoria Infirmary, UK

In the Newcastle Eye Centre (NEC), orthoptic telephone consultations were implemented in 2020 during the Covid-19 pandemic, where patients were unable to access face-to-face appointments. This new way of interacting with patients in fact seemed to be effective and logical for specific purposes, and became part of normal practice for appropriate cases.
To determine the effectiveness of telephone consultations and to understand the specific cohort of patients for which they offer a suitable and appropriate alternative to a face-to-face appointment.
With the recent introduction of patient initiated follow-up (PIFU), a secondary outcome is to look at proportion patients receiving telephone consultations in the data that would be suitable for a PIFU pathway.
A retrospective review of all patients who received an orthoptic telephone consultation from 1.1.23 to 31.12.23 in the NEC. Data was collected using Medisoft. Carbon footprint and environmental effect of telephone consultations compared to face-to-face appointments will also be analysed.
692 patients received an orthoptic telephone consultation in 2023. Analysis of the data will show diagnosis, age, symptoms, treatment, outcome, distance of residence to the NEC, discharge rate, DNA rate and how many were appropriate for the PIFU pathway as an alternative.
This emerging mode of care in orthoptic practice could prove to be advantageous and practical and reduce pressure on face-to-face appointments. A thorough comprehension of appropriate cases is required. In addition, this new approach can reduce costs, improve convenience for the patient and increase the number of patients able to receive clinical input in a session.

10.32 The architect's apprentice: a readily available (Amazon), cheap, reliable tool for measurement of Abnormal Head Posture for nystagmus surgery - Aabgina Shafi

Aabgina Shafi [1], Jian Chew [1], Ashleigh Toft [1], Robert Taylor[2]
[1]Mid Yorkshire Teaching NHS Trust, Wakefield, [2]York Teaching Hospitals NHS Trust

An 11-year-old child, with infantile nystagmus syndrome, had a null point in left gaze. She adopted an extreme right face turn, with right head tilt. Her binocular best corrected visual acuity (BCVA) in “forced” primary position was 0.9 LogMAR, improving to 0.4,with adoption of her compensatory/abnormal head posture(AHP). She wore her full refractive correction (hyperopic astigmatism) which made a difference of 3 lines to her binocular acuity with AHP (improving from 0.72 to 0.4).

She was keen on intervention to improve the AHP as it was affecting her psychosocial wellbeing.
An augmented Kestenbaum-Anderson surgery was proposed, and parents agreed to go ahead after much counselling, period of monitoring and contact lens trial (latter to maximise the head posture to prevent measurements being obstructed/blocked by the edge of glasses). EMG recordings were not done.
Head posture was measured with an orthopaedic goniometer,evidence for which was found in the literature. We also trialled an architect's digital protractor, which compared reliably with the manual goniometer, whilst being faster and more user friendly. Measurements were taken at 3 visits, at least 2-3 months apart.
At 2weeks post-surgery, patient's AHP had reduced from 38.5 degrees to 0, with excellent cosmesis and retained binocular BCVA in primary position.
The authors recommend surgery for correcting head posture in nystagmus, the operations hugely benefitting patients' quality of life. Digital protractor is an easy to use and inexpensive instrument for surgical planning-authors illustrate its use.
Maximising visual acuity and measuring maximal angle pre-operatively, are key to good surgical outcomes.

10.37 Central tenectomy as a useful surgical tool in re-do strabismus surgery: A case series – Fadi Ghazala

Fadi Ghazala, Sanil Shah, Manoj Parulekar
John Radcliffe Hospital, Oxford

Central tenectomy has been described in management of small angle strabismus, and has been reported in combination with muscle recessions to treat large angle horizontal strabismus. We report the use of central tenectomy in re-do strabismus surgery where the muscle is found to be maximally recessed and there are limited surgical alternatives.
A retrospective case note review of all central tenectomies carried out between Jan 2016 to April 2024. Cases where central tenectomy was combined with recession of the muscle were excluded. Pre-op and post-op data collected includes pre-operative strabismus angle, range of ocular motility, binocularity and outcomes.
22 patients (mean age 46.76 years), 8 males and 14 females were included. All the patients previously had maximum rectus muscle recession. Four patients had vertical strabismus, 12 had esotropia and 9 had exotropia. All except one underwent resection/advancement of the antagonist rectus muscle at the same time. Satisfactory alignment within 6 prism dioptres was achieved in 95% cases, with under correction in one case. None of the cases had an overcorrection.
This series demonstrates the utility of central tenectomy in management of complex strabismus where resection/advancement alone will not achieve the desired result, or resections are undesirable eg thyroid eye disease.. Use of a central tenectomy reduces the amount of resection required , thus minimising resultant motility restriction.
Central tenectomy can be used safely and effectively to further weaken a maximally recessed muscle in re-do strabismus surgery, particularly In thyroid related strabismus, residual esotropia/exotropia and reoperations on amblyopic eyes.

10.42 Botulinum toxin injections in patients with glaucoma drainage devices - Rathin Pujari

Rathin Pujari, Meena Arun, Maria Theodorou, Aditi Das, Joanne Hancox, Alasdair Kennedy
Moorfields Eye Hospital, UK

Strabismus in the presence of a glaucoma drainage device (GDD) can be sensory in cases of advanced glaucoma, or caused by the implant itself. Either way, surgical management of such patients' strabismus is technically challenging and associated with increased risk. Botulinum toxin injections to the extraocular muscle overlying the GDD may provide an effective and lower risk alternative. We present a series of patients with strabismus and GDDs who underwent toxin injections.
The medical records of all patients in a local hospital with GDDs who had botulinum toxin injections to the overlying muscle for strabismus over a 5-year period were retrospectively examined. Patients could have any GDD type and were assessed 2-4 weeks after their injection.
29 patients met the inclusion criteria. 25 patients had Baerveldt, 3 had Paul and 1 had a combination of Molteno and Baerveldt tubes. 15 had sensory exotropia, 9 restrictive or mass effect exotropia and 5 had other causes of exotropia. There was an average improvement in deviation after 1 injection from 43PD to 17PD for near and 39PD to 13PD for distance. Of these, 14 patients received a top-up injection and 4 had a further improvement in deviation of over 10PD. 2 patients had a temporary induced vertical strabismus. No other complications were reported. Overall, 72% of patients were satisfied with the effect of their injection.
Toxin injections in patients with GDDs represent a safe and effective treatment. It may be a valid alternative to surgery, which is often contraindicated and technically challenging.

10.47 Mycoplasma pneumoniae-associated uveitis and orbital inflammation: Another face of the masquerade – Ahmed Wanas

Ahmed Magid Wanas[1], Alicia Oliva[2], Sunil Sampath[2], Alan Connor[2], Daniela Vaideanu-Collins[1], Ahmed Saad[1]
[1]James Cook University Hospital, [2]Royal Victoria Infirmary, UK

A 13-year-old male patient presented with bilateral periocular oedema, photophobia, and blurred vision, preceded by a week-long episode of flu-like symptoms and accompanied by a persistent cough and skin rash. He was asthmatic on steroid inhalers.
He had bilateral upper lid erythema and oedema without tenderness. His visual acuity (VA) was 6/6 and 6/9 in the right and left eyes, respectively. Examination revealed bilateral acute anterior uveitis (AAU) characterized by +3 cells and flare. The left eye had fibrinous exudate without signs of synechiae. Anterior vitreous cells were present. Fundus examination was unremarkable.
He was admitted under the paediatric team for systemic investigations and was started on intense topical steroids as well as a cycloplegic. Full uveitis workup including ANA, ANCA, HLA-B27, serum ACE, Antistreptolysin-O titre, QuantiFERON, as well as serology for syphilis, were negative. His CRP was moderately elevated. Chest X-ray was normal. MRI orbit showed mildly enlarged lacrimal glands with signs suggestive of orbital inflammatory syndrome. He was started on tapering oral prednisolone which significantly improved his symptoms but failed to resolve the persistent low-grade AAU.

He was then reviewed by the paediatric rheumatology team who requested mycoplasma pneumoniae serology for the persistent cough and it showed elevated IgM and IgG antibodies. He was started on clarithromycin for one week. Symptoms and signs have completely resolved.
Mycoplasma pneumoniae-associated uveitis is rare and orbital involvement has not been reported before in existing literature. The condition warrants suspicion, especially in cases with concurrent chest symptoms.

10.52 My baby has unusual eye movements – Reena Dave

Reena Dave, Shalaka Sobti
Hillingdon NHS Trust

We present a case of a 10-week-old baby whose parents noticed unusual eye movements shortly after birth. The baby was otherwise healthy with no family history. Ocular examination showed the baby was fixing and following well but during the consultation developed an unsual shaking movement of the eyes. There appeared to be no triggers identified. The entire ocular examination was otherwise normal. The baby was diagnosed with Paroxysmal Downgaze Nystagmus. This is a benign infantile nystagmus which presents shortly after birth and usually resolves spontaneously. There are often no underlying intracranial or intraorbital pathologies. Usually parental reassurance is key as well as clear communication.

10.57 Ocular manifestations of moyamoya disease – Elewys Hearne

Elewys Hearne, Sajeevika Amarakoon
Bristol Eye Hospital, United Kingdom

A 10-year-old female presented with suspected with gradual bilateral decreased vision. In infancy she suffered a large right hemisphere ischaemic stroke. Neuroangiography revealed a severe stenosing arteriopathy with extensive collaterals leading to a diagnosis of Moyamoya disease. Other past medical history included; a CBL gene variant, microcephaly, learning difficulties, pulmonary stenosis, atrial septal defect and small stature.
Ophthalmic examination was performed under anaesthesia. Intraocular pressures were raised, with bilateral very shallow anterior chambers, neovascularisation of the iris and occulsio pupillae. There was no fundal view. B scan revealed a vitreous opacification thought to be a fibrovascular membrane in the right eye whilst the left vitreous was clear.
She was started on topical glaucoma drops, and had bilateral cyclodiode which normalised the intraocular pressures.
This case illustrates a rare case of moyamoya disease leading to bilateral ocular ischaemic syndrome (OIS). Chronic retinal and choroidal ischaemia causes excessive production of vascular endothelial growth factor (VEGF) resulting in neovascular glaucoma and fibrovascular membranes. The OIS also caused anterior uveitis leading to bilateral occulsio pupillae.
Moyamoya disease is a rare, however it is important that Ophthalmologists are aware of the ocular complications as it can lead to severe and irreversible vision loss if there is a delay in treatment. The ocular signs may also proceed the life-threatening neurological events, so Ophthalmologists could contribute to a timely diagnosis.

11.02 Modified Augmented Nishida procedure: our initial experience – Rita Prajapati

Rita Prajapati, Evelyn Tai, Janice Hoole, Devina Gogi
Leeds Teaching Hospitals, United Kingdom

Transposition surgeries have been the mainstay of correction when the eye cannot rotate beyond the midline in maximal duction. However, these time-honoured methods have an increased risk of anterior segment ischaemia. Modified Nishida vessel-sparing adaptation is gaining popularity as a low-risk method of managing these patients.
Our centre started Modified Nishida surgery in 2023. We present a consecutive interventional case series of patients treated with modified Nishida surgery augmented by botulinum toxin injection/ recession /plication of muscle. Patient's clinical features, pre- and postoperative angle of deviation, ocular motility and satisfaction are reported.
Six patients with age range from 25 to 62 years of age are included. Indications for surgery included abducens nerve palsy, congenital cranial disinnervation syndrome & slipped muscle. The pre-operative angle of deviation ranged from 16 prism dioptres to 90 prism diopters. The limitation of duction varied from -4 to -7. The surgery was augumented with botulinum toxin injection in four patients, plication of muscle in one patient and recession of muscle in 2 patients. The post-operative angle of deviation ranged from no deviation to 45 prism dioptres. All patients had improved duction post-operatively and high patient satisfaction score. None of the patients experienced any complications.
The promising initial results of Modified Augumented Nishida has made it the preferred surgical option for strabismus surgery with absence of duction in our centre. Augmentation improved the result of surgery, as these are relatively longstanding squints with increased forced duction & large preoperative horizontal deviation.

11.07 Investigation of superior oblique tendon anatomy with respect to surgical approaches - Charles Talks

Charles Talks[1], Robert Brady[2], John Somner[2], Tony Vivian[2], Cecilia Brassett[1]
[1]University of Cambridge, United Kingdom, [2]Cambridge University Hospitals NHS Foundation Trust, United Kingdom

The superior oblique (SO) insertion is the most variable of the extraocular muscles, which, combined with its unusual anatomy, makes surgery difficult and unpredictable. This study aims to improve the ability of surgeons to identify and operate successfully on the SO, by characterising the variability in the size, position, angle and shape of its insertion. A secondary aim was to define clinical guidelines for steroid injections into the trochlear area to treat SO pathology.
Dissection was performed on eight paired cadaveric orbits, with measurements taken relating to the morphometry of the SO muscle and its insertional pattern onto the globe. Scale diagrams of its insertion were constructed based on these measurements. The medial canthus is attached to bone suggesting it may provide a good surface landmark for trochlear injection. To test this hypothesis, multiple trochlear injections were performed in each specimen and the position of the injection site relative to the medial canthus was measured.
Accessory SO insertions were present in both eyes from one donor. Although multiple insertions are common for the inferior oblique muscle, this has not previously been reported for the SO. It was found that the medial canthus provides a good landmark for how far laterally (but not superiorly) to inject.
Identifying variation in the SO insertion and useful landmarks may provide a roadmap for easier, safer SO surgery.

Guidelines for clinicians on how to find and manipulate the SO in clinical practice have been developed.

15.00 Session V (P) (S)
Free paper presentations
Moderated by Miss Yevukai Jaya, Sunderland and Miss Simranjeet Aulakh, Durham

15.02 Why psychological support matters for young people with visual impairment (VI); parental voices – Richa Aspland

Richa Aspland, Molly Blakeman
Addenbrooke's Hospital, Cambridge, UK

The Royal College of Ophthalmologists (2021) states that holistic, child-centred care helps deliver high quality services. However, there is paucity of mental health provision for young people with VI. Currently, there are no national service specifications to inform psychological practice within paediatric ophthalmology.
Feedback from parents of young people with VI, discharged within the last six months was obtained to enhance service delivery.
Parents of 26 children from diverse backgrounds were contacted to elicit feedback after outpatient psychological care in an acute hospital. A standardized qualitative questionnaire was completed by a non-provider clinician. Thematic analysis was conducted on parental feedback.
Themes generated were-
1: Reasons for accessing psychology
1.1 Psychological adjustment to Diagnosis
1.2 Psychological adjustment to surgery and adherence to treatment
1.3 Anxiety associated with vision loss and/or showing behavioural distress
1.4 Additional health difficulties/persistent physical symptoms
2: Overall positive experiences
2.1 Psychologists approach to increasing engagement in sessions with timely and effective support
2.2 Feeling listened to and heard in sessions
2.3 Sharing young person's perspective and helpful strategies
2.4 Offering psychological support for the family and linking with avenues of additional support
3: Aspects of care that could be enhanced.
3.1 More awareness of Psychology services in Paediatric Ophthalmology.
Results provided rich and meaningful data from parents evidencing a strong case for clinical psychology being one of the requirements for paediatric ophthalmology service provision. Young people with visual impairment and their families were extremely positive about mental health provision as it alleviated distress and enhanced psychological well-being.

15.11 Paediatric Visual Impairment in England and Wales: A retrospective study (2009-2022) - Matthew Feyissa

[1]Matthew Feyissa, [2]Maria Theodorou
[1]Milton Keynes University Hospital, [2]Moorfields Eye Hospital NHS Foundation Trust

The Certifications of Visual Impairment (CVI) system was implemented to quantify and classify the incidence of visual impairment amongst the England and Wales population.

This retrospective study investigates the trend in the registration of VI amongst children.
CVI data provided by the Certifications Office, was extracted and assessed to identify the various causes of mild-moderate (SI) and severe (SSI) visual impairment between 2009-2022. The data was classified into 11 broad groups which were similar in pathology. Incidence data was calculated using the official Census data. Byar's method was used to calculate confidence intervals to determine significant changes in the number of new registrations in 4 yearly intervals amongst conditions that recorded >5 registrations in every year of the study.
Between 2009-2022 there were 18,387 new registrations (10,915 SI and 7,472 SSI). Disorders of the CNS(4145), retinal disorders(2990) and congenital abnormalities of the eye(4491) made up nearly 2/3 of the registrations. Amongst SI registrations, there was a significant increase in these 3 groups over the 13-year period(excluding the first year of the Covid pandemic). However, there was a significant decrease in SSI registrations for congenital abnormalities.
Overall, there is an increasing number of children registered SI/SSI in England and Wales. The main causes are: disorders of the CNS, retinal disorders and congenital abnormalities of the eye. This may be due to increasing awareness. However, further detailed review of each the 11 groups is required to review the impact of screening eg.ROP, earlier diagnosis, and treatments within each group.

15.20 Case series of Optic Neuropathy caused by Vitamin A deficiency in children - Christine Bourke

Christine Bourke, Oliver Marmony, Vasiliki Pantelli, Richard Bowman
Great Ormond Street Hospital, London, UK

In high-income countries nutritional deficiencies are on the rise, due to increase of gastrointestinal disorders, strict vegan and vegetarian diets and avoidant restrictive food intake disorder (ARFID), associated with conditions such as autism spectrum syndrome (ASD). Vitamin A deficiency-related ophthalmic complications are well described. A few cases have been reported with severe vision loss and associated optic atrophy in children with low Vitamin A and associated optic canal hyperostosis. We describe three cases who presented at Great Ormond Street Hospital.
Clinical records of all three patients were retrospectively reviewed, including full orthoptic and ophthalmological evaluation, electrodiagnostic test and fundal imaging where possible. Serological and neuroradiological investigations were included.
All three cases presented with progressive, painless severe visual loss (LP) and a history of ARFID and ASD. They were diagnosed with bilateral optic atrophy. Serological investigations excluded neuroinflammation and revealed Vitamin A deficiency among others. EDTS were successfully carried out on one of the patients showing reduction of PERG N95 and Flash VEPs from each eye were degraded and attenuated. Optic nerve imaging (Optos plc UK) was performed on 2 patients. MRI brain imaging showed skull bone thickening, thin optic nerves and associated optic canal narrowing.
This is a small paediatric case series of severe visual impairment due to optic canal hyperostosis related compressive optic neuropathy and Vitamin A deficiency. This has been reported in immature mammals but rarely in humans.
This case series highlights the value of multimodal functional and structural measures in complex nutritional optic neuropathies. Potential optic nerve compression should be considered in the aetiology of nutritional optic neuropathy.

15.29 Is isolated inferior rectus weakness a strong indicator for myasthenia gravis? Emma Butterworth

Emma Butterworth, Jessy Choi, Joshua Simmons, Martin Rhodes
Royal Hallamshire Hospital, Sheffield Teaching Hospitals NHS Trust, UK

Historical reports indicate isolated inferior rectus weakness (IRW) can lead to diagnosis of myasthenia gravis (MG) without additional symptoms. Orthoptists are vigilant to identify IRW, leading to MG investigative testing.
A retrospective consecutive observational case-note analysis of patients who underwent acetylcholine antibody testing (ACR) following presentation to a tertiary adult Strabismus service in Sheffield, 2010-2023, using integrated clinical environment (ICE).
68 patients were identified, 6 were not managed in the strabismus service and excluded (n=62). Mean age at presentation: 60.05 (20-88) years, with 61% male. MG-related signs and symptoms (MG-SS) included muscle weakness, breathing, chewing and swallowing difficulties, slurred speech, variable ptosis/ diplopia; variable ocular motility defects, fatigue on elevation, Cogan's sign. Patients were grouped into isolated IRW (n=10), IRW + MG-SS (n=22), MG-SS without IRW (n=6), thyroid suspected (n=16), suspected MG-related-lids (n=5), suspected MG-related-lids + thyroid (n=3). MG was diagnosed in 10/62 (16.13%), and 6/10 (60%) were ocular MG. 5/10 (50%) IRW + MG-SS, 3/10 (30%) MG-SS without IRW, 2/10 (20%) Thyroid suspected.
The strong predictor for MG is the presence of MG-SS with or without IRW. This highlights the importance to explore MG-SS carefully and not just IRW alone. Other essential assessments should include fatigue on elevation, Cogan's lids sign and variabilities between assessments.
IRW alone is not a good indicator for MG. It highlights the need to only investigate when MG-SS are present. This will ensure time and cost savings along with reducing psychological impact to patients from unnecessary testing.

15.38 Retrospective review of features, investigation and management of acquired esotropia in high myopia (heavy eye syndrome) at Moorfields Eye Hospital - Aditi Das

Aditi Das, Indran Davagnanam, Michael Gilhooley, Katie Williams
Moorfields Eye Hospital, London

Acquired esotropia in high myopia, often termed 'heavy eye syndrome', generally develops in adulthood. There are no diagnostic criteria but MRI measurements of extraocular muscle paths and posterior eyeball prolapse can provide quantifiable evidence. MRI studies have shown inferior shift of the lateral rectus (LR) and nasal shift of the superior rectus (SR). The muscle union procedure, developed by Yokoyama in 2013, has been widely accepted as a primary procedure.
We performed a retrospective review of adults (≥18 years old) seen at Moorfields Hospital with a diagnosis of high myopia (spherical equivalent ≥6D) and strabismus. We identified patients by searching electronic medical records. We focussed on MRI findings and excluded those without neuroimaging. Presenting features including orthoptic assessment, spherical equivalent, and associated myopic features were noted. In those who underwent surgery, the surgical technique chosen, and outcome was examined.
We identified 69 adults with high myopia and associated esotropia, attending Moorfields between 2018 and 2023. The mean age at initial assessment was 50 years (SD 18.1) with a minimum age of 18 years and maximum age of 89 years. We will describe presenting features, MRI findings (including where possible, the calculation of

the angle formed by the globe, LR & SR = ‘angle of dislocation of the globe’), surgical approach and outcome.
The number of patients presenting with acquired esotropia in high myopia may become an increasing burden. Classical features, the benefits of MRI assessment, and surgical approach will be discussed.

15.47 Long term outcome of treatment of ROP and Changing trend in ROP treatment: Leeds teaching Hospital Experience - Ashish Kumar

Ashish Kumar
Leeds Teaching Hospitals

We looked at long term outcomes for ROP Laser. We also want to report changing trend in first line treatment for ROP. We looked at all babies who needed ROP treatment from 01/01/2014 to 30/04/2024.
We looked at Electronic Medical records for their outcomes. There was also passive surveillance of the babies treated from outside the unit regarding any adverse outcomes and complications.
We treated 152 babies in time period. We had failure in 5/152(3.3%)babies.
From 2014- 2019 — 11/62(17.7%) babies needed Anti-VEGF as rescue treatment
From 2020- 2024 — 28/90(31.1%) babies needed Anti-VEGF , out 28 babies only 2 were rescue treatment rest 26 were primary treatment ROP.
There has been increase in Anti-VEGF as primary treatment since May 2022(new ROP treatment Guideline came in March 22) ,16/38(42.1%) babies had primary Anti-VEGF vs 10/52(19.2%) babies between Jan 22 to April 22. We have a failure rate of 3.3% vs ET ROP study(9 % of babies had unfavourable structural outcomes) There is big uptick in Anti-VEGF as primary treatment especially after the new ROP treatment guideline came out in March 2022.
This study report long term outcome of ROP treatment and we report good outcome from ROP treatment to preserve sight. There is increasing trend toward Anti-VEGF as primary and first line treatment for ROP . Further follow up long term follow up would inform us vision outcome in this cohort.

North East
2-4th October 2024

Free papers and rapid fire presentations

Friday 04th October

09.45 Session II (S) (P)
Free papers
Moderated by Prof Kyle Arnoldi, Buffalo & Ms Cheryl McCarus CO, Baltimore

09.48 Survey of UK ophthalmologists into the workforce, recruitment and retention issues of paediatric ophthalmology – Neil Clough

Neil Clough (1), Tejal Magan (1), Saurabh Jain (2)
[1]Guy's and St Thomas' NHS Foundation Trust, [2]Royal Free London NHS Foundation Trust, UK

The RCOphth 2022 census and focus groups highlighted challenges facing paediatric ophthalmology. We designed a survey to further understand these and suggest solutions for recruitment and retention.
A survey was sent to U.K. based Ophthalmologists in September 2023. Questions were stemmed according to job title. These consisted of demographic factors, service waiting times and reasons for challenges to recruitment.
We had 145 responses: 37.9% consultants, 1.4% specialty doctors, 53.1% trainees, 7.6% fellows. 87% of trainees did not want a career in paediatric ophthalmology: top three dissuading reasons were strabismus complexity, examining children, and limited private practice. Consultant responses regarding waiting times for non-urgent surgery; 47.3% <6 months, 40% 6-12 months and 12.7% >12 months. Waiting times for non-urgent referrals; 25.5% <3 months, 21.8% 3-4 months, 52.7% >4 months. Vacant or impending vacant (<2 years) consultant posts; 38.9% had none, 44.4% had one and 14.8% had two posts. Consultant responses regarding challenges to recruitment: most common were low number of applicants (79.2%) and lack of managerial support to recruit (35.8%). Most suggested recruitment solution among consultants was early exposure, and specialty doctors suggested CESR opportunities.
Paediatric ophthalmology faces significant challenges: trainee hesitancy, unfilled posts and long waiting lists. 13% of trainees surveyed were interested in paediatric ophthalmology, which is less than UK workforce requirements as reported in the 2022 RCOphth census. Early exposure and familiarity with examination for trainees may help address this.

09.57 Surgical Outcomes in Convergence Excess Esotropia Following Prism Adaptation - Tess Garretty

Tess Garretty
Leeds Teaching Hospitals NHS Trust, UK

Convergence excess esotropia describes an intermittent esotropia with BSV at distance fixation with an esotropia on accommodation at near. Previous research has shown improved surgical results in small numbers of patients who had undergone prism adaptation (PAT) pre-operatively. This study looks at a cohort of 100 children who have undergone surgery for convergence excess and outlines their outcomes relating to prism adaptation.
100 children had surgery. Of these, 70 wore prisms according to departmental guidelines up until the time of their surgery. 13 children had PAT attempted but did not completely follow the pathway and 17 children did not undergo PAT. 7 children underwent 2 squint procedures. Following 1st procedure 81.2% of those who underwent full PAT, 66.7% of those who had partial PAT and 35.3% of those who did not undergo PAT were fully binocular postoperatively. 14.9% in the full PAT group,

33.3% in the partial PAT group and 47% of the no PAT group remained convergence excess.
Following the 2nd surgery, 92.4% of those who underwent full PAT, 66.6% of those who had partial PAT and 35.3% of those who did not undergo PAT were fully binocular postoperatively. 6% in the full PAT group, 33.4% in the partial PAT group and 47% of the no PAT group remained convergence excess postoperatively.
PAT usually uncovers a larger deviation than when measured with routine testing and aids surgical planning. It may also improve the outcome of surgery in convergence excess either by aiding anti-suppression or potentially improving cues to accurate vergence.

10.06 Symmetric versus Asymmetric Bilateral Lateral Rectus Recession in Management of Basic Intermittent Exotropia with Ocular Dominance –Mohamed Farid

Mohamed Farid[12], Ahmed Khater[2]
[1]Swansea Bay University Health Board, Swansea, UK, [2]Benha University Hospital, Benha, Egypt

To compare surgical results of symmetrical versus asymmetrical bilateral lateral rectus muscle recession in management of basic intermittent exotropia (IXT) with ocular dominance.
This is a prospective randomized interventional clinical trial which included 40 basic IXT patients with a dominant eye. Patients were randomly assigned to two groups; those who underwent symmetrical bilateral lateral rectus recession (sBLRc), and those underwent asymmetrical bilateral lateral rectus recession group (aBLRc), with 2 mm more recession in the non-dominant eye. Patients were followed for 1 year after surgery. Comparisons between groups were made including final distant and near alignment, effect on sensory status and complications. Satisfactory outcome is defined as distant and near deviation between 10 PD of exophoria/tropia and 10 PD of esophoria/tropia. Recurrence is considered if alignment is more than 10 PD of exophoria/tropia, while overcorrection is considered if alignment is more than 10 PD of esophoria/tropia.
Demographic and basic orthoptic features were non-significant between both groups. In sBLRc and aBLRc groups, Orthotropia was achieved in 12 and 16 patients ($p=0.3$), undercorrection in 8 and 4 patients ($p=0.1$), respectively, and only one case in aBLRc group developed overcorrection ($p=0.3$). Both groups attained significant ($p<0.00001$) improvement of distant and near deviations. However, aBLRc group achieved more significant correction of distant ($p=0.003$) and near ($p=0.05$) exodeviation.
Compared with sBLRc, aBLRc attains more significant correction of distant and near basic IXT. However, difference between both groups regarding final rates of orthotropia, undercorrection and overcorrection were non-significant.

10.15 Medial Transposition of the Split Lateral Rectus Muscle Used as a Primary Procedure for Treatment of Complete Third Nerve Palsy – Mohamed Farid

Mohamed Farid[12], Mokhalad Al-duhaimi[1], Mohamed Mahmoud[3], Emad Bahaaedin[1], Danielli Modeste[1]
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This case series aims to study the effect of medial transposition of the split lateral rectus (LR) muscle used as a primary procedure for surgical management of complete third nerve palsy.

A retrospective review of all cases with complete third nerve palsy which underwent surgical intervention in a tertiary care center from 2016 to 2023 was undertaken, and only cases underwent isolated medial transposition of the split LR as a primary procedure were included. Data collection included age, etiology, laterality, follow-up, preoperative and postoperative deviation, and postoperative complications.
A total of 12 patients were identified, and mean follow-up after surgery was 15.4 months (average 7-37 months). Mean age at time of surgery was 34.5 years (range; 2-65 years). Right eye was involved in 5 patients, left eye in 5 patients, while two cases were bilateral. Trauma was the encountered etiology in 6 cases, congenital in 3 cases, tumors in 2 cases, and iatrogenic in one case. Mean primary gaze exotropia (XT) improved from 96.2PD before surgery (range; 60-130 PD) to 1.8PD after surgery (range; 6PD ET to 8PD XT) ($p<0.0001$). Mean primary position vertical deviation (Hypotropia), which was present in 5 cases only, improved from 4.2PD (range 5-14PD) to 0.7PD (range 0-4PD). One case developed temporary postoperative horizontal diplopia which resolved spontaneously.
Medial transposition of the split LR muscle attains long term acceptable aesthetic results when used as a primary procedure for treatment of complete oculomotor nerve palsy, with low rate of postoperative complications.

10.24 Early post-op squint surgery follow-up - Is it needed? Helen Haggerty
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Helen Haggerty, Alan Connor, Mahmoud Nassar
Newcastle Eye Centre, UK

Within Newcastle Eye Centre (NEC), patients previously received 2 week face to face (f2f) Consultant and orthoptic appointments following squint surgery. With pressures on clinic capacity, an alternative pathway was piloted and continues. Initial follow-up was replaced with 2 week Orthoptic telephone consult, including standard battery of questions and appropriate subsequent f2f follow-up.
Retrospective review of all patients undergoing squint surgery between 25/10/21 and 24/10/23. Data collection via NEC electronic patient record systems. Patients received standard pre and post-op information. Eye Emergency Department (EED) attendance, post-op issues and outcomes were recorded.
130/145 cases (functional and non-functional squints) were initially booked onto the pathway. 6/130 (5%) presented at EED before planned telephone consult or were changed to early f2f appointment following patient communication. No response to call was 5/124 (4%). 94/119 (79%) patients reported no significant issues during consult, 25/119 (21%) reported symptoms of which 14/25 received reassurance, 3/25 orthoptist advised EED attendance. 8/25 cases were discussed with consultant who advised further 2/8 patients attend EED, 5/8 booked f2f within 2 weeks and 1/8 booked further telephone call. EED attendances were all for ocular surface irritation (n=9). Early f2f clinic attendances were for diplopia (n=6), ocular irritation (n=1).
The majority of patients did not require input beyond reassurance and subsequent standard f2f follow-up. Rate of significant post-op issues were low and often self-present early.
Post-op telephone consults are an effective alternative to initial face to face assessment, reducing pressure on Consultant clinics, utilising Orthoptist skills and reducing associated costs to patients.

10.33 BALANCE: Phase 2a randomised controlled feasibility trial of 'balanced binocular viewing' for unilateral amblyopia in children aged 3–8 years – Annegret Dahlmann-Noor

Annegret Dahlmann-Noor [1, 2, 3], John Greenwood [4] , Andrew Skilton [5] , Daniel Baker [6] , Mohamed Abbas [3] , Emma Clay , Payal Khandelwal [7] , Denise Dunham [7] , Siobhan Ludden [2, 3, 8] , Amanda Davis [2] , Hakim-Moulay Dehbi [9] , Steven Dakin [10]
[1] University College London [2] NIHR Moorfields Biomedical Research Centre, [3] Moorfields Eye Hospital, [4] Experimental Psychology, University College London, [5] National Institute for Health Research Clinical Research Network Coordinating Centre, [6] Department of Psychology and York Biomedical Research Institute, [7] Cambridgeshire Community Services NHS Trust, [8] Children's Health Ireland Temple Street, [9] Comprehensive Clinical Trials Unit, University College London, [10] School of Optometry & Vision Science, University of Auckland, New Zealand

This study aimed to evaluate the safety of dichoptic Balanced Binocular Viewing (BBV) for amblyopia, feasibility, adherence, acceptability, trial methodology and clinical measures of visual function.
We carried out an observer-masked parallel-group phase 2a feasibility randomised controlled trial (RCT) with children aged 3-8 years with unilateral amblyopia. Children were randomised to BBV (movies customised to interocular acuity difference at baseline) for one hour a day (active intervention) or standard management as per parental choice (part-time occlusion or atropine blurring, control). The novel "VacMan suppression test" of interocular balance at 16 weeks from randomisation was the primary outcome.
We pre-screened 144 records of potentially eligible children. Between 28/10/2019 and 31/07/2021, including an interruption due to the COVID-19 pandemic, 32 children were screened and randomised, 16 to BBV and 16 to standard treatment. Twenty children attended the 16-week exit visit (retention 63%). There was no statistical difference between the arms in interocular balance/suppression change over 16 weeks of treatment. BCVA improved from mean 0.47 (SD0.18) logMAR at randomization to 0.26 (0.14) with standard treatment, and from 0.55 (0.28) to 0.32 (0.26) with BBV. Families were generally positive about BBV, but families found both patching and BBV difficult to integrate into family routines. One child in the BBV arm reported transient double vision, which resolved; two reported headaches, which led to withdrawal.
Dichoptic treatment may be equal to occlusion treatment in safety and efficacy; headaches may lead to discontinuation. Integration into family routines may constitute a barrier to implementation.

13.45 Session IV (S) (P)
Rapid fire presentations
Moderators: Mr Qasim Mansoor, Middlesbrough and Miss Kate Taylor, Newcastle

13.47 Introduction of orthoptic led paediatric squint listing clinics – Jenny Earl

Jenny Earl
Newcastle Eye Centre UK

We introduced an Orthoptic led listing clinic delivered by an advanced paediatric Orthoptist following specific training to reduce demand on consultant clinics. The aim of these clinics is to address the capacity demand challenges within paediatric ophthalmology.

All paediatric patients considering squint surgery are booked onto this clinic for assessment, discussion and delegated consenting, followed by virtual review and discussion with a consultant for listing. Review of numbers booked, listing agreement, post-op complications were analysed. Patient satisfaction was assessed through a post-op questionnaire.
Between 09/05/22 and 03/04/23, 175 patients were booked to discuss squint surgery. The wait times for an appointment ranged between 1-12 weeks (average 8 weeks). Following virtual review 87% were listed for surgery. Of these, 84 (55%) have had squint surgery with an average wait time of 42 weeks (range 8-71 weeks). Following the squint surgery, 39 (46%) patients were discharged at post-op visit, 8 (10%) had post-op concerns at the 2 week post-op telephone consult and were seen within 3 weeks.
We received 21 patient satisfaction questionnaires which showed 91% were happy with the information they received regarding the surgery and 100% happy with the squint surgery information leaflet. 91% felt the waiting time was acceptable and 95% highly satisfied with their overall experience.
Orthoptists taking on delegated consent for surgical listing can help reduce the demand on consultant clinics and improve patient experience. Patient experience was a good level and did not appear to be affected by not seeing a consultant prior to listing.

13.52 Recession-resection with vertical offset of horizontal rectus muscles for combined head turn and head tilt in Infantile Nystagmus Syndrome – Mokhalad Al-duhaimi

Mokhalad Al-duhaimi[1] , Mohamed Mahmoud[2], Mohamed Farid [1,3]
[1]Swansea Bay University health board, Swansea, UK, [2]Western Health and Social Care Trust, Londonderry, UK, [3]Benha University Hospital, Benha, Egypt

A 10-years-old boy was brought to our clinic complaining of AHP. His full cycloplegic refractive error was +2.50 DC at 95° OD and +3.00 DC at 100° OS and best corrected vision was 0.6 OD and 0.6 OS. Goniometer revealed 35° left head turn and 45° left head tilt. Orthoptic examination showed orthotropia with free ocular motility associated with a high-frequency, moderate-amplitude horizontal pendular nystagmus which dampened in the preferred AHP. Fundus examination showed tilted optic disc and anterior segment examination was unremarkable.
Surgical intervention was decided aiming for moving both eyes to the left with induction of left eye extortion and right eye intorsion via vertical offset of the horizontal rectus muscles. Under general anesthesia, the patient underwent Park's modification of horizontal Kestenbaum procedure in the form of left eye medial rectus recession 6.5mm, lateral rectus resection 10mm and right eye lateral rectus recession 9mm, medial rectus resection 8mm. Simultaneously, each of the horizontal rectus was vertically transposed by full tendon width to induce left eye extorsion via medial rectus down, lateral rectus upward full thickness transposition and right eye intorsion via lateral rectus down and medial rectus upward transposition.
After surgery, the head turn was completely eliminated, while there was a remaining 5° left head tilt. This result was stable at one year after surgery.
In conclusion, the presented procedure is an effective and simple surgical procedure to simultaneously correct head tilt and turn secondary to INS, averting the need for more complex vertical or oblique muscle surgery.

13.57 Self-healing sutureless conjunctival closure small incision strabismus surgery – Daisy Bassey-Duke

Daisy Bassey-Duke, Taiwo Makanjuola, Abdulrahman Abodarahim
The Royal Wolverhampton NHS Trust

Small Incision Strabismus Surgery (SISS) is a minimalistic surgical approach involving a small forniceal conjunctival incision, hang-back technique, tenon preservation, and no conjunctival sutures. It offers several advantages over conventional strabismus surgery, including reduced patient irritation, minimised scarring, natural healing, and decreased post-operative medication requirements.
This retrospective audit aimed to compare post-operative outcomes between SISS and conventional strabismus surgery with 8/0 Vicryl closure (standard). Specific objectives: comparing post-operative healing, patient symptoms, post-operative visit requirements, and monitoring SISS-associated complications.
The study conducted between 20.01.22 and 31.07.23 involved retrospectively auditing 105 patient records to assess, analyse and compare post-operative outcomes. 51 patients undergoing conventional treatment with 8/0 Vicryl closure were compared with 54 patients undergoing SISS (with 10 requiring additional 8/0 Vicryl). Patients ranged from 2-85 years (53% female, 47% male).
Compared to conventional surgery, SISS demonstrated shorter healing times, fewer post-operative symptoms, reduced post-operative visits, and a shorter duration of prescribed eye drops (2 vs. 4 weeks). Despite 10 cases requiring additional 8/0 Vicryl closure in the SISS group, overall outcomes were favourable.
This audit suggests that SISS offers advantages over conventional strabismus surgery, including improved post-operative outcomes and reduced medication requirements. However, due to the study's limitations (being a single-centre, single-surgeon study), further research is warranted to confirm these benefits and assess long-term effects. We recommend wider adoption of SISS techniques in clinical practice. Future studies should include multi-centre, prospective audits with longer follow-up periods to validate observed benefits and ensure patient safety and satisfaction.

14.02 “Computer, why can’t this child look up?”: a machine learning approach to decode upgaze deficits in children – Bernardo Lopes

Bernardo Lopes, Rebecca Wright, Oded Rock, Persefoni Kourti, Damien Yeo
Alder Hey Children's Hospital, Liverpool, UK.

Childhood upgaze eye movement limitations in paediatric strabismus range from benign conditions requiring monitoring to critical emergencies needing immediate intervention. This study explores using machine learning to enhance diagnosis through historical and clinical data.
Cases with upgaze deficits were analysed and clinical variables were recorded including aetiology, age, gender, family history, laterality, main complaint, strabismus type, amblyopia, ptosis, visual acuity, gaze limitations, and upgaze deficit quantification. Machine learning models—regularised discriminant analysis, neural networks, support vector machines, and random forests—were trained on 75% of data and tested on the remainder.
We included 40 cases (mean age: 4+-4.1 years, range: 0.2-14) with Congenital Cranial Dysinnervation Disorders (CCND), Cranial Nerve Palsy (CNP), and Brown’s Syndrome as primary aetiologies, comprising 27.5%, 25%, and 25% of cases, respectively, followed by Craniofacial (12.5%) and Inflammation (10%). Among the machine learning models, Regularised Discriminant Analysis showed high predictive accuracy (90-100%) in both

training and testing, demonstrating model reliability. Horizontal deficit was a key variable with 100% importance in Brown's, CNP, Craniofacial, and Inflammation, and 71.43% in CCND. CNP showed diverse symptoms including diplopia and strabismus. Strabismus was predominant in Brown's, and ptosis in CCND, while Craniofacial cases mostly had elevation restriction. The impact of ptosis and amblyopia varied among aetiologies, emphasising their diagnostic value.
This study supports machine learning's potential in strabismus and underscores the value of integrating readily observable clinical features with algorithmic analysis to power a clinical support tool that can strengthen a clinical diagnosis of potential sight or life-threatening conditions.

14.07 Surgical Outcomes for Acute Acquired Comitant Esotropia – Ahmed Wanas

Ahmed Magid Wanas, Alan Connor
Royal Victoria Infirmary, UK

We present an audit of the clinical characteristics and strabismus surgery outcomes for Acute Acquired Commitant Esotropia (AACE) cases managed by our paediatric ophthalmology team at the Royal Victoria Infirmary, UK.
A retrospective review of 29 AACE cases. We describe the age of onset, angle of deviation, and surgical outcome measurements including the amount of deviation and the prevalence of resolved diplopia. We also describe the percentage of patients who were sent for neuroimaging upon presentation.
Medical records of 29 AACE cases (males=20, females=9) between January 2017 and August 2020 were reviewed. Mean age of presentation was 9 years (range 5-15 years). Preoperative deviation angles were 38.1 ± 13.6 prism dioptres (PD) (range= 14-70 PD). While 19 patients reported diplopia (65.5%), 3 had no diplopia and 4 patients had no mention of it in their records. Neuroimaging was requested for 18 patients (62%) and they were all normal. Eighteen cases underwent bilateral medial rectus recession, while unilateral medial rectus recession and lateral rectus resection were performed for 11 cases. Mean follow-up was 8.4 ± 13 months. Mean postoperative angles were 4±4.8 PD (range 0-18 PD). Twenty-four patients (88.8%) had postoperative angles within 10 PD. Diplopia was resolved in 17 patients (89.6%). Postoperative results allowed us to retrospectively reclassify 12 cases (41.3%) as decompensated microtropia (Type IV AACE).
Our surgical and functional results were comparable to outcomes in the literature. Though none of our patients had an intracranial pathology, it should be considered in all AACE cases.

14.12 Modified Nishida: Three stories

Hoda Amin
Hull University Teaching Hospitals NHS Trust

Modified Nishida procedure used for three different strabismus cases as an alternative to conventional muscle transposition procedures.
Patient One: Type four Duane syndrome (synergistic divergence) with three previous surgeries (Left periosteal fixation, two Left MR recessions) and consecutive Left esotropia (25 PD). Modified Nishida (Left SR and IR) was done and contralateral MR recession (fourth surgery).
Patient Two: Right Consecutive esotropia (60 PD). Exploratory surgery found a tight MR which was pulled in two on attempted recession and could not be recovered. Modified Nishida (SR and IR) was done.

Patient Three: Long-standing Right sixth nerve palsy (Previous recess-resect) and persistent Right esotropia (55 PD). Left MR recession and Right Modified Nishida (SR and IR) was done.
Patient One: Reduction of Left esotropia to 6 PD, improved range of abduction, and elimination of Abnormal Head Posture. Angle change: 21 PD
Patient Two: Residual Right esotropia with good cosmetic result. Angle change: 36-40 PD.
Patient Three: Consecutive Exotropia with initial diplopia. Exotropia reduced over time (10 PD distance, 20 PD near) with resolution of diplopia). Angle change: 65-75 PD.
Several studies have postulated the effect of this surgery but the results from this series show variability. This may be due to other procedures being done simultaneously. Modified Nishida can be a good alternative to conventional transposition procedures in different strabismus presentations, particularly if anterior segment ischemia is a concern. Further studies may be needed to quantify the amount of prismatic correction offered by the procedure.

14.17 Ocular Splits

Hoda Amin
Hull University Teaching Hospitals NHS Trust

10-year-old boy presented with prominent head posture (face turn right and head tilt Left with chin elevation) for years with increasing neck pain.
Orthoptic assessment revealed a Left Exotropia (50-55 PD) with inability of the Left eye to take up fixation. Marked downshoot, narrowing of palpebral fissure, and divergence of both the Left and Right eyes was noted on attempted Left eye adduction (video). There was also mild limitation of Right Abduction. MRI scan was normal. He had stereopsis
The patient had primary surgery in the form of Left LR periosteal fixation and MR resection 8mm and Right LR recession 5mm. This resulted in persistent consecutive esotropia (40 PD) for which a Left MR recession of 5 mm was done. Esotropia reduced to 6-10 PD initially then built up over time to reach 45 PD. A Left MR recession (free recession) was then done resulting in a residual esotropia of 25 BO. Six months later he had a Right MR recession and Left Nishida procedure (SR and IR). Long-term follow-up showed stability at 6-10 PD of esotropia with improvement of Left abduction. Stereoacuity was 170 seconds of arc, head posture had improved, and he was discharged from HES.
Large MR resections and Perisoteal fixation of LR have been described in synergistic divergence. This resulted in a large overcorrection with marked limitation of abduction in this patient which was only improved with large re-recession of the MR and a Nishida procedure to improve abduction and achieve good ocular alignment.

14.22 To tort or not to tort: can superior oblique myokymia present without torsion? – Jian Chew

Jian Chew, Sara Lewis, Aabgina Shafi
Mid Yorkshire Teaching NHS Trust, Wakefield, UK.

67-year-old man referred by optician with a 6-month history of intermittent vertical diplopia. History of acromegaly secondary to a pituitary tumour for which he had had surgery and radiotherapy in the past. He described episodes of binocular vertical diplopia, lasting up to a minute and occurring multiple times a day. Recent MRI from Neurosurgery did not reveal a clue to his symptoms.

On examination, at most clinic visits he was orthotropic. A few times, we were able to witness and video what looked like a spasming superior oblique in the left eye with a +2 superior oblique overaction and a corresponding -2 Inferior oblique underaction in that eye, giving him symptomatic vertical, but not torsional diplopia. These episodes remained intermittent and frequent and prism trails did not alleviate his symptoms. At no point did he report diagonal or torsional diplopia, nor could we detect objective torsion. A diagnosis of superior oblique myokymia was made, the previous h/o cranial radiotherapy a likely aetiology.
We trialled an increasing course of carbamazepine and the patient's episodes started to improve and then resolved completely.
Superior oblique myokymia is a type of ocular neuromyotonia. The novelty of our case is that there was no torsional element to his symptoms subjectively or objectively. Carbamazepine, a membrane stabiliser, predictably worked really well on him and currently he is on the minimum effective dose to control his vision. The authors will illustrate this condition with videos and provide an update on this condition.

14.27 Orthoptic observation of ocular motility manifestations over time in a case of posterior fossa syndrome – Danielle Guy

Danielle Guy, Vernon Long
Leeds Teaching Hospitals Trust, UK

9-year-old male, with no previous eye conditions, diagnosed with posterior fossa syndrome (PFS) following surgery for high risk medulloblastoma.
Patient examined on 6 separate occasions over 6 months by the same orthoptist.
Findings post tumour surgery:-
First 2 weeks: continual bilateral tonic updrift with no voluntary eye movement. 4 weeks: fine up beat nystagmus on upgaze, head thrusting instead of saccading, vertical diplopia. 6 weeks: bilateral skew, head thrusts reducing. 15 weeks: fine up beat nystagmus persists, skew and diplopia improving. Saccades:- fast with prompt initiation but hypermetric. Convergence spasm/substitution on attempted down gaze. 22 weeks: skew resolved, fine upbeat nystagmus persists as does convergence spasm/substitution on down gaze, adopting chin depression and complaining of neck pain. At 22 weeks glasses with bilateral base down prisms given to reduce need to look down and relieve compensatory head posture.
This case demonstrates the changing stages of ocular motility improvement in a rare case of PFS. PFS is a relatively rare complication of posterior fossa surgery. Reported ocular defects and recovery are vague. Detailed ocular motility manifestations are significantly under reported. The observations in this case demonstrate the potential for the visual system to recover even after significant impairment. They may aid our understanding of the complex pathways of ocular motility that potentially exist between the cerebellum and the brain stem as well as offering insight into similar congenital ocular conditions and ocular motility manifestations such as ocular motor apraxia.

14.32 Determinants of psychosocial adjustment outcomes of children and young people with visual impairment: a mixed-methods study – Ana Šemrov

Ana Šemrov,[1,2,3] Mario Cortina-Borja,[2] Rachel Knowles,[2] Roz Shafran,[2,4] Ameenat Lola Solebo,[2,3,4] Valerija Tadić,[5] and Jugnoo Rahi [2,3,4,6] for the Resilience in Childhood Visual Impairment Study Group
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Understanding of the factors influencing the psychosocial adjustment outcomes of children and young people with visual impairment (CYP-VI) is limited. But this knowledge is crucial for developing effective complex interventions to meet the diverse needs of this population.
Using a mixed-methods approach, 78 CYP-VI aged 8-18 years and their caregivers participated in a quantitative postal survey, completing the Vision-Related Quality of Life (VQoL) Questionnaire for self-reporting by CYP-VI, and the carer-reported Strengths and Difficulties Questionnaire. Additionally, 18 families participated in semi-structured interviews. Analysis involved linear regression models for quantitative data and thematic analysis for qualitative data.
In the final regression model, greater peer support, fewer functional vision difficulties, better connection in school, and higher carer's satisfaction with life significantly ($p<0.05$) predicted better VQoL (Adj.R2=0.533). Greater peer support, an absence of additional chronic health conditions, and fewer carer's anxiety symptoms were linked to fewer internalising problems (Adj.R2=0.511). Fewer externalising problems (Adj.R2=0.298) were predicted by increased prosocial behaviour, greater peer support, and later onset of VI. Thematic analysis highlighted, from the children's and carer's perspective, the importance of positive educational experiences and family and peer support.
Our findings demonstrate the need for tailored interventions targeting different individual, family, and school-related factors to enhance the well-being and VQoL of affected children and their families. Effective collaboration among various services, coupled with early integration of formal and non-formal support, will be pivotal in providing holistic care to CYP-VI and their families starting from diagnosis of visual impairment.

North East
2-4th October 2024

POSTERS

101 Lockdown-opia: A case series of Acute Acquired Concomitant Esotropia (AACE) during the COVID-19 pandemic

Aqsa Ali, Jian Chew, Aabgina Shafi
Mid Yorkshire Teaching NHS Trust

Acute Acquired Concomitant Esotropia (AACE) is characterized by a sudden onset concomitant esotropia. It may be caused by near work, exacerbated during the COVID-19 pandemic. Our study aims to compare the incidence of AACE cases before and during the pandemic and investigate the characteristics and outcomes of surgical management for paediatric AACE.
We retrospectively identified patients through electronic clinical records at Mid Yorkshire Teaching Trust, with a recorded diagnosis of AACE. We examined the incidence over a 3-year period (2017-2019), comparing it to the period during the pandemic (2020-2022). Additionally, we analysed the characteristics and outcomes of patients diagnosed since 2020.
Between 2017-2019, only 2 cases were identified, whereas 9 cases were diagnosed between 2020-2022, majority of those in 2020 (7 cases). None of the patients who underwent neuroimaging had positive findings. Prism cover tests revealed near and distance deviations averaging 32 prism dioptres (PD). Of the diagnosed patients, 67% had strabismus surgery. Postoperatively, 83% of surgical patients achieved near and distance deviations within 10 PD of orthophoria.
An increase in cases during the pandemic was observed compared to the corresponding period prior. Surgical intervention demonstrated successful outcomes in most cases. Limitations include lack of long-term follow-up data after patient discharge. However, none of the surgically treated patients were re-referred for recurrence.
Surgical management provides good outcomes in AACE, further research is necessary to evaluate causal factors, particularly near screen work as an independent risk factor.

102 Outcome of Inferior Oblique Myectomy: A Comparison of Cases with Primary Vertical Deviation Less and More Than 10 Prism Dioptres

Haleema Aya, Zeyaad Al Mossab, Janice Hoole, Ian Simmons, Devina Gogi
St James's University Hospital, Leeds

To report the surgical outcomes of inferior oblique myectomy, performed at a single centre and compare the results of small & moderate angles of deviation.
This is a retrospective study of inferior oblique myectomy performed over an 8-year period, between 2012 and 2020 at a tertiary centre. We evaluated patient demographics, the angle of deviation pre- and post-surgery in prism dioptres (PD), improvement of diplopia/head tilt post-operatively and patient satisfaction. Preoperative and postoperative examination findings and success rates were compared in cases with a deviation angle $\leq$10 PD (Group 1) and >10 PD (Group 2).
52 eyes from 52 patients were identified. 48/52 patients (92.3%) displayed a reduction in angle of deviation post-operatively and improvement of diplopia & head tilt. 67% (n=40) of patients were satisfied with their post-operative outcome, 13% (n=8) were unhappy, and there was no data available for 7% (n=4) of patients. The mean distance hypertropia was decreased from 4.9 PD to 2 PD in Group 1 and from 15.8 PD to 6.7 PD in Group 2 cases ($P < 0.001$). The overall satisfaction rate was similar in both groups.

Inferior oblique myectomy remains a reliable first-line treatment option in inferior oblique overaction and has high success rates in cases with a small-to-moderate angle of deviation

103 Do all paediatric orthoptic patients require hospital refractions?

Lucy Ball, Laura Jarwick, Kate Taylor
Newcastle Eye Centre

A review to investigate whether some paediatric orthoptic patients can be appropriately refracted at community opticians, which would therefore reduce demand on the Hospital Eye Service (HES), reduce appointment wait times and improve overall patient experience.
A retrospective database review was done to investigate the number of patients under HES care suitable for refraction by optometrists in the community. Two separate time periods were analysed to look at the number of orthoptic patients who were referred for refraction at a community optician, and the number of booked HES refractions that would've been suitable for a community appointment. The cohort of suitable patients for this service was determined by discussions with the HES optometry and orthoptic team.
Data analysis revealed that the percentage of review patients who required a HES refraction remained stable between both periods, however the time waited for a new patient appointment reduced from 9-weeks to 5. We also intend to use the data collected to analyse the results of those seen in community to assess re-refraction rates, incomplete returned data, and whether more patients can be appropriately seen outside of the HES setting.
We hope that with further analysis we will be able to improve staff knowledge to aid the booking of appropriate follow-up appointments for patients requiring refractions, and hopefully will reduce the time waited for a follow up HES refraction appointment

104 Large Angle Strabismus Surgery for Thyroid Eye Disease Using The Modified Relaxed Muscle Technique

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Lancashire Eye Centre, Lancashire Teaching Hospitals NHS Trust, UK

We aim to present surgical outcomes of patients who underwent strabismus surgery for large angle/ severe thyroid related strabismus using a modified relaxed muscle positioning technique.
A retrospective case note review of patients with large angle strabismus and or severe restricted motility who underwent surgery using the relaxed muscle technique from Dec 2015- Dec 2023. Large angle strabismus was defined as horizontal deviation measuring >30 prism dioptres horizontally or vertical deviation > 20 prism dioptres in primary position. Severe restricted motility was defined as ocular motility restriction of -2 or greater.
A total of 15 cases were included in analyses. All patients except 1 required more than 1 operation. The average horizontal deviation post-operative deviation measured 6^(±5) at 1/3m and 8^(±7) at 6m. The average vertical post-operative deviation measured 5^ (±5) at 1/3m and 5^ (±5) at 6m fixation. In terms of binocular outcome, 8/13 patients with binocular potential achieved an excellent outcome and 4/13 achieved a good outcome according to Delcanto's criteria. 1 patient achieved a good outcome after a second procedure.

Strabismus surgery for thyroid orbitopathy using the relaxed muscle technique provides excellent surgical alignment and restores binocular function in most cases. Our results suggest that this technique can be used to effectively manage complex thyroid related strabismus without adjustable sutures and without need for many repeated surgeries

105 Refractive outcomes in infants treated for retinopathy of prematurity at a single regional centre

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A review of infants treated for retinopathy of prematurity (ROP) was performed to assess refractive outcomes at University Hospitals Coventry and Warwickshire (UHCW), UK.
A retrospective collection and analysis of data using electronic and physical case files of all infants treated for ROP at UHCW between August 2016 and March 2021 was conducted.
Of the 30 infants (60 eyes) identified, 2 infants (4 eyes) died and 4 infants (8 eyes) were lost to follow up. 8 eyes received intravitreal bevacizumab alone whereas 40 eyes received laser treatment. Cycloplegic refraction was performed at a mean age of 1.7 years and again at 3.7 years. 48% of eyes were found to be myopic at initial refraction with a mean spherical equivalent (SE) of -0.35 (2.01) dioptres (D). There was no statistical difference in the mean SE between the groups treated with laser or intravitreal bevacizumab. Infants born at <25 weeks gestation were more myopic than infants born at >26 weeks gestation (mean SE -1.01D versus 0.42D, $p<0.01$). Infants with a birthweight of <800g were more myopic than infants with a birthweight >800g (mean SE -0.88D versus 0.91D, $p<0.05$). 3 eyes developed high myopia (<-6D) at the second round of refraction, all of which had received laser treatment and were of a low birthweight (<800g), though neither finding was statistically significant.
Treatment modality was not a significant determinant of refractive outcome in infants treated for ROP at UHCW, which is in variance to widely published literature. Lower birth weight and extreme prematurity were associated with higher rates of myopia

106 A Case Review of Occlusive Lens' in aphakic amblyopia treatment

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The patching regime for aphakic amblyopia is long and intensive. Although there have been good outcomes documented in the literature there is also a high drop off rate and a lack of alternative options. There is a minimal amount of research surrounding the use of occlusive contact lenses (OCL) as an alternative to patching in these cases. This is a small retrospective case review (n=4) of our patient's currently undergoing aphakic amblyopia treatment with OCL. At Sheffield Children's Hospital aphakic patients are offered contact lens correction and closely managed by a team of optometrists and orthoptists, OCL are offered to those whose compliance with conventional occlusion has ceased.
All four patients (aged 11-30 months) were prescribed alternate day OCL wear following a drop in compliance with patching. Visual progress charts were plotted and the patient's notes were reviewed during treatment.
Three patient's compliance with occlusion improved with OCL wear, accompanied by an improvement in amblyopic vision, these patients had no adverse events during OCL

use. The fourth patient continued to struggle with compliance and had an episode of pre-septal cellulitis which was not felt to be related to the OCL. There were no instances of occlusion amblyopia in the fellow eyes and parents were happy with insertion and removal of the OCL.
This case review, alongside current literature, informs our departmental treatment guidelines and suggests that OCL should be considered as an alternative to patching in this patient group

107 Treatment of Large Angle Exotropia with Repeat Local Anaesthetic Injection and Botulinum Toxin: A Case Report

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We present the case of a 27-year-old gentleman with a blind right eye due to significant retinal scarring since childhood, resulting in a large angle sensory exotropia. The patient was referred to our tertiary ocular motility unit, having being offered surgical intervention initially, he wished to discuss the option of a local anaesthetic injection as a less invasive option first. After informed discussion, the decision to utilize local anaesthetic (bupivacaine 3%) injection to the right medial rectus muscle along with botulinum toxin to the right lateral rectus muscle, at 3 to 4 month intervals was made. Over a period of 24 months, a total of 8 local anaesthetic injection was performed with adjunctive botulinum toxin. The patient showed significant improvement, with the exotropia decreasing from 65 prism dioptres (PD) exotropia (XT) to 4 prism dioptres with adjunctive botulinum toxin injection, and 20 prism dioptres without effect of botulinum toxin.
There have been published reports of repeat injections of local anaesthetic to extraocular muscles up to 3 doses, with the largest angle treated at 50PD XT. To our knowledge, this is the first reported case of repeat local anaesthetic injection at regular intervals that has corrected 65 PD of XT in conjunction with botulinum toxin. This case highlights the efficacy of repeat local anaesthetic injection in conjunction with botulinum toxin for managing large angle strabismus in patients as an alternative option

108 Review of Compliance with Guidelines for Uveitis Screening in Juvenile Idiopathic Arthritis (JIA) at a Teaching Hospital:patients benefit from service audits

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Mid Yorkshire Teaching NHS Trust

Uveitis is a known complication of JIA, causing causes sight impairment if undiagnosed and untreated. British Society of Paediatric and Adolescent Rheumatology(BSPAR) recommends regular eye screening,depending on JIA-subtype and age at presentation. We previously conducted a service audit in 2021 against guidelines, leading to changes in how we administer our screening programme. This reaudit was to examine whether our service changes led to a demonstrable benefit for our patients.
The JIA patients was accessed to identify and review the electronic records of patients. Patients who were diagnosed since 2021 were included, giving 16 patients included for analysis.
In this cohort, 25% of patients were found to have uveitis at asymptomatic screening. For the first screening appointment within six weeks of JIA diagnosis, 13 out of 16 (81%) achieved the target, compared to 47.6% in the previous audit. Screening every two months for first six months saw 14/26 appointments (54%) reaching the target,

up from 9.5%. Ongoing screening every 3-4 months showed an improvement from 33.3% to 80% (57/71 appointments).
A previous recommendation for a specific clinic outcome for JIA patients has ensured patients are booked in a timely manner. Overall, the audit has shown an improvement in achieving adherence to the guidelines. There remains a significant rate of missed appointments initially during screening-providing information leaflets may help improve attendance rates.
This reaudit shows that simple changes to booking systems can improve patient care and attendance, hence improved screening compliance, which in turn reduces risk of visual loss from JIA uveitis

109 A Retrospective Audit Comparing Plusoptix A12C Results with Cycloplegic Refraction referred for secondary vision screening

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South Tyneside and Sunderland NHS Foundation Trust, UK

All pre-school children referred for community vision screening had an orthoptic report which included objective refraction examination using the plusoptix. They were all subsequently referred for cycloplegic refraction if they had subnormal vision and/or abnormal refractive error.
We retrospectively compared refractive error recorded using the plusoptix A12C with cycloplegic refraction performed by a hospital optometrist as part of secondary screening.
Data was reviewed from 116 eyes (58 children) referred with abnormal refractive error and 'straight eyes' where more emphasis may be put on the plusoptix result to decide if they required further investigation. They all underwent secondary vision screening at South Tyneside and Sunderland NHS Trust from January to December 2023. The mean age of the children was 28 months (6 to 53) with a male preponderance (62.1%). Children diagnosed with manifest squint were excluded.
At their initial hospital appointment 19 (32.8%) children were prescribed glasses and 39 (67.2%) children did not require prescription.
In our cohort, plusoptix appears to underestimate hypermetropia, overestimate astigmatism and myopia appears comparable. Sub group analysis results will be presented during the meeting.
The results also suggest, low astigmatism does not require referral for cycloplegic refraction as 24/39 (61.5%) who were not prescribed glasses belong to this group. We intend to amend our practise to reflect this finding after we retest this with our previous years data. This could potentially reduce the number of referrals from our screening clinics

110 Intraocular methotrexate treatment for leukaemic hypopyon – a case report

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A 9-year-old male presented with a 4 week history of right eye redness, photophobia and intermittent pain. He had previous B-cell acute lymphoblastic leukaemia treated with Etoposide/total body irradiation and hematopoietic stem cell transplantation (HSCT). At the time of presentation he was in remission of his leukaemia.
He had 6/6 visual acuity in both eyes. Examination of the right eye showed conjunctival injection with cells 3+, flare 2+ and a 1 mm hypopyon. He had a clear cornea with no keratic precipitates. Lens vitreous and fundus appeared normal.

Intraocular pressure was 55mmhg in the right eye compared with 19mmhg in the left eye. The left eye had no gross abnormalities.
He was initially treated with g. predforte hourly, dorzolamide/timolol BD, cyclopentolate 1% TDS and acetazolamide 125mg PO TDS. An AC tap confirmed leukaemic blast cells. A MRI head and CSF sampling showed no CNS involvement. Subsequent bone marrow sampling showed minimal residual leukaemic disease. He was treated with 3 sequential intraocular methotrexate injections and was accepted for CAR-T treatment.
The patient had complete resolution of his anterior uveitis after the 3rd intraocular methotrexate injection. CAR-T treatment was effective with complete remission of his leukaemia. Anterior uveitis with hypopyon was a first presentation of leukaemia recurrence post HSCT.
Whilst CAR-T is a novel and promising treatment for leukaemia, the eye is an immune privileged site in which CAR-T therapy alone will not work and will need intraocular methotrexate

111 Complications in Congenital X-linked Retinoschisis: literature review and case report

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Vision loss in congenital X-linked retinoschisis (CXLRS) occurs chronically over the first two decades of life or acutely mainly secondary to vitreous hemorrhage or retinal detachment. In our literature review, we investigated the etiology of sudden vision loss in CXLRS, within the scope, we present a notable case involving the emergence of bilateral sub-foveal choroidal neovascular CNV in a twin who received a diagnosis of CXLRS.
PubMed, Cochrane, Google Scholar and Embase were searched for articles related to CXLRS and paediatric CNV. Patient's chart was reviewed with extraction of demographic and clinical data including change in vision, retinal thickness and membrane activity using OCT-A.
Literature review yielded no prior reports of CNV in CXLRS. Vision was 6/12 in 2021 which decreased to RE-6/36, LE-6/60. Three Bevacizumab injections (1.25mg/0.05mL) in RE, two in LE at 6-weeks intervals reduced foveal thickness (RE 1287μm to 1266μm, LE 1161μm to 501μm). FFA revealed early-phase hyperfluorescence bilaterally. OCT-A showed CNV in both eyes before treatment. Post-treatment OCT-A found reduction in activity in RE and absence in LE. Vision remained stable with no reported complications.
This is the first report of CNV associated with CXLR. The occurrence appears sporadic, with one twin affected and the other unaffected. However, if the second twin develops a similar complication, that would suggest a genetic susceptibility. Treatment reduced neovascular activity, preventing additional vision loss, yet the membrane persisted. We propose CNV assessment in patients with CXLRS and unexplained vision loss, rather than attributing it solely to amblyopia

112 A differential for ocular inflammation in paediatric patients: A MEWDS case

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University Hospitals of Morecambe Bay NHS Foundation Trust

A mid-adolescent boy presented with 4-day history of acute-onset painless visual disturbance in the left eye, described as 'seeing moving dots and some patches' and

blurred central vision. There was no history of trauma. However, he is a swimmer and had flu-like illness with significant sinusitis a few weeks earlier and reported feeling tired generally.
Visual acuity was measured as 6/6 in the right eye and 6/24 in the left eye. Intraocular pressure and colour vision were both normal. On examination, both eyes looked white, with left eye showing 2+ cells in anterior chamber and + cells in posterior chamber which was treated with topical steroids. OCT revealed sub-foveal disruption of ellipsoid zone (photoreceptor IS-OS junction) in the left eye. Blood uveitis work-up came negative except for raised ACE levels and indications of microcytic hypochromic anaemia which were managed by his paediatrician and general practitioner.
The patient was seen at a paediatric uveitis clinic and diagnosed with left Multiple Evanescent White Dot Syndrome (MEWDS). The patient achieved full recovery of vision within a few months as the condition is self-limited. Optos, Fundus Autofluorescence and OCT images confirmed the complete restoration of the affected area.
MEWDS is a rare unilateral inflammatory eye condition which typically seen in healthy middle-aged females. However, it can rarely be seen in the paediatric population and should be considered in the differential diagnosis of ocular inflammation

113 Clinical Outcomes of Paul Tube surgery in Paediatric Uveitic Glaucoma at Manchester Royal Eye Hospital

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This study evaluates the outcomes of Paul tube implantation in paediatric patients with uveitis and refractory glaucoma. Despite effective immunosuppression, certain paediatric patients with uveitis require additional glaucoma surgery to manage intraocular pressure (IOP) effectively.
A retrospective analysis was conducted on paediatric patients with uveitis-related glaucoma who underwent Paul tube implantation at Manchester Royal Eye Hospital between September 2022 to April 2024. Data on patient demographics, IOP, medications, surgical details, and post-operative outcomes were collected.
We included 14 paediatric patients with a mean age of 12.9 years (range: 8-17 years) and 43% female. Following Paul tube surgery, there was a reduction in mean IOP from 35 mmHg pre-operatively to 15 mmHg post-operatively. This reduction was sustained over the follow-up period of up to one year. The use of IOP-lowering eye drops was reduced in all patients post-operatively, with several patients able to discontinue their use entirely. Post-operative outcomes were good with improved IOP control and preservation of visual function.
Paul tube surgery is an excellent intervention for managing refractory glaucoma in paediatric patients with uveitis despite optimal medical therapy. Further studies with larger cohorts are warranted to confirm these findings and optimise patient selection for this surgical approach

114 Management of Coats Disease in Paediatric Population: Experience from Manchester Royal Eye Hospital

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Coats disease is a rare, predominantly unilateral retinal vascular disorder affecting children, characterised by retinal telangiectasia and exudation leading to subretinal

fluid accumulation. Prompt diagnosis and timely intervention are crucial for preserving visual function in affected individuals. The objective of this study was to evaluate the management outcomes of Coats disease in paediatric patients treated at Manchester Royal Eye Hospital.
Retrospective study of paediatric patients diagnosed with Coats disease between January 2023 and April 2024. All patients underwent examination under anaesthesia and fundus fluorescein angiography (FFA) for evaluation.
Eight paediatric patients were diagnosed with Coats disease between January 2023 and April 2024. The age range was 19 months to 17 years old and 7 (87%) were male. Treatment strategies included panretinal photocoagulation (PRP) laser therapy with intravitreal injection of Avastin under general anaesthetic, with repeat interventions as necessary. Subretinal fluid drainage surgery was performed for two patients with exudative retinal detachments.
Treatment with FFA-guided or targeted PRP laser therapy and intravitreal Avastin injections successfully stabilised vision in patients presenting with early stages of Coats disease. Conversely, patients presenting late with advanced disease and poor vision experienced limited visual improvement despite aggressive management, including repeated subretinal fluid drainage.
Early diagnosis and prompt intervention with anti-VEGF intravitreal injection with retinal laser in Coats disease can stabilise visual outcomes in paediatric patients

115 Inverse Occlusion - Not so scary
Raissa Gazi

Patient (9 months old) initially presented to clinic with a marked exotropia (~45 dioptres) and dense amblyopia. The patient had 3 years of typical occlusion treatment, but this was unsuccessful despite continued compliance. By age 4, orthoptists had considered cessation of treatment; however, inverse occlusion was thought to potentially help improve the vision. On examination with visuoscope, patient had eccentric fixation and it was decided that inverse occlusion would be trialled to see if fixation could be disrupted, to help improve vision.
The patient had a short period of inverse occlusion of the amblyopic eye for 4 hours daily for 2 weeks. Visuoscope was then repeated and unsteady fixation was noted. The patient then recommenced conventional occlusion of the non-amblyopic eye. The vision improved from 0.60 to 0.04 within 1 year. In this particular case, the has patient had a large angle squint. This is contrary to majority of studies involving only patients with strabismus measuring less than 15 dioptres. There is limited literature regarding inverse occlusion in large angle squints.
Visuoscope should be used more frequently in practice for patients with dense amblyopia to investigate eccentric fixation. This would provide an opportunity for inverse occlusion be considered more regularly, rather than accepting the reduced level of visual acuity. Clinicians could also use OCT scans to plot eccentric fixation as this would provide repeatable and comparable results. Limitations to performing inverse occlusion could be poor compliance for patching treatment and poor hospital attendance

117 Anti-MOG (Myelin oligodendrocyte glycoprotein) Positive Bilateral Sight threatening Optic Neuritis treated with Plasmapheresis (PLEX): A Case Report

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A 10-year-old boy presented with bilateral severe visual loss of 1 week duration with no preceding viral infection, vaccination or neurological deficit.
His vision was RE 1.6 & LE 1.4 (Crowded Logmar) with RE RAPD, and bilateral disc swelling. He had both eyes reduced colour vision with reduced GCL on OCT scans. His MRI head and spine showed bilaterally longitudinal and extensive optic neuritis with a pattern typical of MOG. EDT showed P100 latencies grossly prolonged bilaterally.
He was managed as multidisciplinary team with the paediatric neurologist who investigated him thoroughly for inflammatory, infective and vasculitic disorders. He was MOG antibody positive on serum and was treated with I/V Methyl prednisolone (IVMP) pulse treatment for 3 days but showed no improvement in vision. Hence, a decision to trial plasmapheresis (PLEX) in his case was made. He had 5 cycles of PLEX.
His vision improved dramatically to RE -0.1; LE -0.1 (Crowded Logmar) and there was complete resolution of disc swelling. His MRI scan also showed interval improvement and resolution of inflammatory signs.
MOG antibody disease is a rare autoimmune disorder with antibodies against the MOG predominantly involving the optic nerve and spinal cord leading to severe vision loss. IVMP is generally effective in acute attacks, but other treatment modalities such as IVIG or PLEX may be required in resistant cases. PLEX as second-line therapy led to an impressive visual recovery in our patient with bilateral severe optic neuritis unresponsive to high dose steroid

118 Iatrogenic Brown's Post Superior Oblique Tuck Surgery: Our Experience

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High incidence (15-17 %) of Iatrogenic Brown's post superior oblique tuck surgery has been reported in literature. This complication deters most strabismologist to perform this surgery as a primary choice in superior oblique palsy. We present our data of Iatrogenic Brown's post superior oblique tuck as a single muscle surgery for superior oblique palsy.
This is a retrospective study of superior oblique tuck performed over a 7-year period between 2016-2023 at a single centre.18 eyes from 18 patients were identified. More than 60% of cases were congenital superior oblique palsy. 4/18 (22%) patients had iatrogenic Brown's with diplopia in elevation. 1 resolved, 2 months post-surgery while 3 persisted to have limitation of elevation in adduction but were able to cope with diplopia in upgaze. None of the cases required tuck revision and all had high patient satisfaction.
Superior oblique Tuck surgery for patients with Superior oblique palsy with incomitant vertical deviations in downgaze, is a highly effective and safe procedure with high patient satisfaction. Tucking of the superior oblique tendon should be done in fairly small increments, graded according to the laxity of the tendon noted at surgery. Intraoperative FDT is a crucial component in minimising the risk of over-correction & an Iatrogenic Brown's. Majority of iatrogenic Brown's settle with time and do not need tuck revision

119 Nasolacrimal duct obstruction Extended Role Clinic service evaluation

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Naso lacrimal duct obstruction (NLDO) is the most common cause of epiphora in infants. Conservative management is suggested as most cases usually resolve spontaneously in the first year of life. In most centers, these patients are routinely reviewed by a Consultant Ophthalmologist. To improve efficiencies within our service an extended role clinic (ERC) staffed by a highly specialist Orthoptist with distant consultant supervision was introduced to manage this patient group. This service evaluation aims to review the effectiveness of the ERC.
Retrospective clinical records review of 50 consecutive new patients seen within the ERC with NLDO were assessed for clinical outcomes over two years. The patients underwent an age-appropriate Orthoptic examination and were given self-management advice and education for their condition. Patients were either discharged, reviewed when over 12 months old, or referred to the consultant for surgery at their first appointment if appropriate.
68% (34) of the patients were managed conservatively and discharged directly from the ERC after the first or second consultation. 32% (16) of patients were listed directly for surgical invention. 100% of the patients reviewed in the ERC were seen to be managed appropriately.
The ERC ensured patients were seen by an appropriate clinician in a timely manner which not only enhanced their experience but also provided the service efficiency by saving consultant clinical time.
The use of the ERC would appear to be an effective and more efficient way to manage patients with NLDO

120 A retrospective case series describing the clinical management and outcomes of retinal detachments in patients age 16 or under at Manchester Royal Eye Hospital over a 15 year period

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Manchester University NHS Foundation Trust

Paediatric retinal detachment is a rare occurrence with an incidence of 0.38 to 0.69 per 100,000 children. We present a 15 year retrospective review of patients under the age of 16 at the time of diagnosis who received treatment between 2009 – 2024 at Manchester Royal Eye Hospital, a tertiary hospital in the UK. Patients were identified through a contemporaneously maintained surgical database and theatre records for children diagnosed with a retinal detachment.
We describe the clinical management of patients including conservative management and those undergoing surgical interventions. We describe the surgical outcomes including visual outcomes and need for reoperation. We describe the frequency of post operative complications. We also report the frequency of rare complications such as endophthalmitis and sympathetic ophthalmia. In particular we will consider the frequency of subsequent intraocular pressure related issues and further treatment. We reflect on the changing management of these patients over time and highlight those scenarios in which we consider surgical intervention to be not advised due to a poor prognosis.
This retrospective case series is of great help to provide patients and their families with accurate information for the basis of consent. This up-to-date report of

frequencies of rare complications such as endophthalmitis and sympathetic ophthalmia is particularly important for medicolegal purposes

121 A full orthoptic examination? A case of Musk +ve myasthenia gravis.

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53-year-old African descent male presented with cluster episodes of horizontal diplopia lasting for 3-4 days then resolving for several weeks. At time of first presentation to Ophthalmology the patient was asymptomatic. History of high blood pressure and pre-diabetes.
Fully binocular with no extraocular motility defect. Bilateral adducting nystagmus noted on testing of saccades. Differential diagnosis: recovering microvascular issue, de-myelinating disorder, ocular neuro-myotonia, ocular myasthenia gravis, inverse INO.
MRI requested and full blood work up including myasthenia gravis (MG).
Further visits patient reporting frequent intermittent debilitating diplopia but demonstrating full orthoptic assessments other than the adducting nystagmus on saccades.
MRI scan showed no structural abnormality. AChR antibodies normal, MuSK antibody positive. Referral to neurology and commencement of pyridostigmine regimen-discontinued by patient due to side effects. Single fibre EMG and CT to thorax to rule out thymoma both negative. A respiratory assessment has been requested.
MuSK antibody positive myasthenia is a relatively rare disorder reported in just 5-8% of all MG patients. Prognosis in these cases is guarded due to greater associated risks of myasthenic crisis, with many patients deteriorating rapidly early in the disease course. Early diagnosis and treatment can enhance the patient's quality of life and lessen the risk of more significant life-threatening systemic problems. This case highlights the need for full orthoptic examination to include all ocular motility systems to ensure early detection and management of this condition

124 Analysing Optometrist Referrals to Hospital Eye Services, for Children with Suspected Optic Disc Swelling: a Service Evaluation Project

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A surge in referrals for suspected optic disc swelling has placed unprecedented stress upon the Paediatric Ophthalmology service. This study evaluates the appropriateness and quality of referrals from optometrists and describes management outcomes.
A retrospective review was conducted of all consecutive referrals for suspected optic disc swelling to a district general hospital. Exclusion criteria included patients aged 18 or over, and those with incomplete data. A total of 131 cases were included (April 2021 to November 2023).
The mean age at referral was 11 years (3-17 range). Referrers mentioned headaches in 37% of cases and 95% were patients presenting for the first time. Bilateral optic nerve findings were mentioned in 91% of referrals, with 'raised disc margins' being the most frequent (63%) optic disc description. Brain imaging was carried out in 34% cases and within those, 3 patients then underwent lumbar puncture. Four patients had an MRI scan requested by the paediatricians beforehand. The commonest final diagnosis was optic disc drusen (51%) followed by tilted discs. Only two patients in this study had a neurological diagnosis (idiopathic intracranial hypertension).

Inappropriate referrals to secondary care prolong waiting lists and cause undue anxiety. There is an urgent need for national guidelines and standardised referral proformas including exact disc findings, together with targeted training of community optometrists.
True optic disc swelling in children is a paediatric emergency necessitating urgent review in the hospital setting to exclude life-threatening aetiologies. Our service evaluation suggests most optometrist referrals do not comprise true disc swelling

125 Impact of COVID19 on Congenital Cataract Treatment at Moorfields Eye Hospital

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This study examines the effects of COVID-19 on the timing of congenital cataract treatment and subsequent visual outcomes. It addresses concerns about treatment delays during the pandemic.
A retrospective review utilised the electronic record and paper notes for children less than two-years-old undergoing cataract surgery between 2018-2023. Information gathered included pre-operative referral details, timing of assessment and intervention, and post-operative visual and refractive outcomes.
101 eyes of 62 children were included. Average postoperative best corrected visual acuity (BCVA) at one year was 0.6 ± 0.4 LogMAR for bilateral and 1.0 ± 0.9 LogMAR for unilateral cases. In 2020, time between birth and 6-8 week baby check was 8 weeks (SD 1.9 weeks), within acceptable limits and less than in other years (range 6.5-8.9).
Time between referral and clinic increased in 2020/2021, but time from clinic to surgery decreased. Visual outcomes increased slightly between 2018 and 2023 with no evidence of impact during the Covid pandemic. Where an intraocular lens was inserted, 67% of eyes achieved a refractive outcome within ±1 Dioptre of the predicted value at one-year post-operation.
In conclusion, despite anecdotal evidence to the contrary, there was no evidence of significant delay in time to 6-8 week baby check nor time to surgery for congenital cataracts during the Covid19 pandemic. Visual outcomes and rates of raised IOP requiring treatment or referral remained steady. Easier access to urgent theatre, due to lack of elective theatre activity, enabled rapid progression to surgery and likely contributed to maintenance of steady visual outcomes

126 Orthoptic and Ophthalmological testing for Cerebral Visual Impairment in babies, children and young people – A literature review for a proposed protocol development

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There is currently no agreement of visual acuity thresholds for referral to sensory services nationally. Furthermore, 'Cerebral visual impairment (CVI)' as a diagnosis must be explicitly stated by the referring ophthalmologist for children to be eligible for sensory support. Despite potential long-term problems in development and quality of life in a child with CVI, there are only a few trials of systematic interventions for CVI. There is a need for evidence-based assessments and protocols to be developed.
A literature review and protocol development for assessment of CVI as part of a multi-disciplinary assessment.
We have selected a battery of repeatable tests that are adaptable to various patient abilities aiming to examine and document: visual acuity, contrast sensitivity, ocular

movements and ocular motor control, strabismus and binocular vision, visual fields and inattention, and visuocognitive function / visual perception –the dorsal and the ventral stream
The broad aetiology of CVI highlights importance of understanding central brain structures at all levels including: subcortical, cortical and white matter as well as an understanding of co-impairments of pathology of the eye itself. Within CVI, all types of visual disorders described may not be present depending upon areas of brain affected or preserved. Although this proposed protocol does not aim to diagnose CVI it is hoped it will clarify some of the Orthoptic and Opthalmological parts and highlights the need for the multidisciplinary team assessment

128 A case study: Stiff-Person-Syndrome presenting with diplopia

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A patient with diplopia, was subsequently diagnosed with stiff person syndrome (SPS). SPS is a rare disorder, characterised by progressive rigidity, stiffness, muscle spasms. A 50yr old male with type 1 diabetes presented with sudden onset diplopia. Orthoptic assessment suggested right superior oblique palsy. At follow up 6 weeks later, his diplopia had deteriorated. He had a complete right horizontal gaze palsy. Urgent cranial imaging and stroke assessment was unrewarding. Anti-glutamic acid decarboxylase (GAD) antibodies titre was 1 in 50,000, which indicated possible Stiff Person Syndrome. The patient is currently receiving monthly intravenous immunoglobulin (IVIG) therapy but, 5 months later, is still experiencing diplopia and nystagmus.
The GAD enzyme works to form gamma aminobutyric acid (GABA). Reduced GABA leads to cognitive and motor symptoms. The antibody has been associated with SPS, paraneoplastic SPS and Miller Fisher syndrome. Anti GAD antibodies are prevalent in Type 1 diabetes but at lower titres. [1]
Treatment includes GABA agonists, baclofen and diazepam (for spasms) and IVIG and plasmapheresis. Oculomotor dysfunction can be an isolated finding: downbeat nystagmus and saccadic intrusions/oscillations, rarely ophthalmoparesis. In any diabetic patient with diplopia, a search for microvascular causes is appropriate. SPS is frequently associated with other autoimmune diseases, with up to 67% of patient having at least one other endocrinopathy [2].

[1]*Hassaan Tohid. Anti-glutamic acid decarboxylase antibody positive neurological syndromes Neurosciences 2016; 21(3):215-222 doi: 10.17712/nsj.2016.3.20150596*
[2]*Andrew McKeon, MD; Maisha T. Robinson, MD; Kathleen M. McEvoy, MD, PhD; et al Stiff-Man Syndrome and Variants Clinical Course, Treatments, and Outcomes. Arch Neurol. 2012;69(2):230-238. doi:10.1001/archneurol.2011.991*

129 Orbital abscesses in children: an update on microbiology trends and antibiotic selection

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Orbital abscesses are a common cause of morbidity in children. This study aims to provide an update on the microbiology, sensitivity rates and antibiotic prescribing patterns for orbital abscesses at Scotland's largest paediatric tertiary centre. This is

essential for empirical antibiotic choices given the rapidly growing rates of resistance among commonly encountered isolates.
A retrospective case note review of all patients admitted to the Royal Hospital for Children (RHC) in Glasgow between April 2019 and 2022 with an orbital abscess that underwent incision and drainage. Exclusion criteria included patients with underlying anatomic eye abnormalities and/or immunodeficiency.
Seventeen orbital abscesses were identified. Streptococcus pyogenes was the commonest micro-organism (47 per cent), followed by Streptococcus intermedius (24 per cent). One abscess grew Fusobacterium necrophorum complicated by a subdural empyema and Lemierre's syndrome. Most organisms were widely sensitive; there was a single episode of penicillin resistance in an abscess caused by S. aureus. The most common initial antibiotic regimen was a combination of flucloxacillin and cefotaxime. Gram positive cocci remain the most common organisms isolated in orbital abscesses, with a relative increase in the Streptococcus anginosus group compared to the literature. In approximately half of the identified cases, the antibiotics were changed to a regimen containing clindamycin. Resistance among orbital abscesses remains low. Empirical use IV cefotaxime and flucloxacillin is recommended. Additional anaerobic cover (eg, metronidazole, clindamycin) should only be added if there is no clinical improvement after 24-36 hours

130 Unconventional Initial Presentation of NF-1 in Children: Retinal Vascular Abnormalities

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Neurofibromatosis type 1 (NF-1) is a neurocutaneous condition with pathognomonic signs that help guide diagnosis as part of the diagnostic criteria. However, there are also less discussed presentations including retinal vascular malformations. They can present as vascular tortuosity affecting various capillary vascular plexuses. Although documented as an adjunctive sign in recent literature, they are rarely the initial presentation for NF-1 patients as in the case below.
A 13 years-old female patient was referred after attending a routine optician visit and was found to have an unusual vascular lesion temporal to the left macula. Past medical history wise, the patient is known to have had foetal exposure to recreational drugs and was born with concerns of plagiocephaly. She also had encephalitis at age 3. There was no family history of note. Due to comorbidities and living elsewhere previously, she was under another ophthalmology department up till age 4 who found no abnormalities.
Upon examination post-referral, she was identified to have capillary malformations with corkscrew vessels of the retina. Some disruption of the intraretinal layers were found on optical coherence tomography but with no oedema. As a result, an MRI was done which showed plexiform neurofibromas and other neurofibroma changes. Further systemic workup showed café-au-lait spots, capillary haemangioma, and axillary freckles later, helping confirm the diagnosis of NF-1 along with genetic testing.
Overall, this case demonstrates an unconventional but distinctive presentation of NF-1 in the paediatric population and highlights the many ways NF-1 may present given its complex nature

131 Banishing the Disappearing Squint

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Cyclic esotropia (ET) is rare and remains of unclear aetiology. Commonly diagnosed in preschool age and presenting with concomitant intermittent ET, it typically occurs in 48-hour cycles, though reported cyclic intervals vary. Surgery is an effective management option, as demonstrated in these two cases.
First case involves a 4-year-old presenting with sudden onset alternating ET measuring 45 prism dioptres (PD). For 2-months the patient demonstrated a 24-hour ET and 24-hour no deviation cycle. Fresnel prisms were used initially on ET days but became intolerable as angle size increased. The patient was listed for bimedial Botox injections. Management became delayed due to parents seeking alternative psychological treatments following consultation in Poland. However, the ET cycle increased and at six-months post-onset was a constant 70PD ET. Bimedial Botox injections and bimedial 5.5mm recessions occurred 9-months post-onset. Patient was monitored for 11-months postoperative, remaining esophoric and binocular prior to discharge.
Second case comprises a 2-year-old presenting with 2-week history of sudden onset cyclical left ET measuring 45PD. MRI showed unilateral herniation of right cerebellar tonsils and Chiari findings; urgent neurosurgery referral resulted in decompression and ventriculoperitoneal shunt insertion. Epilepsy diagnosed 2-years later. ET gradually increased to 70PD, being present 94% of the time, with only 3-hours straight on alternating days. Bimedial 5mm recessions occurred 4-years post-onset, regaining binocularity postoperatively, until discharge two years later.
Overall, the unpredictability of cyclic esotropia makes it challenging to manage. Surgical treatment is shown to be effective, as in both these cases, whereby binocularity has been maintained postoperatively

133 A 10-year retrospective review of retinopathy of prematurity outcomes at Royal Sussex County Hospital

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We conducted a 10-year review of ROP outcomes at the neonatal intensive care unit at Royal Sussex County Hospital in East Sussex county, a level 3 NICU and Paediatric Surgical centre.
Data was collected retrospectively using BadgerNet system and case notes of babies meeting screening criteria for ROP between January 2011 and December 2021. We compared our results to the national prospective surveillance study of infants treated for ROP in the United Kingdom.
The incidence of ROP requiring treatment was 2.4% (31/1288,95% CI 1.56% to 3.24%), lower than nationwide average of 4% (327/8112, 95% CI 3.6% to 4.5%). All these babies were treated with laser and there were no babies with aggressive posterior ROP. The median GA of babies needing treatment was 24 weeks (IQR 23.5 to 24.5) lower than the nationwide median GA of 25 weeks (IQR 24.3–26.1). Similarly, the median BW of babies treated was also lower, 600g (IQR 548.5-740.5) compared to nationwide median BW of 706g (IQR 620–821).
Our study found a lower incidence of ROP requiring treatment in South East England. We report these results in the context of a level 3 NICU with nationally lower complications and mortality rate. Moreover, the findings demonstrate a higher threshold for treatment which favours the use of laser over anti-VEGF with its

advantages of not having to monitor discharged babies with persistent avascular retina.
The low incidence of ROP babies treated reflects the high standards of neonatal cate in the unit and the preference for laser treatment

135 Retinal Arteriovenous Malformation and a Cerebral Cavernous Malformation in a 6-year-old Child

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Retinal arteriovenous malformations (AVMs) represent rare, non-hereditary vascular anomalies of the retina. The lesions are extremely rare, with no known prevalence and are exemplified through singular literature case reports. In this case report, we discuss a 6-year-old child presenting with recurrent intermittent frontal headaches. No other positive signs or symptoms were noted on history. Past medical and family history were unremarkable. On examination, fundoscopy revealed an arteriovenous malformation in the right eye, inferior to the optic nerve head. OCT and OPTOS findings demonstrated a 3DD AVM inferior to the optic nerve head in the right eye. Left eye examination was normal. MRI Head results demonstrated a cavernous malformation in the right frontal subcortical region. MRI Orbits was unremarkable. Visual acuity was normal. The patient's case was discussed with a tertiary neurological centre, with no further follow-up or investigations required in view of the stable condition of the patient. This case demonstrates the importance of performing MRI Head to rule out cranial AVM in patients presenting with a retinal AVM. Moreover, the case is of significance, as to the best of our knowledge this is the first reported case of a co-existing retinal AVM and a CCM in a child.

136 Assessing the Accuracy of the SPOT Vision Screener for Identifying Amblyopia Risk Factors in Paediatric Patients: A Clinic-Based Audit

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This clinic audit evaluated the SPOT Vision Screener's accuracy in detecting amblyopia risk factors in children needing referral for further assessment.
All patients (n=93) at a refraction clinic underwent both SPOT screening by an orthoptist and cycloplegic refraction by a paediatric optometrist. We compared results to assess sensitivity, specificity, and overall accuracy for key risk factors.
SPOT measurements correlated linearly with cycloplegic refraction but tended to underestimate hyperopia. Sensitivity for hyperopia >4D varied (right eye: 0.5, left eye: 0.36-0.58) while specificity remained high (>0.99). SPOT accurately detected astigmatism >1.75D in children over 4 (sensitivity: 0.85, specificity: 0.86).
Our findings align with previous validations. SPOT excels at identifying children without significant hyperopia but shows lower sensitivity for those with it, especially in the left eye. However, it effectively detects astigmatism.
The SPOT Vision Screener is a valuable tool in orthoptic clinics, helping prioritize children for further assessment and potentially streamlining referrals. Implementing SPOT screening in such clinics can also alleviate pressure on traditional refraction clinics

137 Evaluation of the Postnatal Growth and Retinopathy of Prematurity Screening Criteria (G-ROP) in a Scottish Cohort

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Retinopathy of prematurity (ROP) poses a significant risk of vision impairment in premature infants. Current screening guidelines rely on gestational age (<31 weeks) and birth weight (<1501g). Postnatal weight gain patterns have shown promise in predicting ROP development. This study evaluates a post natal weight gain model; the Growth and ROP (G-ROP) in identifying infants treated for ROP in our population.
An 8-year retrospective cohort study was conducted on infants treated for ROP in a neonatal intensive care unit in Edinburgh, Scotland. Data from Jan 2016 to Jan 2024 was collected using ""Badger,"" the electronic patient record system. The G-ROP 1 and G-ROP 2 criteria were applied: GA <28 weeks, BW <1051g, weight gain (WG) between age 10-19 days <120g, WG between 20-29 days <180g, WG between 30-39 days <170g, and the presence of any hydrocephalus. The G-ROP 2 criteria are the same, however all three WG thresholds are set at <180g.
Of 90 infants treated for ROP, 86 were included in the analysis after excluding incomplete data from 4 infants. Median birth weight was 740g, and median gestational age was 25 weeks. Sensitivity for detecting treated ROP was 98.8% for G-ROP 1 and 100% for G-ROP 2.
G-ROP 2 showed higher sensitivity than G-ROP 1 in identifying infants requiring treatment, potentially reducing the burden of ROP screening in our population.
These findings suggest that incorporating postnatal weight gain criteria into ROP screening protocols may improve the identification of at-risk infants, improving resource allocation and clinical management

138 Trajectories of depressive symptoms in people with childhood strabismus

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Evidence has shown that people with childhood-onset strabismus have an increased risk of depression and anxiety in adolescent and young adult life. We do not yet understand key timepoints nor the biopsychosocial pathway that drive these associations.
We used statistical models of repeated measure depressive symptoms data from 9,489 Avon Longitudinal Study of Parents and Children (ALSPAC) participants to identify 4 trajectories of depressive symptoms. Then, using autorefraction, cover test and binocular single vision data collected at age 7 years, we explored how strabismus was associated with depressive symptoms trajectories.
We identified one physiological “Low Stable” depressive symptoms trajectory (N=7,471 (79%)), and 3 pathological trajectories: “Adolescent Onset” (N=794 (8%)) characterised by an onset of depressive symptoms around age 19 years and remaining high until the end of follow up (age 24 years); “Adolescent Limited” (N=882 (9%)) had depressive symptom onset at age 13 years, returning to within normal limits by age 22 years; and “Childhood Onset” (N=342 (4%)) with symptom onset at age 13 years and remaining high until age 24 years.
Participants with strabismus at age 7 years had no detectable increased risk of a pathological depressive symptoms trajectory (Odds Ratio = 1.22; 95% credibility interval = 0.95 to 1.57).

These data do not confirm previous findings from cross sectional work published in the literature. There is further scope to use longitudinal data to explore how and why childhood onset strabismus is associated with mental health disorders and symptom scores

139 Pediatric Orbital Dermoid Cyst Management: Is Preoperative Imaging Always Necessary?

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We describe the role of diagnostic imaging in supporting the clinical diagnosis of pediatric orbital dermoid cysts
Retrospective review of clinical notes of children who underwent orbital dermoid excision from 2019 to 2024.
Eleven eyes of eleven children (72,7% female and 27,3% male) were identified. Mean age at the time of surgery was 4.7 years. In 100% of the cases the onset was noticed before the age of 18 months. The main symptom at presentation was a slowly progressive, painless subcutaneous mass. The localization of the orbital mass was supero-temporal along the zygomatic-frontal suture in all cases. All lesions were mobile and well circumscribed with no clinical evidence of intra-orbital or intra-cranial extension. All patients underwent diagnostic imaging with either Ultrasound (US - 45,45%) or MRI (45,45%). In one case of a growing cyst both diagnostic tools were carried out. None showed deep intra-orbital extension on imaging. All patients underwent uneventful total excision of lesion with no intraoperative evidence of intra-orbital or intracranial extension. Histology confirmed the diagnosis of Dermoid Cyst in all cases.
The suspicious diagnosis of orbital dermoid cyst is made clinically and confirmed by the pathology results after surgical excision biopsy. Imaging plays an important role in case of atypical presentation or evidence of deeper extension.
Preoperative diagnostic imaging may not be necessary in the management of Dermoid Cysts which do not have clinical evidence of intraorbital or intracranial extension. In cases of doubt, US should be the first choice of imaging as it is less invasive

142 Paediatric idiopathic intracranial hypertension: a case series from a teaching hospital

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Paediatric idiopathic intracranial hypertension (IIH) is rare, with a reported annual incidence of 0.6-0.9/100,000 children. We present 18 cases of paediatric IIH focusing on presentation, diagnosis, and management.
Data was collected retrospectively from electronic patient records from a single site. Only patients diagnosed at <18 years with presence of papilloedema, normal neuroimaging and raised opening pressure on lumbar puncture (LP) were included. Eighteen patients met our inclusion criteria, aged 6-17. The commonest presenting symptom was headaches, present in 10/18 cases. One had severe visual impairment on initial assessment. None had a sixth nerve palsy. Six patients were asymptomatic at initial ophthalmic evaluation. The mean time to confirmed IIH diagnosis with LP following ophthalmic evaluation was 31.83 days. Fourteen patients were started on acetazolamide, two on topiramate, one on prednisolone, and one was conservatively managed. Eight patients were still on treatment, with the remaining nine having ceased treatment at a mean of 19.89 months. Four patients had a recurrence between 3

months to 3 years following treatment cessation. One patient had visual field defects and corresponding OCT changes at their latest ophthalmic assessment, with the rest normal fields or unreliable defects.
IIH diagnosis was often delayed due to LP waiting times, especially in cases where general anaesthesia was required. Visual prognosis was good in most cases with prompt treatment initiation, even in cases with disease recurrence.
Our case series highlights the importance of routine eye examinations, which prompted the referral of a third of otherwise asymptomatic patients

143 Assessment and Outcomes of Suspected Disc Swelling Referrals in a Tertiary Paediatric Centre

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This study evaluates assessments and outcomes of paediatric patients referred for suspected bilateral disc swelling at a tertiary hospital's ophthalmology department.
Retrospective analysis was conducted of patients who underwent lumbar puncture (LP) due to suspected disc swelling on ophthalmic assessment, between 1st January 2016 to 30th September 2023. Only patients no prior diagnosis of raised intracranial pressure and were referred for suspected disc swelling were included.
Thirty-six patients met the inclusion criteria. Optician referrals comprised 69%. Majority were seen same day, with 82% seen within two weeks. Visual function assessment was thorough and identified three patients with reduced vision; no other visual compromise was identified. Imaging compliance imaging included OCT (85%), colour photos (91%), and drusen assessment (81%). One-third underwent optic nerve sheath ultrasound (50% >4.5mm). After suspected disc swelling, mean time to LP was 22 days. Raised intracranial pressure (>20mmH2O) was identified in 89%, mostly idiopathic intracranial hypertension (80%). No visual acuity, colour vision, or pupil reflex deterioration was observed post-LP, but two patients exhibited visual field compromise, requiring shunting.
Our evaluation has facilitated development of a triaging system for symptomatic, asymptomatic and high risk patients – as not all require same-day reviews. As thorough disc assessment and imaging facilitated correct identification of patients for LP, we have developed a disc swelling protocol. Implementation into the Medisight EPR is ongoing with plans to re-evaluate effects on patient care.
This evaluation informs a patient-tailored triaging system and standardized assessment tool for paediatric disc swelling, enhancing patient outcomes while minimising unnecessary procedures

146 Interesting Paediatric Ophthalmology Case of Giant Hogweed Periorbital Burn

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5-year-old Caucasian boy was referred to Ophthalmology by Paediatrics. He presented with a 1-day history of unilateral vesicular painful periorbital rash around his left eye and on his left forehead. The characteristics and pattern of the rash suggested it could be left-sided Herpes Zoster Ophthalmicus. But after further detailed history taking, it was ascertained that the most likely cause of the rash was Giant Hogweed Burns due to the patient's face coming into contact with the toxic plant sap.
His visual acuity, anterior segment and posterior segment examinations were normal. Initial swabs taken from the ruptured vesicles were negative for virus and bacteria.

Subsequently, more in-depth history was obtained from the patient's father that the patient had been playing and rolling around in a grass field before the facial lesions started.
The case was discussed with Consultant Paediatric Ophthalmologist and then referred for onward discussion with Paediatrics for further dermatological opinion. The patient was commenced on steroid cream. The patient was scheduled a follow-up in Paediatric Ophthalmology Clinic to monitor his progress. Phone consultation with his parents one month later confirmed that the facial rash completely resolved with steroid cream treatment.
This is a highly fascinating case report as facial and periocular lesions caused by Giant Hogweed Burns are not commonly encountered in an ophthalmology setting. Although clinical suspicion points towards Herpes Zoster Ophthalmicus or Herpes Simplex rash, this case reminds us that a unilateral vesicular facial and periocular rash can also be caused by contact dermatitis from skin exposure to an irritant. A key learning point is that Giant Hogweeds are commonly found throughout the UK and their toxic sap can cause severe skin rashes, burning blisters and long-lasting scars. The treatment is to wash it off immediately with soap and water upon contact and sunlight should be avoided due to photosensitivity induced by the Giant Hogweed Burn. If the sap has entered the eye, please contact an ophthalmologist immediately. For serious skin inflammation, steroid creams are effective.
****Patient photos demonstrating pathology (without identification) have been taken with patient's consent and parental consent. Consent also obtained for photos to be presented in Paper Poster*

147 Medically unexplained visual loss in children and young people: A single site retrospective study

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The aim of this retrospective study is to determine the incidence and outcomes of children and young people diagnosed with medically unexplained visual loss (MUVL) over a six-year period at Sunderland Eye Infirmary.
Retrospective review from the Orthoptic New Case record of all new attendances in the department from 2021-2023, identified 19 patients (n=4667) under 18 years old who were diagnosed with MUVL or suspected MUVL during this period. We collected data on age at onset, sex, uniocular or binocular visual loss, presence of any psychological or psychosocial difficulties, associated symptoms, investigation, and management of MUVL.
The mean age at presentation was 11 years (7 -18) with a female preponderance (74%). 80% of the patients presented with binocular symptoms and 28% had an existing psychological or psychosocial difficulty at the time of presentation. Ophthalmic investigations, including neuroimaging, electrodiagnostic test were done in 94.7% of patients. Majority of patients (78.4%) with MUVL had spontaneous recovery within 1 year from initial presentation. None of the children underwent formal referral to CAMHS.
In conclusion, it may be beneficial to establish closer links between ophthalmology and mental health services for those MUVL patients who do not spontaneously improve. We are now reviewing data for the period (2018 – 2020) to understand if there are any variation before and after COVID

148 Polar Bear Tracks

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An 8-year-old boy was referred to the Paediatric Ophthalmology department from their local optician following a routine examination, prompted by the discovery of abnormal white lesions on the left superior retina. Initially, the optician suspected retinal thinning secondary to myopic degeneration or a variant of retinopathy of prematurity, causing understandable concern for the child's parents.
Upon evaluation by a Paediatric Ophthalmologist, the child exhibited excellent visual acuity of -0.10 OU, with an unremarkable anterior eye segment examination and no relative afferent pupillary defect. Fundoscopy of the right eye revealed no abnormalities. However, in the periphery of the left retina, outside the superior arcade, multiple grouped lesions were observed, resembling ""bear track"" lesions characteristic of congenital grouped pigmentation of the retinal pigment epithelium (CGP-RPE), but with an albinotic appearance. These well-circumscribed, chalky white, flat lesions, termed retinal ""polar bear tracks,"" shared a similar distribution, shape, and size to CGP-RPE.
Further investigations, including autofluorescence, Humphrey visual fields, electrodiagnostic tests, and OCT scans through the lesions, were conducted. These tests returned normal results, except for reduced autofluorescence over the lesions. ""Polar bear tracks"" or Congenital albinotic spots of the retinal pigment epithelium (CASRPE) represent a rare condition, with only a few case reports documented in the literature. CASRPE are believed to be congenital lesions that are non-hereditary and non-progressive. No systemic associations have been described. We reassured the patient and his parents that these lesions were an incidental finding, and that the child was likely to remain visually asymptomatic overtime

149 Clicking Brown Syndrome in Pregnancy

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Pseudo-Brown syndrome describes an acquired and often intermittent limitation of elevation-in-adduction. One example is the superior oblique ‘click’ syndrome. The aetiology of pseudo-Brown syndrome has been associated with trauma to the trochlea, inflammation or lesions within the tendon sheath impeding contraction of the muscle through the trochlea.
We present a case of idiopathic acquired ‘click’ syndrome in a 31 year old pregnant female patient, presenting with sudden onset painless vertical diplopia during her 2nd trimester.
Orthoptic assessment found a 2^ intermittent exotropia with 1^ left hypotropia in primary position, which increased to 12^ left hypotropia on right gaze and 19^ left hypotropia on elevation. Stereopsis of 40 seconds of arc was demonstrated when controlling. Findings, including Hess and 9 positions of gaze photographs, are presented to demonstrate the clinical findings including the patient's ability to self-resolve the limitation with repeated up gaze movements. The patient opted for conservative management by adopting a head posture to control her diplopia or using a small vertical prism to ease the neck pain.
The pathophysiology of ophthalmic changes during pregnancy remains a little explored subject. Literature review identified two cases of acquired Brown syndrome related to pregnancy, one during the 3rd trimester and the second immediately post-delivery,

both secondary to inflammatory causes. Our case presumably relates to tendon sheath inflammation associated with pregnancy which will likely resolve post-delivery. The intermittent presentation highlights the necessity of a detailed history and repeated testing to enable accurate diagnosis

150 Timing of Optic Nerve Changes Following Ventriculoperitoneal Shunt in Paediatric Patients

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Paediatric ophthalmology departments are under pressure for appointments and receive numerous referrals including neurosurgical patients who have been treated for raised intracranial pressure. Our aim is to describe the timing of optic nerve head (ONH) changes in particular the retinal nerve fibre layer (RNFL) using optical coherence tomography (OCT) following ventriculoperitoneal (VP) shunt in paediatric patients.
A retrospective case note review was carried out on paediatric patients who had VP shunt insertion and had attended the ophthalmology department of a large tertiary paediatric hospital with regional neurosurgery centre from December 2018 - December 2021.
Seven patients were included (14 eyes) with follow-up ranging from 1 to 12 months (median = 12 months). Underlying diagnoses included idiopathic intracranial hypertension, neoplasm, aqueductal stenosis and Arnold Chiari malformation. Opening cerebrospinal fluid pressure ranged from 31-60cmH2O. Following VP shunt RNFL height fell from a mean of 239.2 µm (range = 108.4-321.75µm) to 135.9 µm (range = 37.5 – 119.4µm). This decrease was visible in the first week to one month. 5 patients had normal visual and colour acuity at baseline; 1 patient had reduced acuity which improved post shunt and the remaining patient had reduced colour vision which persisted.
There is a paucity of data on this topic and our results agree with the singular published article researching ONH changes following VP shunt.
This study informs paediatric ophthalmologists that ONH changes occur shortly following VP shunt insertion with possible reversal of visual symptoms if present. This helps both ophthalmology and neurosurgical departments coordinate timely reviews