BAOP

24th & 25th March 2022

St John's College

Cambridge

BAOP Programme Thursday 24th March

09.15 - 09.50: Registration & Tea / Coffee

Lecture Theatre - Old Divinity School

09:50 – 10:00	Welcome and housekeeping	**Dominic G O'Donovan**, Cambridge
SESSION 1 Chair: **Chee Thum**, Edinburgh		
10:00 – 10:15	Histopathological diagnosis of neoplasia from 1,912 pterygium specimens in the United Kingdom	**Hibba Quhill**, London
10:15 – 10:30	Treatment of multi-drug resistant *Pseudomonas aeruginosa* keratitis with intrastromal amikacin	**Aurora Wang**, Worcester
10:30 – 10:45	Pathophysiology of the choriocapillaris	**Phil Luthert** & **Edward Adams**, London
10:45 – 11:00	Investigations of the laminocyte functional transcriptome in posterior vitreous detachment	**Melanie Maranian**, Cambridge
11:00 - 11:30	Tea & Coffee Break	
SESSION 2 Chair: **Caroline Thaung**, London		
11:30 – 11:45	Tumour-associated retinal pigment epitheliopathy	**Bertil Damato**, Oxford
11:45 – 12:00	Amelanotic ciliary body mass	**Stephanie Lemaitre**, London
12:00 – 12:15	Gallbladder melanoma metastasis from primary uveal melanoma in the absence of hepatic involvement	**Hibba Quhill**, London
12:15 – 12:30	Two uveal melanomas arise independently in the same eye	**Sam Barlow**, Liverpool
12:30 – 12:45	Unilateral visual loss after a car accident	**Stephanie Lemaitre**, London
12:45 – 13:00	Conjunctival melanoma mimicking OSSN - a case series	**Mandeep S Sagoo**, London
13:00 – 14:00	Lunch	
SESSION 3 Chair: **Aditya Shivane**, Plymouth		
14:00 – 14:15	Solitary fibrous tumour of the orbit: A case study illustrating the management challenges	**Paolo Scollo**, Cambridge
14:15 – 14:30	Nasal natural killer/T-cell lymphoma with secondary ocular involvement: A diagnostic challenge	**Yamini Krishna**, Liverpool
National Ophthalmic Pathology External Quality Assurance (EQA) Discussion Chairs: **Fiona Roberts**, Glasgow & **Caroline Graham**, Luton		
14:30 – 16:00	EQA Circulation 1 for 2021/22	All
	EQA Circulation 2 for 2021/22	
16:00 – 16:30	Tea & Coffee Break	
16:30 – 17:30	BAOP Business meeting	
19:00 sit-down	BAOP Dinner – St John's College Hall *Access to Hall from 18:45*	

BAOP Programme Friday 25th March

09.00 – 09.30: Registration & Tea / Coffee

Lightfoot Room - Old Divinity School

SESSION 4 Chair: **Phil Luthert**, London		
09:30 – 09:45	A cloudy cornea	**Chee Thum**, Edinburgh
09:45 – 10:00	Atypical presentation of paraproteinaemic keratopathy	**Nick Stanojcic**, London
10:00 – 10:15	Looks like a conjunctival melanoma, but is it?	**Hardeep Singh Mudhar**, Sheffield
10:15 – 10:30	Trial by fire	**Samantha Fonseca**, London
10:30 – 10:45	Ocular surface impression cytology: Applications, limitations and controversies	**Mozhgan Rezaei Kanavi**, Tehran
10:45 - 11:15	Tea & Coffee Break - The HALL St John's College with BOWMAN Club	

Lecture Theatre – Old Divinity School

BAOP & BOWMAN Club 2022 JOINT MEETING

SESSION 5 Co-Chairs: **Dominic G O'Donovan**, Cambridge & **Madhavan Rajan**, Cambridge		
Joint meeting – BAOP & BOWMAN Club		
11:15 – 11:30	**Pathological correlation of severe corneal diseases**	
	Rituximab for severe Mooren's ulcer *Case presentations and discussion*	**Erika Damato**, Cambridge **Dominic G O'Donovan**, Cambridge **Mayen Briggs**, Cambridge **Madhavan Rajan**, Cambridge
11:30 – 12:00	**Pathology & genetics of corneal dystrophies** Dr **Caroline Thaung**, FRCOphth FRCPath DPhil Consultant Ophthalmic Pathologist, Moorfields Eye Hospital & University College London (UCL), London, UK	
12:00 – 13:00	**Professor David Easty Annual Lecture: SARS-CoV-2 and the eye** Professor **James Chodosh**, MD MPH Edith Ives Cogan Professor of Ophthalmology, Harvard Medical School, Boston, USA	
13:00 - 14:00	Lunch - The HALL St John's College with BOWMAN Club	

BAOP Programme Friday 25th March, continued

Lightfoot Room - Old Divinity School

SESSION 6 Chair: **Dominic G O'Donovan**, Cambridge	
14:00	Award of Dr Jean Campbell Trophy for best trainee presentation
	BAOP Group photo

Histopathological diagnosis of neoplasia from 1,912 pterygium specimens in the United Kingdom

Hibba Quhill[1]

Lucretia Medard[2], Caroline Thaung[3], Mandeep S Sagoo[4]

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Introduction: Ocular surface neoplasia and pterygia share risk factors and have been reported to coexist in a minority of cases, the rate of which seems to increase with ultraviolet light exposure. Rates of coexistent disease vary from 0% in a Canadian study to 9.8% in an Australian population. No studies have examined pterygia for coexistent neoplasia in European populations to date.

Objective: To examine the prevalence of neoplasia in histopathology specimens of clinically diagnosed 'pterygia' in a United Kingdom-based tertiary centre. Atypical pterygia were not excluded.

Methods: Retrospective observational study of all histopathology specimens of excised pterygia from 1997 to 2021.

Results: During the study period, 1,912 specimens were examined from excised pterygia. 12 cases (0.63%) had coexistent neoplasia detected on histopathology. 11/12 cases were ocular surface squamous neoplasia (OSSN), and one was conjunctival melanoma. Of the three cases with invasive disease (one melanoma, two invasive squamous carcinoma), two were treated surgically as possible malignancy due to atypical clinical features pre-operatively. In total, 7 of the 12 cases were listed without clinical concern for possible malignancy and were not treated with wide margins or adjuvant therapy (0.36% of all specimens). The only lesion to recur in this study was the case of invasive squamous carcinoma excised without oncology precautions.

Conclusions: This study supports previous assertions that all excised pterygia should be submitted for histopathological examination. Where atypical clinical features are documented, surgeons should consider wide excision margins and adjuvant therapy in a specialist centre to reduce recurrence.

Treatment of multi-drug resistant *Pseudomonas aeruginosa* keratitis with intrastromal amikacin

Aurora Wang[1]

Aaron Ng[2], Hugh Morton[3]

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Case: We report a case of a 77-year-old female contact lens wearer with multi-drug resistant *Pseudomonas aeruginosa* keratitis in the left eye leading to endophthalmitis and requiring treatment with intrastromal amikacin. This patient presented with a 2x2 mm central corneal abscess, 4x4 mm epithelial defect, and visual acuity of 6/36. She was commenced on ciprofloxacin drops. *P. aeruginosa* was cultured that was resistant to fluoroquinolones and gentamicin, sensitive to piperacillin/tazobactam and amikacin, and potentially sensitive to meropenem and ceftazidime.

Without immediate availability of meropenem and ceftazidime 5% drops, ciprofloxacin drops were continued. Within two days, the abscess worsened to 3x3 mm with a 5x4 mm epithelial defect and 2mm hypopyon, but no vitritis. Ceftazidime 125 mg was injected subconjunctivally.

Due to poor response, treatment was switched to amikacin 2.5% drops. The posterior stromal abscess persisted because of the amikacin drop's poor ocular penetration, and endophthalmitis developed after two weeks. Literature search and a national enquiry via hospital medicines management identified a German publication on a corneal abscess in a corneal graft. Consequently, our patient had an intrastromal corneal injection of amikacin 0.1ml of 2.5mg/ml, and intravitreal injections of amikacin 0.4 mg in 0.1ml and vancomycin 2mg in 0.1ml.

Intrastromal injection of amikacin successfully addressed the corneal abscess. Unfortunately, the patient developed a Grade 3+ nuclear cataract and acuity remains impaired at light perception. Significant endophthalmitis also resulted in a rapid afferent pupillary defect.

This is the first reported case of intrastromal amikacin use in the UK, and such treatment is worth considering in multi-drug resistant *Pseudomonas*.

Pathophysiology of the choriocapillaris

Phil Luthert

Edward Adams

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Report: The choriocapillaris provides essential blood flow to the outer retina. In this report we describe use of a combination of histological approaches, including block face 3D electron microscopy and microCT, to further characterise the anatomical organisation of the choriocapillaris. We also present results of computational modelling that addresses what the functional consequences of choriocapillaris atrophy might be. Results include apparent shrinkage of choriocapillaris endothelial cell profiles and the predicted impact of these changes on choriocapillaris – RPE / inner segment metabolite exchange. We also explore the possibility that these changes may be homeostatic in some instances and pathology-inducing in others. We conclude that the choriocapillaris presents an important target for the treatment of age-related disorders of the back of the eye including age-related macular degeneration and diabetic retinopathy.

Investigations of the laminocyte functional transcriptome in posterior vitreous detachment

Melanie Maranian[1, 2]

Thomas RW Nixon[1], Martin Howard[1, 2], Allan J Richards[1], Carole Sargent[2], Anton Enright[2], Martin P Snead[1]

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Background: Posterior vitreous detachment (PVD) is a relatively common event in the aging population, but it is not an inevitable consequence of aging. Whilst usually benign and causing few or minor symptoms in most individuals, it can also be a precursor to more serious secondary pathological conditions. Recent studies have identified a novel cell population (laminocytes) in the posterior hyaloid membrane which are present at low density in physiological, uncomplicated PVD, but at a much-increased density in patients with pathological PVD. The factors differentiating physiological from pathological PVD are poorly understood. Our study examines which cell-specific changes in the transcriptome may be of importance in pathological PVD.

Methods: Healthy and pathologically abnormal tissue and vitreous samples were collected from surgical procedures and total RNA was isolated. A next generation sequencing (NGS) library of 69 individuals with either physiological or pathological (five distinct phenotypes) was prepared and sequenced on a NextSeq 2000.

Results: Sequencing generated approximately 15-20 million reads per individual and differential gene expression analysis between pathological and sub-grouped pathological PVD is ongoing.

Discussion: We will present our findings of any differentially expressed genes specific to each phenotypic group. We will also discuss our plans for future work, involving the potential of single cell RNA-Seq (scRNA-Seq) of which the laminocyte is of foremost interest.

Tumour-associated retinal pigment epitheliopathy

Bertil Damato

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Objective: Introduction or background lipofuscin (orange pigment) is one of the five clinical signs of MOLES acronym and scoring system, which has recently been developed to help differentiate choroidal melanomas from naevi according to mushroom shape, orange pigment, large size, enlargement, and subretinal fluid.

The objectives of this study were to determine the prevalence of lipofuscin in melanocytic choroidal tumours and assess change over time.

Methods: The prevalence of lipofuscin was determined retrospectively in a cohort of patients attending an ocular naevus clinic with naevi and melanomas (Al Harby et al, 2021) and in 450 treated choroidal melanomas (Roelofs et al, 2020). Increase in lipofuscin was assessed in 99 choroidal melanomas that were observed before treatment (Roelofs et al 2020).

Results: Confluent lipofuscin was found in 0% of 131 naevi and 47% of 73 melanomas. The prevalence of confluent orange pigmented diminished from 64% to 40% and 13% in 53, 77 and 23 choroidal melanomas with thickness of <2mm, 2.1-4mm and >4mm respectively. In a cohort of tumours that were observed before treatment, lipofuscin appeared in 49% of 47 tumours without this pigment at presentation and in another 30 cases it increased from trace to confluent in 33%.

Conclusion or Discussion: Lipofuscin is a useful indicator of malignancy in small melanocytic choroidal tumours but is not always present, especially in large tumours. Optometrists and ophthalmologists managing patients with these conditions must have the skills and equipment to detect and monitor this clinical sign.

Amelanotic ciliary body mass

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Methods: A 74-year-old man was referred to ocular oncology by a glaucoma nurse for the incidental finding of an amelanotic intraocular mass before selective laser trabeculoplasty for raised intraocular pressure in the right eye. The patient had no history of systemic cancer.

Results: Examination revealed a supratemporal amelanotic ciliary body mass with sectoral cataract (5.3x6.8mm on ultrasound, no internal blood flow) and gonioscopy showed inferior displacement of the iris by an amelanotic lesion (not detected on ultrasound). The patient refused enucleation and the lesion was initially stable on follow-up. Eight months later however, there was documented growth of both the supratemporal and inferior ciliary body lesions as well as seeding in the anterior vitreous. Diagnostic vitrectomy and subsequent enucleation showed spindle cell melanoma, arising from the ciliary body with vitreous seeding and retinal invasion.

Conclusion: This case shows that clinicians should not be falsely reassured by the absence of internal blood flow on ocular ultrasound. There should be a low threshold for incisional biopsy or even primary enucleation if at least 50% of the ciliary body is involved.

Gallbladder melanoma metastasis from primary uveal melanoma in the absence of hepatic involvement

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Introduction: Metastatic melanoma of the gallbladder is a rare occurrence: post-mortem studies of disseminated cutaneous melanoma found gallbladder involvement in only 15%. Primary uveal melanoma (PUM) is more than 40x less common than cutaneous melanoma. PUM metastatic to the gallbladder has only been reported in the literature twice, in the absence of hepatic disease.

Methods: Retrospective case report, presentation of histopathology and review of the literature.

Results: 41-year-old white male patient, with a past medical history of treated PUM of the left choroid three years previously. During systemic surveillance, an incidental finding of a 12mm polyp at the neck of the gallbladder was detected. This had not been present on previous scans. The patient underwent diagnostic laparoscopic cholecystectomy. Histopathology revealed subepithelial deposits of melanoma with no in-situ disease, suggesting metastasis. Systemic screening and investigation detected a retroperitoneal nodule and sclerotic T9 vertebra but no other disease. Fluorescence in situ hybridization (FISH) showed monosomy 3 and gain of 8q in 86% of cells in the specimen, indicating likely uveal origin. Within 6 months, the patient developed further systemic metastases and died 10 months later.

Discussion: Metastatic PUM is strongly hepatotropic: In the absence of liver metastases, clinical suspicion of a uveal primary is low when investigating melanoma of unknown origin, even with a history of PUM. Although not universally present in all uveal cases, monosomy 3 and gain of 8q are not usually a feature of cutaneous or mucosal melanoma primaries. Genetic studies of melanoma metastases can help establish the primary, minimising invasive investigation for alternative sources.

Two uveal melanomas arise independently in the same eye

Sam Barlow[1,2]

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Introduction: Uveal melanoma (UM), is a rare disease affecting 4-6 adults per million annually. The majority of cases (~95%) arise in the choroid/ciliary body, while a small subset (5%) arise in the iris. Iris melanoma is generally diagnosed earlier than choroidal, as changes to the iris are usually more visible than those in the posterior chamber. Prognostic outcomes differ between the two types: iris melanomas have a 5-10 times lower mortality rate than choroidal melanomas; metastatic risk at ten years of ~9% and ~30%, respectively. Metastatic risk in UM is strongly linked to (nuclear) nBAP1 protein expression and chromosome 3 status.

Case: A 57-year-old female presented with a 5-week history of blurred vision of the right eye (RE). There was no history of trauma. On examination, her RE had corrected vision, 6/30, with normal IOP. The RE exhibited a large posteriorly-located choroidal mass with a serous retinal detachment. LE was normal. Following enucleation of the RE, histological examination revealed a nBAP1- choroidal melanoma of mixed cell type. It also showed a small well-circumscribed iris melanoma; not detected in clinical or macroscopic investigations. Believed to have arisen from a naevus, the iris melanoma was clearly distinct from the choroidal tumour, being of spindle cell type and showing nBAP1 expression. Microsatellite analysis demonstrated that the choroidal melanoma was monosomy 3, whilst the iris melanoma was disomy 3, in agreement with its nBAP1 positivity.

This case highlights a patient with two separate UM that are believed to have arisen independently as evidenced by nBAP1 and chromosome 3 status.

Unilateral visual loss after a car accident

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Background: The diagnosis of choroidal lesions is in most cases clinical and doesn't require biopsy. In particular, Doppler ultrasound can help differentiate choroidal hematoma from a neoplastic mass such as uveal melanoma or metastasis.

Methods: A 40-year-old Black male attended the A&E department for flashes and central shadow in his right eye following a car accident 2 weeks before. He had no history of cancer and was a non smoker. Visual acuity was 6/24. Fundus revealed a large amelanotic choroidal mass with inferior exudative retinal detachment (bi-lobed on ultrasound, diameter 18.5mm, thickness 5.7mm, internal blood flow). There was minimal right ptosis and restriction in lateral and upper gaze.

Results: There was documented growth of the choroidal mass over 3 weeks. Chest X-Ray showed a right lung lesion at the hilum and PET-scan was suspicious of a lung primary with bone metastases. Four weeks later the patient developed right neovascular glaucoma and underwent enucleation for pain. Histology confirmed the diagnosis of metastatic lung carcinoma with extraocular spread and no biopsy of the lung lesion was necessary. Genomics and PD-L1 expression on the globe helped with the choice of systemic treatment (crizotinib).

Conclusion: Internal blood flow on Doppler ultrasound is highly suspicious of ocular malignancy even in the context of trauma.

Conjunctival melanoma mimicking ocular surface squamous neoplasia - a case series

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Background: Conjunctival melanoma is the second most common conjunctival malignant tumour after squamous cell carcinoma.

Cases: We report four cases of conjunctival melanoma masquerading as ocular surface squamous neoplasia. All four patients (2 females and 2 males; mean age 60.7 years; range 41–72 years) had a perilimbal lesion. These were non-pigmented (cases 1 and 3) or mildly pigmented (cases 2 and 4), had a fleshy (cases 1, 2 and 4) or papillomatous (case 3) appearance and involved the corneal surface. In each case, our main clinical differential diagnosis included conjunctival intraepithelial neoplasia and squamous cell carcinoma. All four patients underwent an excisional biopsy with double freeze-thaw cryotherapy and alcohol keratoepitheliectomy. The histopathological diagnosis was of invasive conjunctival melanoma with extension to the deep surgical margins in each case. Adjuvant therapy consisting of strontium-90 β radiotherapy (all 4 patients) and topical Mitomicyn C (patient 2) was administered. We conclude that conjunctival melanoma can clinically resemble ocular surface squamous neoplasia and that caution is advised in starting empirical treatment without prior histopathological confirmation.

Solitary fibrous tumour of the orbit: A case study illustrating the management challenges

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Introduction: Solitary Fibrous Tumours (SFTs) are neoplasms of the mesenchyme that can be benign or malignant and may arise anywhere in the body. SFTs of the orbit are rare but pose a significant management challenge due to progression and risk of recurrence and metastatic spread.

Methods: A case study of a 47-year-old male with a left orbital SFT.

Results: Over the course of 5 years, our patient required multiple surgical interventions, culminating in orbital exenteration and adjuvant radiotherapy due to disease progression and risk of metastatic spread.

Discussion: Until recently, SFTs were known by multiple names including localised fibrous tumour, haemangiopericytoma and giant cell angiofibroma amongst others. This nomenclature evolved due to the anatomical and histological variability these tumours exhibit, features that bear resemblance to other soft tissue tumours and a lack of specific diagnostic tests. However, with recent advances, particularly the recognition of a common underlying genomic inversion at the 12q13 gene locus involving fusion of *NAB2* and *STAT6* genes, these tumours are now recognised as variants of a single entity, the SFT. This *NAB2-STAT6* fusion, now effectively pathognomic of SFT, additionally results in *STAT6* proteins being localised to the nucleus providing a highly specific biomarker on immunohistochemical analysis. Progress has also been made in risk stratification of SFTs. These advances aided diagnosis and helped guide the overall management of our patient. Drawing on available literature, this case study illustrates the potential challenges associated in managing orbital SFTs.

Nasal natural killer/T-cell lymphoma with secondary ocular involvement: A diagnostic challenge

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Background: Natural-killer/T-cell lymphomas (NKTL) are exceptionally rare, highly aggressive lymphomas with a poor prognosis. NKTLs typically involve the nasal cavity but can lead to ocular complications.

Case report: A 75-year-old male presented with a 1-year history of left vision loss and painless floaters. There was no history of trauma. His previous history included hypertension, Barrett's and coeliac disease. On examination: vision in the left eye (LE) was hand-movements; there were cells in the anterior chamber and a dense vitritis with no fundal view. The RE was normal. Left eye cataract-removal with vitrectomy was performed and a vitreous sample sent, which was non-diagnostic on cytology but EBV+ on PCR. CT chest/abdomen/pelvis and MRI brain/orbits revealed no significant abnormality. The LE became blind, painful and was enucleated. Macroscopic examination revealed grey/white retinal areas, which histomorphologically showed extensive epiretinal membranes with entrapped residual retinal outer nuclear cells and focally necrotic retina with chronic inflammation, comprising mixed B-and T-cells with macrophages. Special-stains were negative. IgH-PCR was polyclonal. Later the patient developed subretinal spots in his RE with drop in vision and biopsy of a PET-positive ethmoidal lesion was diagnosed as NKTL. Deeper levels of the LE enucleation revealed a focus of T-cells (CD3+; CD56+; GranzymeB+) with a high Ki67, and TCR-PCR was monoclonal. The patient was treated with right intravitreal methotrexate and received systemic chemo-radiotherapy.

Conclusions: The case highlights the diagnostic difficulty of this tumour given its rarity, rapid progression and ability to mimic other disorders. A multidisciplinary approach is required to optimally manage ocular and systemic manifestations.

A Cloudy cornea

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Introduction: Corneal dystrophies are a group of hereditary, often progressive, corneal disorders which is usually characterised by accumulation of abnormal material in the cornea.

Case report: A 59-year-old male noticed a gradual deterioration of left eye vision over 4 years in August 2020. His visual acuity was 6/5 (Left) and 6/5 (Right). A white lesion was noted on left cornea, encroaching the visual axis. He was seen by ophthalmologist in December 2020. His vision had deteriorated in the left eye to 6/18, 6/6 (Right). A left central epithelial corneal opacity was note. He underwent a left superficial keratectomy (alcohol delamination) in August 2021.

Histologically: Part of the surface epithelium demonstrates vacuolated cytoplasm. Transmission electron microscopy shows small cytoplasmic vacuolations around the basal and parabasal epithelial cells. These vacuoles increase in number and size progressively and coalesce within the surface epithelial cells.

The appearances are consistent with the Lisch epithelial corneal dystrophy (LECD).

Discussion: LECD is a rare X-chromosomal dominant corneal dystrophy mapped to Xp22.3. However, the candidate gene remains unknown. Both males and carrier females are affected equally. The main characteristic of this disease is bilateral or unilateral multiple tiny cysts forming gray band-shaped, feathery or whorled opacities. This usually begins in childhood with slowly progressive and painless reduction in vision which may occur in late adulthood.

Epithelial delamination may offer a temporary improvement in vision but the opacities may recur within months.

As the causative gene remains elusive, further molecular study is required in order to better understand this entity.

Atypical presentation of paraproteinaemic keratopathy

Nick Stanojcic

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Objective: To report an atypical presentation of corneal paraproteinaemic keratopathy (PK).

Introduction/Background: PK has classic clinical and histopathological features. Clinically it can mimic a plethora of ocular and systemic conditions and it has multiple pathologic features. There are characteristic ultrastructural patterns of immunoglobulin deposition in keratocytes, conjunctival fibroblasts, limbal vascular endothelium and the stroma.

Methods: Our clinical investigations included high-resolution digital slit-lamp photographs, corneal tomography, optical coherence tomography and in-vivo confocal microscopy (IVCM). Pathologic investigations included immunohistochemical and immunofluorescent techniques and proteomic analysis.

Results: A 67-year-old male presented with bilateral reduced vision and posterior corneal opacification/endothelial guttae. Posterior corneal lamellar grafts failed to restore corneal clarity. Bilateral full-thickness corneal transplants, although initially clear, developed haze/opacification, which was not oedema. IVCM revealed wide-spaced keratocytes and no features typical of PK. Pathologic investigations of the left corneal button revealed scattered stromal eosinophilic fusiform deposits that stained bright red with Masson's trichrome but were Congo red negative. Immunostaining for kappa and lambda light chains along with IgG, IgM and IgD heavy chains was performed but there was no specific staining corresponding to the hyaline deposits seen with Haematoxylin & Eosin staining. Proteomic analysis excluded amyloid signature proteins but revealed presence of immunoglobulin heavy chains and kappa light chains (constant and variable region).

Conclusion/Discussion: Although corneal/conjunctival paraprotein deposition is rare, it almost always suggests systemic disease and requires urgent systemic work-up and management. Although our basic histological immunostaining did not reveal presence of paraprotein, specialist proteomic analysis in national amyloid centre confirmed its presence.

Looks like a conjunctival melanoma, but is it?

Hardeep Singh Mudhar[1]

Soma Rani Roy[2], Murtuza Nuruddin[2], Fahmida Hoque[2]

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Case: A 60-year-old Bangladeshi male presented with a 2 year history of a left black limbal nodule at 4-o'clock, 3x2x2mm that was increasing in size, associated with conjunctival feeder vessels. Additional clinical features included surrounding limbal pigmentation consistent with racial pigmentation. The patient was systemically well.

Wide local excision of the tumour, double freeze cryotherapy of the conjunctival margins along with the application of Mitomycin C were performed and the bare sclera was covered by amniotic membrane.

Histopathology showed a nodular, well-defined nodular basaloid neoplasm with a retraction cleft between the tumour and stroma and nuclear palisading. In places, a superficial pattern of growth was evident, with tumour attached to the under surface of the conjunctival epithelium. The tumour contained mitotic figures and contained numerous pigmented dendritic melanocytes and melanophages. Melan A stained the dendritic melanocytes but not the basaloid cells. The latter were positive for broad-spectrum cytokeratins and BerEP4 and negative for EMA. The features were those of a primary conjunctival pigmented basal cell carcinoma. The talk will review previous reported cases and the differential diagnosis.

Trial by fire

Samantha Fonseca

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Background: The department of Eye Pathology sits at the Institute of Ophthalmology (IoO) and is part of National Specialised Ophthalmic Pathology Service (NSOPS). We receive about 5,000 specimens a year, mostly from Moorfields Eye Hospital.

NSOPS is comprised of 4 specialised histology ophthalmic centres: London, Sheffield, Liverpool, and Manchester.

Incident: In October 2021, there was a fire at the IoO above the department of Eye Pathology this led to the laboratory areas in the department being unsafe for staff to work in.

Response: UCL Estates promptly started working with the department to resolve the issue. In the meantime, we had to action our contingency plan to ensure that specimens were processed, and delays minimised.

Our contingency plan was to send specimens to other NSOSPS centres.

Reflection: Although the NSOPS teams, UCL and Moorfields were very helpful during this crisis, there were some challenges along the way, for example:

- Sending specimens across the country was demanding, we had to ensure couriers were available on both sides to deliver the specimens and slides in a timely manner.
- The BMS in the other centres had to be prepared to deal with unknown and variable specimens numbers.
- The information received from UCL Estates changed daily about when the lab would be available to use again.
- The electrics in the room where we tried to set up to process the samples could not cope with the amount of power the equipment required. The downdraft bench in the room had to be switched off for the processors to work, this led to fumes being too high in the area to work safely.

Conclusions: After the event we realised that contingency plan required a few improvements:

- A more detailed NSOSPS contingency plan needs to be put in place which utilises the lessons learnt from this incident.
- The department should consider having a closer geographical partner where staff can be decanted to if necessary, this would minimise risks with specimens' transit and diminish delays in reporting.

Ocular surface impression cytology: Applications, limitations and controversies

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Impression cytology (IC), as a simple, fairly rapid, and minimally invasive outpatient-based method provides a cytological proof for the diagnosis of a wide variety of ocular surface disorders. By using IC, many ocular complications induced by repeated surgical biopsies, such as scarring, lid deformity, and limbal stem cell deficiency can be avoided. Therefore, IC as a reliable diagnostic tool has been proved to substitute surgical biopsy for ocular surface lesions and to play an essential role in the diagnosis and management of patients with ocular surface lesions by discriminating malignant from benign lesions. Nonetheless, this technique is not yet a routine diagnostic tool and has a number of limitations and controversies in hypocellular or inadequate specimens, hyperkeratotic lesions, heavily pigmented lesions, and occasionally in Mitomycin C-treated ocular surface neoplastic lesions. To minimise these limitations and controversies, a high degree of expertise together with implication of complementary approaches in challenging cases is required. In this presentation, in addition to presenting the applications and limitations of IC for the diagnosis of ocular surface disorders, its potential role in the clinical research will be highlighted.

Rituximab for Mooren's ulcer – A clinicopathological report

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The management of the young onset bilateral Mooren's ulcer is a challenging clinical condition that often leads to irreversible blindness. In this case presentation, we describe the immunomodulatory strategy that led to successful control of ocular inflammation and preservation of vision. The peculiar histological characteristics of the type of acute peripheral corneal inflammation without scleritis will be described and discussed in this joint presentation.

Pathology & genetics of corneal dystrophies

Dr **Caroline Thaung**, FRCOphth FRCPath DPhil
Consultant Ophthalmic Pathologist, Moorfields Hospital and University College London (UCL), London, UK

Caroline Thaung FRCOphth FRCPath DPhil has been a Consultant Ophthalmic Pathologist at Moorfields Eye Hospital since 2009. She works within the Department of Eye Pathology, UCL Institute of Ophthalmology, London, one of the four English laboratories within the National Specialist Ophthalmic Pathology Service.

Caroline graduated from Glasgow medical school, and worked in Ophthalmology in Glasgow before undertaking her DPhil in Ophthalmology in Oxford. Her doctoral work was performed at the MRC Mammalian Genetics Unit, Harwell, on the topic of mouse models of inherited eye disease. Caroline then trained in Histopathology in Manchester before moving to London. She is keen to integrate understanding of ophthalmic pathology into clinical care and posts educational topics on her website at https://eyepathlondon.com as well as on Twitter @eyepathlondon. She is a longstanding member and former Secretary of the British Association for Ophthalmic Pathology.

Professor David Easty Annual Lecture: SARS-CoV-2 and the eye

Professor **James Chodosh**, MD MPH
Edith Ives Cogan Professor of Ophthalmology, Harvard Medical School, Boston, USA

James Chodosh, MD, MPH is the Edith Ives Cogan Professor of Ophthalmology, Harvard Medical School (HMS) and Massachusetts Eye and Ear (an HMS affiliated hospital). He serves as Vice Chair for Education, Director of Diversity and Inclusion, Associate Director of the Cornea and Refractive Surgery Service, Associate Director of the Infectious Disease Institute, Director of the Ocular Burn Service, and Director of Boston Keratoprosthesis. He is also a member of the HMS PhD Program in Virology, and is the senior author for the American Academy of Ophthalmology web pages on COVID-19, which garnered over 1.5 million views.

He completed his residency in Ophthalmology at Baylor College of Medicine, clinical fellowship in Corneal Diseases at the Bascom Palmer Eye Institute, postdoctoral research fellowship in Virology & Molecular Biology and Infectious Diseases at St. Jude Children's Research Hospital, and Masters of Public Health degree at the University of Oklahoma. He served as Chair of the Anterior Eye Disease NIH Study Section, on the National Advisory Eye Council for the NIH, and is currently Chair of the FDA Dermatologic and Ophthalmic Drugs Advisory Committee. Dr. Chodosh has published over 360 peer reviewed papers and book chapters, and was co-Editor-in-Chief of the British Journal of Ophthalmology. He is a recipient of the Alcon Research Institute Award, and four awards from Research to Prevent Blindness. A dedicated teacher with many teaching and mentorship awards, he has personally trained over 70 clinical cornea fellows, and mentored over 20 medical students under-represented in medicine. He is internationally known and respected for his work on viral genomics and pathogenesis, and on development and use of the Boston keratoprosthesis for severe corneal blindness. His basic research program on adenovirus pathogenesis and evolution has been continuously funded by the NIH since 1996, and his current funding runs through 2026. He also invented and patented a new, low-cost keratoprosthesis, the "Lucia", to address blindness in low resource countries. His primary clinical interests include infectious eye disease, ocular chemical injury, Stevens Johnson syndrome, and the restoration of seemingly hopeless cases of corneal blindness with the Boston keratoprosthesis. He is dedicated to improving the quality of life for every person with vision loss, and particularly those who may be otherwise underserved, and to growing diversity, equity, and inclusion in his profession of Ophthalmology and in healthcare systems at large.

We look forward to seeing you in Edinburgh for the 2023 BAOP meeting!