## 4 PERIPAPILLARY HYPERREFLECTIVE OVOID MASS-LIKE STRUCTURES (PHOMS) IN CHILDREN: OPTICAL COHERENCE TOMOGRAPHY MEASUREMENTS AND REFRACTIVE STATUS

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Peripapillary hyperreflective ovoid mass-like structures (PHOMS) are a recently described entity. They are a common and non-specific cause of pseudopapilloedema. We aim to determine if there is a relationship between optical coherence tomography (OCT) measurements and refractive status on the presence of PHOMS.

Retrospective analysis of optic nerve head OCT scans from children seen in the suspected papilledema virtual clinic between August 2016 and March 2021 at University Hospital of Wales, Cardiff. Three assessors graded each scan for the presence of PHOMS. Numerical data on the disc morphology (disc area (DA (mm2)) and scleral canal diameter (SCD (µm)) was obtained from the OCT scans. Refractive data was obtained from the initial optometric referral where available. Logistic regression analysis was performed to assess the effect of age, sex, spherical equivalent, DA and SCD on the likelihood of the presence of PHOMS.

The SCD was significantly larger in eyes with PHOMS (mean diameter 1771 µm) vs no PHOMS (mean diameter 1621 µm). Odds ratio 1.0042 (1.0016 to 1.0069). The other variables were not significantly associated, but there was a tendency towards a younger age, larger disc area and the presence of a refractive error if PHOMS were present.

Anatomical and developmental differences in the size of the scleral canal and optic nerve may explain the presence of PHOMS in children. In contrast to other recently published studies, we show that a wider scleral canal diameter was significantly associated with the presence of PHOMS.

# 15.15 Session V (P)

# Paediatric Rapid-fire presentations

# Moderators: Alan Mulvihill, Edinburgh and Bhavini Gohil, London

## 5 TEAR PROTEINS IN PREMATURE BABIES AT RISK OF RETINOPATHY OF PREMATURITY

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This feasibility study aimed to investigate the feasibility of collecting and analysing tear proteins from preterm infants at risk of retinopathy of prematurity (ROP). Additionally, we sought to identify any tear proteins which might be implicated in the pathophysiology of ROP.

Eligible infants were those undergoing ROP screening without other ocular pathology. Tear samples were obtained by Schirmer's test strips coincident with routine ROP screening. Mass spectrometry was used for proteomic analysis. All participants' parents gave written, informed consent.

Samples were collected from 12 infants, including two sets of twins. Gestation ranged from 25+6 to 31+1 weeks. Median postnatal age at sampling was 30.5 days (range 19 to 66). One infant developed self-limiting ROP. An adequate sample for protein analysis was obtained from each infant. 701 proteins were identified; 261 proteins identified in the majority of tear samples, including several common tear proteins, were used for analyses.

Increased risk of ROP as determined by G-ROP prediction criteria was associated with an increase in lactate dehydrogenase B (LDH-B) chain protein in tears. Older, more mature infants demonstrated increased concentration of immunoglobulin complexes within their tear samples and two sets of twins in the cohort showed exceptionally similar proteomes, supporting validity of the analysis.

Tear sampling by Schirmer test strips and subsequent proteomic analysis in preterm infants is feasible. A larger study is required to investigate the potential use of tear proteomics in early identification of ROP.

## 6 RESTRICTED DIET CAUSING IRREVERSIBLE VISUAL IMPAIRMENT IN CHILDREN WITH AUTISTIC SPECTRUM DISORDER: CASE SERIES AND REVIEW

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Though micronutrient deficiency is recognized to cause visual system dysfunction, avoidant/restrictive food intake disorder (ARFID) has been poorly described in relation to this.

Review of 18 previously published similar cases highlights the importance of identifying other micronutrient deficiencies, even when vitamin A deficiency accounts for the presenting features. We present four patients with permanent visual loss as a result of highly restricted diets due to avoidant/restrictive food intake disorder (ARFID), and with autistic spectrum disorder (ASD).

The four cases reported here make a total of 22 reported cases of visual impairment due to ARFID-like restricted diets in boys with ASD. The severity of ASD varied widely across the 22 cases, but all had extremely restricted diets, in some cases tolerating only one or two food items. The most avoided food groups in children with ASD and food selectivity have been reported from the USA as vegetables, fruit, dairy and protein, with the most preferred food items being bread, chicken, cereal and yoghurt. In the 22 cases reviewed or reported here, tolerated foods tended to be predominately carbohydrate based, with dry or crunchy textures and beige or pale colouring, i.e. French fries, potato waffles, potato chips (crisps), rice, white bread, bagels, biscuits or cookies.

This case series and review highlights the need for heightened vigilance for visual problems in individuals with ASD-related ARFID and early and complete assessment of micronutrient deficiency.