

MPS type I, II, III, IV. While corneal clouding may be stabilised with early treatment with HSCT or surgically treated with a corneal transplant, there is currently no known effective treatment for retinopathy.

We conducted a prospective observational study of patients with MPS who underwent fundus examination, OPTOS imaging, OCT, and electroretinography.

76 patients with MPS were studied, comprised of 45 MPSI, 9 MPSII, 13 MPSIV and 9 MPSVI patients. The age range was 3- 58 years of age. OPTOS imaging was performed in 65 individuals, OCT in 61, and electrodiagnostic assessments in 37 patients. Ten patients (7 MPSI, 3 MPS II) had fundoscopic signs of retinopathy, of which 5 had abnormal ERGs. Twenty one patients (17 MPSI, 2 MPSII, 2 MPSVI) had abnormalities on ERG, of which 5 had concurrent fundoscopic evidence of retinopathy. The onset of retinopathy in MPS patients was observed over a broad age range, with initial detection occurring between 2 and 53 years of age.

Retinopathy can be diagnosed on examination, imaging, or ERG in MPS patients as young as 2 years of age. The development of novel medicines, such as gene therapy, have potential to stabilise or improve retinopathy in the future. Therefore, phenotypic and natural history information pertaining to retinopathy in MPS is extremely valuable.

16 HORNER SYNDROME: CAN IT BE FAMILIAL? CASE SERIES IN A FAMILY AND REVIEW OF LITERATURE

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Ophthalmic literature reveals vague and rare references to Horner syndrome on a hereditary basis. We present a case series of mother and son with Horner syndrome, which was confirmed pharmacologically. They noticed symptoms on the same side at a similar age and no serious pathology was found.

Retrospective case review of notes:

Case 1: An 11-year-old male presented with 6 week history of anisocoria, mild right ptosis, no heterochromia and no history of trauma or previous surgeries. The anisocoria was more noticeable in the dark, Horner syndrome was confirmed with apraclonidine test.

Case 2: Mother of case 1, 50-year-old female diagnosed with right Horner syndrome at the age of 14 in Austria. The presenting features were anisocoria, a lack of sweating on the right side of her face. Diagnosis was reconfirmed pharmacologically.

Case 1 was referred to paediatrics for a systemic examination which was normal. He was investigated with urinary catecholamines, MRI head and CT neck and thorax which were all normal. Case 2 was investigated in the past with a normal CT head.

Horner syndrome results in the interruption of the oculosympathetic pathway and can indicate serious pathology in the head, chest or neck. Our cases demonstrate that familial presentation could indicate an idiopathic aetiology as it is unlikely to have pathological Horner syndrome in two first degree relatives.

Our case series highlights the importance of eliciting a family history of Horner syndrome and examining the family

members. Positive family history can reassure patients while awaiting results of investigations.

17 DEVELOPMENT OF A QUESTIONNAIRE TO STUDY FEAR AND ANXIETY FACTORS AFFECTING PATIENTS AND THEIR FAMILIES UNDERGOING STRABISMUS SURGERY

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Patients and their Families undergoing Strabismus Surgery. The aim of this study was to develop a questionnaire to identify perioperative fear and anxiety factors affecting pediatric strabismus surgery patients.

First, we reviewed the literature to determine precipitants of fears and anxieties experienced by pediatric patients. Subsequently, we developed a questionnaire for pediatric patients undergoing strabismus surgery. This was a two part questionnaire, consisting of a 16-piece section for patients and a 22-piece section for parents. Finally, we piloted this questionnaire to validate its clinical use.

Common anxiety factors for children include pain, minor clinical procedures requiring needles, separation from parents and engaging with medical professionals. We used this information to develop a two part questionnaire for patients and parents. The questionnaire elicited positive and negative aspects of the patient journey, corroborated fears reported in the literature, and identified anxiety inducing factors specific to strabismus patients.

There is a lack of evidence regarding fear and anxiety specific to pediatric ophthalmology surgeries. Strabismus surgery carries unique fear inducing factors. Interventions which may alleviate the stress of pediatric surgery, therefore greatly benefit patient experience and surgical outcomes, and should be considered in the care of pediatric patients. Patient educational material is known to provide a sense of control to patients, helping to alleviate such fear.

Evidenced by the literature and the pilot questionnaire, there still exists anxiety inducing factors in pediatric surgery. Investigation into patient fears regarding pediatric strabismus surgery is needed to better understand how clinical staff can support patients perioperatively.

18 ENGAGING WITH YOUNG PEOPLE TO IMPROVE RESEARCH, SERVICES AND WORKFORCE DEVELOPMENT: EYE-YPAG AND 'VISUALLY' WORKSHOPS

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Involving children and young people (CYP) in service and research design improves quality and accessibility. Running events in schools to invite CYP to volunteer and explore careers in the NHS may contribute to uptake of training posts and developing the NHS workforce.

Here we evaluate two activities with CYP, our Young Person's Advisory Group for research (eye-YPAG) and our workshop for secondary schools, 'visually'.

We evaluated eye-YPAG in focus groups and online surveys with group members, parents/carers, researchers, facilitators and funders. We conducted thematic analysis and descriptive statistics. To evaluate 'visually', we monitored the numbers of workshops and young people applying for volunteering roles. We asked those who started working with us about their experience.

eye-YPAG members valued social and creative aspects as well as learning about research and developing skills and confidence. Researchers reported that CYP gave novel suggestions, modifying research plans, and that their different perspective was helpful in making research more relevant for children and families.

Over 6 months, we held 15 'visually' workshops in secondary schools. Ninety students applied for volunteering roles, and 20 have completed the Human Resources onboarding process. Young volunteers report that this work has increased their confidence and that they have gained insights into how a hospital works. One is considering training to become an orthoptist.

Both eye-YPAG and 'visually' are available to all eye researchers and units in the UK and can facilitate outreach activities

19 UNILATERAL LATERAL RECTUS RESECTION AS PREFERRED PROCEDURE TO TREAT PATIENTS WITH ACQUIRED DISTANCE ESOTROPIA

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To report the results of a series of patients with acquired distance esotropia (ET) who underwent lateral rectus resection.

We retrospectively analysed data from 21 symptomatic patients with acquired esotropia who did not tolerate prisms. Twelve patients had myopic esotropia, 5 patients decompensated esophoria and 4 patients age-related distance esotropia. Patients were divided in two groups; myopic and non myopic. Two patients in each group had undergone surgery to medial recti muscles previously. Near and distance angles were measured over 2 visits. Data were analysed with t-test (paired and unpaired).

Average age was 47 (myopes), 77 (distance ET) and 26 years (esophoria). Mean spherical equivalent was -4.00 DS (myopes) and + 1 SD (non myopes). Lateral rectus resection ranged between 6 and 8 mm with an average of 7 mm in the myopic group and between 4 and 8 mm with an average of 6 mm in the non-myopic group.

The distance angle was reduced from 19 PD to 6 PD in myopes (mean difference 12 PD, $p < 0.0001$) and from 19 PD to 8 PD in non myopes (mean difference 12 PD, $p = 0.0011$). There was no difference in reduction of distance angle between myopes and non-myopes ($p = 0.771$). All patients had complete resolution of diplopia after surgery without needing prisms. Near angle was also fully corrected in 19 patients. One patient with myopia and one patient with distance esotropia went on to have medial rectus recession.

Unilateral lateral rectus resection is an effective procedure for acquired distance esotropia in myopic and non-myopic patients.

20 SIMULTANEOUS DEVELOPMENT OF ACUTE ACQUIRED CONCOMITANT ESOTROPIA IN TWO SIBLINGS DURING THE COVID-19 PANDEMIC: A CASE REPORT

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A 5-year-old boy (sibling one) and his 11-year-old sister (sibling two) were presented to the hospital eye service in early 2021, having both developed acute-onset large angle esotropia within three months of each other. Neither had any significant past medical, ophthalmic, or family history. The siblings lived in the same household, and both experienced lifestyle changes as a result of the UK lockdown in response to COVID-19.

Sibling one had a moderate right esotropia, initially maintained straight by corneal light reflex. He measured 45/50 prism dioptres (Δ) base out at near and 45 Δ base out at distance. Sibling two had esophoria which broke down into a right esotropia immediately on dissociation. The esotropia measured 30 Δ base out at near and 20 Δ base out at distance. At four month follow up, both siblings demonstrated a constant large angle esotropia (sibling one: 54 Δ base out at near and 45 Δ base out at distance, sibling two: 45 Δ base out at near and 40/45 Δ base out at distance).

Each sibling was treated with right medial rectus recession (5.5 mm) and right lateral rectus resection (7 mm), and at a three-month follow-up, both were minimally esophoric with restored binocularity.

The unusual and abrupt changes in lifestyle imposed by the COVID-19 pandemic highlight the likelihood of an environmental aetiology for some forms of esotropia and raise the possibility that extended screen time may be a contributory factor.

21 DOES THE NUMBER OF PRE-OPERATIVE ASSESSMENTS OF STRABISMUS PATIENTS INFLUENCE THE SURGICAL OUTCOME?

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Surgical strabismus traditionally attended for several face-to-face (FTF) measurements before being listed for surgery. During the Covid-19 pandemic, a streamlined care-pathway was adapted to reduce FTF contact time to protect staff and manage floor-flow. Patients were listed for surgery after just one face-to-face orthoptic assessment, followed by a further measurement at pre-assessment.

This is a case cohort to look at surgical outcome of all consecutive exotropia patients who underwent re-do horizontal muscle surgery over the last 14 years, from a surgeon's prospective database.