ABSTRACTS

SUB-GROUP MORNING

Ocular Trauma

CHALLENGES OF COMPLEX EYE TRAUMA IN A SOUTH AFRICAN MINING ENVIRONMENT [1]

Visser K

This is a video case presentation of a 56 year old male who suffered bilateral blast injuries resulting in only light perception vision both eyes as a result of totally opaque corneas (innumerable rock chips), corneal and scleral lacerations, cataracts, vitritis, multiple intraocular foreign bodies and retinal detachment.

He underwent bilateral pars plana vitrectomy with the aid of temporary keratoprostheses, lensectomy, removal of multiple intraocular foreign bodies, right retinal detachment repair and bilateral corneal transplant in one sitting per eye. Corrected visual acuity after one year 6/9 both eyes.

OPHTHALMOLOGY PROGRAMME

SESSION 2B

Registrar Session

THE RELATIONSHIP BETWEEN ENDOTHELIAL CELL COUNT, CENTRAL CORNEAL THICKNESS AND INTRAOCULAR PRESSURE IN DIFFERENT ETHNIC GROUPS IN THE WESTERN CAPE, SOUTH AFRICA [2]

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AIMS: To establish if differences in endothelial cell count could account for the differences in intraocular pressure and central corneal thickness in the different ethnic groups.

METHODS: A prospective, quantitative, observational, analytical, cross sectional study was conducted between January 2019 and December 2021 after obtaining institutional ethics committee approval (Ref. no. #: S18/10/277). We enrolled 373 patients of which 116 self-identified as native African, 157 as Mixed race and 100 as Caucasian. Intraocular pressure (IOP; mean of 6 readings) was measured using an Icare PRO tonometer (Icare, Vantaa, Finland), central corneal thickness (CCT) was measured using the Oculus Pentacam (Oculus Wetzlar, Germany) and endothelial cell count (ECC) was determined using a Specular microscope (Nidek, Japan).

RESULTS: No significant difference was found in the IOP of the various groups (African – mean IOP 15.7 ± 2.2 mmHg, Mixed race – 15.8 ± 2.2 mmHg , Caucasian 16.0 ± 2 mmHg, p=0.48). However, when the IOP was corrected for the CCT, the mean cIOP was 17,5 ± 2.3 mmHg (African), 17 ± 2.2 mmHg (Mixed race) and 16,5 ± 1.8 mmHg (Caucasian). There was a significant difference in cIOP between the African and Caucasian group (p= 0.004) but not between the African and Mixed race group (p=0.277) or between the Caucasian and Mixed race group (p=0.148). However, a trend was noted that the African cIOP was the highest, the Caucasians the lowest and mixed race between the African and Caucasian.

Mean CCT was 503 ± 30 µm (African), 517 ± 31 µm (Mixed race) and 539 ± 34 µm (Caucasian). The difference in mean CCT was significant between the various ethnic groups (p<0,002 for all groups compared).

The mean ECC was 2775 ± 272 cells/mm² (African), 2678 ± 233 cells/mm² (Mixed race) and 2639 ± 313 cells/mm² (Caucasian). These differences in mean CCT were significant between the African and Caucasian groups (p=0.001) as well as between the African and Mixed race groups (p=0.01).

Conclusion: The ECC was found to be the highest in the African group and this correlated with the lowest CCT and highest corrected IOP. Conversely, the Caucasian group demonstrated the lowest ECC, the highest CCT and the lowest corrected IOP.

The Mixed race group demonstrated ECC, CCT and cIOP values between those of the African and Caucasian groups. These findings show that ethnicity does influence these three variables and genomic research is required to determine if these differences rest on a genetic basis.

PREVALENCE, SEVERITY AND QUALITY OF LIFE ASSESSMENT IN PATIENTS WITH THYROID ASSOCIATED OPHTHALMOPATHY IN A SOUTH AFRICAN THYROID CLINIC [3]

De Vasconcelos, S
UCT

BACKGROUND: Thyroid-associated ophthalmopathy (TAO) is a common and debilitating manifestation of Graves' disease (GD) which is associated with poor clinical outcomes including impaired quality of life and socio-economic status. Data on TAO in Africa is scarce and unavailable in the South African population.

OBJECTIVES: Primary study objective was to determine the prevalence and severity of TAO among GD patients, with a secondary objective to assess TAO patients quality of life.

METHODS: This is a descriptive cross-sectional study of 204 GD patients attending a thyroid clinic at *[deleted to maintain the integrity of the review process]*, South Africa. Participants were evaluated for TAO activity and severity according to the European Group on Graves' Orbitopathy (EUGOGO) criteria. Quality of life (QoL) was assessed using the TED-QoL questionnaire composed of 3 simplified questions.

RESULTS: 204 patients were recruited, the TAO prevalence was 59.8%. The majority of TAO patients were female (n=174; 85.3%) with mild disease (n=73; 59.8%). Based on severity score alone, moderate to severe disease (n=41; 33.6%) and sight threatening disease (n=8; 6.6%) were identified and referred for further ophthalmological intervention. There was a statistically significant increase in the QoL score with an increase in severity score. (p-value<0.050)

CONCLUSION: The prevalence of orbitopathy is found to be higher than that reported in studies from other parts of the world, but our severity distribution is similar. A prospective study would help to better define the natural history of TAO in an African population. 40.2% of the patients with TAO required referral for further ophthalmological assessment and intervention based on their severity score alone. This study emphasises the importance of evaluating severity as well as the psychosocial aspect of TAO in Graves' disease to allow for the identification of and adequate interdisciplinary management of patients with TAO. Early detection is key to better outcomes and as such the assessment of each thyroid patient should include not only a clinical activity score (CAS) but also the severity score and a QoL questionnaire to improve patient outcomes.

CORRELATION BETWEEN CORNEAL ENDOTHELIAL CELL DENSITY AND PTERYGIUM SIZE IN PATIENTS WITH A UNILATERAL PTERYGIUM AT ST JOHN EYE HOSPITAL IN SOWETO: PRELIMINARY RESULTS [4]

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University of Witwatersrand

OBJECTIVES: The aim of this study is to assess the correlation between endothelial cell density (ECD) and pterygium size in patients with a unilateral pterygium at St John Eye Hospital, Soweto. Due to the effects that pterygia may have on corneal endothelial cell parameters, it is important to investigate the effect that it has in our population to assist in better planning for intraocular surgery, corneal transplantation and refractive procedures which could further damage endothelial cell health, as well as to highlight the need to address endothelial protection prior to the use of endothelial toxic agents.

DESIGN AND METHODS: A cross sectional observational comparative study was conducted on 100 patients with a unilateral primary pterygium who attended the St John Eye Hospital In Soweto, Johannesburg between August 2021 and August 2022 to assess corneal endothelial cell density, coefficient of variation, index of hexagonality and central corneal thickness using a non-contact specular microscope (Tomey EM-4000). The healthy eye (without a pterygium) of a patient was considered as a control.

RESULTS: One Hundred patients were included in the study. Patients were aged between 18 and sixty years old, with primary pterygia. There was a statistically significant reduction in the mean corneal endothelial cell density (cells/mm) as well as a difference in the coefficient of variation, index of hexagonality and central corneal thickness between the pterygium eyes and control eyes.

CONCLUSION: Eyes with a pterygium were associated with a significant reduction in corneal endothelial cell parameters compared to the contralateral control eyes.

ENDOPHTHALMITIS AT JOHANNESBURG ACADEMIC HOSPITALS: A DESCRIPTIVE STUDY [5]

Ebrahim MY & Makgotloe A
University of the Witwatersrand

PURPOSE: To describe the clinical features as well as the causative organisms of patients presenting with endophthalmitis at three academic hospitals affiliated to the University of the Witwatersrand.

DESIGN & METHOD: A case series of all cases of endophthalmitis notified to the department of Ophthalmology at the University of the Witwatersrand from January 2011 to December 2019.

RESULTS: Fifty-two patients fulfilling the inclusion criteria were analysed. The mean age was 49.8 years (SD-5.33). Majority were males, accounting for 51.9%(n-27). Males had a significantly higher prevalence (93.7%, $p<0.05$) in trauma-related endophthalmitis. The commonest cause of endophthalmitis was cataract surgery-related (36.5%) followed by trauma-related (34.6%) and intravitreal injection (19.2%). The frequency of clinical signs were: Conjunctival hyperemia- 50%; ocular pain- 59%; Hypopyon- 55.8%, anterior chamber fibrin- 59.6%; Vitritis- 71.2%. The commonest organisms cultured in positive specimen were staphylococcal species (27.2%) followed by streptococcal species (18.1%); Of the specimen analysed, 45.4% were culture-negative for bacterial growth.

CONCLUSION: The commonest cause of endophthalmitis in our series was cataract surgery-related and the commonest organisms cultured from vitreous sampling specimens of patients with endophthalmitis was staphylococcal species.

A COMPARISON OF REBOUND AND APPLANATION TONOMETRY IN ANAESTHETIZED CHILDREN WITH AND WITHOUT PRIMARY CONGENITAL GLAUCOMA: A CROSS SECTIONAL COMPARATIVE STUDY [6]

Kruger H, Naidu N, Ally N & Mayet I
University of the Witwatersrand

OBJECTIVES: To investigate the difference between the change in intraocular pressure (IOP) measurements using rebound tonometry (Icare® TAO1i) and handheld applanation tonometry (Perkins / PAT) in patients with primary congenital glaucoma (PCG) and a control group without PCG whilst undergoing standardized anaesthesia.

DESIGN & METHOD: Patients were anesthetized using a standardized protocol consisting of Sevofluarane induction and a ketamine bolus of 2mg/kg and a titrated ketamine infusion not exceeding 4mg/kg. Measurements were done at three timed intervals at 0 minutes, 5 minutes and 10 minutes after the gas was switched off. The order of measurements was consistent, using rebound tonometry first, followed by applanation tonometry with the patient's head turned to the side. A paired t-test was used to test the difference of the change between the ICare® and Perkins tonometers between the two groups. Corneal pachymetry and corneal diameters were measured in addition to IOP.

RESULTS: IOP was measured in 18 patients with PCG and 46 patients without PCG. The mean age ± standard deviation of patients was 3.2 ± 2.25 years in the PCG group and 4.8 ± 2.41 years in the non-PCG group. Corneal pachymetry was 579.44 µm in the PCG group and 518.31 µm in the non-PCG group.

The overall difference between the difference in IOP measured with the Icare® and PAT at 10 minutes after sevoflurane was switched off was 9.05 mmHg (95% CI 2.6 – 15.5) p=0.01. Between groups, the IOP difference between the devices at 10 minutes after sevoflurane was switched off were found to be 11.39 mmHg (95% limits of agreement -13.7 – 36.5) in the PCG group and 2.33mmHg (95% limits of agreement -4.1 – 8.9) in the non PCG group.

Multivariate analysis revealed that IOP measured in the PCG group was consistently lower over 3 measurements by 17.19 mmHg (95% CI -22.4 – 11.9). IOP was significantly related to corneal pachymetry, with 5 mmHg increase in IOP for every 100 µm change in corneal thickness.

CONCLUSION: In this study, IOP measurements done with rebound tonometry in children with and without PCG were overestimated compared to handheld Perkins Applanation tonometry. This difference was amplified in PCG patients compared to non-PCG patients. In addition, IOP was significantly related to corneal thickness. Based upon this study's results, we can recommend that care should be taken when measuring IOP with rebound tonometry in children with PCG.

THE OUTCOMES OF INTRA-ARTERIAL CHEMOTHERAPY IN RETINOBLASTOMA: A SOUTH AFRICAN PERSPECTIVE [7]

Linde L & Mustak H,
University of Cape Town

OBJECTIVES: To describe the clinical outcomes and complications of retinoblastoma treated with super-selective ophthalmic artery chemosurgery, within a South African context.

DESIGN & METHOD: A retrospective review of retinoblastoma treated with intra-arterial melphalan, with or without topotecan, at a single institution over eight years. The modern microcatheter technique was employed. Our treatment protocol included both treatment-naïve and previously treated eyes. The primary outcome was tumour response (specifically globe salvage, recurrence, and patient survival), with or without requirement of further treatments. Secondary outcomes were procedural success, as well as ocular and systemic adverse events.

RESULTS: We treated 25 eyes, with a median follow-up of 47 months. Globe salvage was possible in 72% of cases overall. Additional treatment modalities were required in 52% of cases. There was a recurrence rate of 20% and a patient survival rate of 92%. Procedural success was achieved in 94% of cases. Ocular adverse events occurred in 52% of cases, but no eyes were enucleated as a consequence thereof. Systemic adverse events included mild neutropaenia. There were no severe systemic complications.

CONCLUSION: Our globe salvage rates are comparable to published literature for intra-arterial chemotherapy in primary and salvage therapy cases. Recurrence

occurred predominantly in salvage therapy cases. The metastatic death rate was not higher than with conventional treatment methods.

THE IMPACT OF THE COVID-19 PANDEMIC ON OPHTHALMIC SURGERY AT A TERTIARY HOSPITAL IN SOUTH AFRICA: A RETROSPECTIVE COMPARATIVE ANALYSIS [8]

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University of the Witwatersrand

OBJECTIVES: To quantify the effect of the COVID-19 pandemic on the number of ophthalmic surgeries performed at a large academic eye hospital in South Africa.

DESIGN & METHODS: A retrospective comparative analysis of eye surgeries one year pre- and post- onset of the COVID-19 pandemic (27th March 2019- 26th March 2021). Theatre surgical records were analyzed one-year pre-COVID-19 and the first COVID-19 year beginning with the lockdown. All surgical procedures were noted and subcategorized into cataract, cornea, glaucoma, oncologic, orbital/ oculoplastic, strabismus, trauma, vitreoretinal and other. Trauma surgeries occurring in the post pandemic year were further analyzed based on the level alcohol restriction.

RESULTS (provisional): Total surgeries performed decreased from 3367 to 1454; ($P < 0.001$). Using multivariate analysis, the incidence ratio (IRR) for all surgeries during the pandemic was 0.48 ($P<0.001$) with a significantly reduced IRR during the first wave of 0.42 ($P<0.001$) and a non-significant change during wave two; IRR 1.25 ($P= 0.39$). All surgical subgroups decreased significantly except oncology which decreased from 178 to 155; ($P= 0.2$). A significant decrease in trauma surgery during periods of total and partial alcohol ban was found with an IRR of 0.43 ($P< 0.001$) and 0.65 ($P<0.001$) compared to periods without the ban.

CONCLUSIONS: During the first year of the COVID-19 pandemic in South Africa, the total number of surgeries decreased as well as the number of cases in all subspecialties except oncology. Alcohol restrictions significantly decreased the trauma burden.

CXCL13, CXCL10 AND CXCL8 AS INDICATORS OF OCULAR AND NEUROLOGICAL INVOLVEMENT IN PATIENTS WITH OCULAR SYPHILIS: AN OBSERVATIONAL DESCRIPTIVE STUDY [9]

Van der Merwe LW, Snyders C, Kidd M, Walzl G, Chegou NN & Smit DP
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OBJECTIVE: To investigate the role of the chemokines CXCL13, CXCL10 and CXCL8 in the diagnosis of ocular- and neurosyphilis by examining the serum, aqueous humour (AH) and cerebrospinal fluid (CSF) of patients with ocular syphilis.

DESIGN AND METHOD: An observational descriptive study was performed prospectively at Tygerberg Academic Hospital in Cape Town, South Africa from 1 February 2018 till 31 January 2021 which enrolled 23 participants. 14 Patients were male and 9 female, 15 patients were HIV positive, and all patients were newly diagnosed with ocular syphilis. Upon diagnosis of ocular syphilis, the HIV status of each patient was determined, and 3 samples (AH, serum and CSF) were collected to measure the levels of CXCL13, CXCL10 and CXCL8 in each. All patients were treated with 14 days of intravenous Penicillin G and topical corticosteroid drops for uveitis.

RESULTS: The mean concentrations of all 3 biomarkers were higher in the AH and CSF than in the serum. The mean concentrations of the 3 measured biomarkers were markedly different when comparing both AH and CSF levels to serum levels. The level of CXCL13 measured in the AH correlated well with the concentrations found in the CSF of patients with neurosyphilis.

In patients with neurosyphilis, mean AH levels of CXCL13 and CXCL10 were markedly higher than in serum while mean CSF levels of CXCL10 were also markedly higher than in serum. Also, the AH/serum ratio of CXCL13 and CXCL10, as well as the CSF/serum ratio of CXCL10, was much higher in patients with neurosyphilis than without.

In patients with HIV infection, mean AH CXCL13 levels were much higher than in patients without HIV infection.

CONCLUSION: The levels of CXCL13, CXCL10 and CXCL8 in the AH of patients with neurosyphilis are similar to previously reported levels in the CSF of patients with neurosyphilis and can potentially be an adjunct in the diagnosis of ocular syphilis. Patients with ocular syphilis who tested negative for neurosyphilis with conventional CSF testing showed features of neurosyphilis when analysing the CSF chemokines.

SPECTRUM OF GLAUCOMATOUS DISEASE AT CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL (CMJAH): A RETROSPECTIVE CLINICAL AUDIT [10]

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OBJECTIVES: The aim of my study is to describe the demographics and spectrum of glaucomatous disease in a dedicated glaucoma clinic in a large tertiary academic hospital in Johannesburg. Additionally, the risk factors, severity of glaucoma and how the disease is being managed will also be looked at. The findings will be compared to existing population studies on the epidemiology of glaucoma in South Africa and will demonstrate the large burden glaucomatous disease is placing on the health care system.

DESIGN & METHOD: A retrospective descriptive study auditing patient records from the Charlotte Maxeke Johannesburg Academic Hospital glaucoma clinic Redcap database. 748 records from 01/01/2016-31/12/2020 will be looked at. All patients on the database have signed consent for inclusion of their data in the database and ethics for the database and study have been obtained.

RESULTS: Glaucoma can be classified into open or closed angle glaucoma as well as divided into primary and secondary subtypes. There are well described risk factors for the development of glaucoma including ethnicity, age, sex, family history and elevated intraocular pressure. Management options for the treatment of glaucoma include medical, laser treatment and surgery all targeted at reducing intraocular pressure. Primary open angle glaucoma is the most prevalent type of glaucoma amongst black South Africans which is like population-based studies. The commonest form of secondary glaucoma is exfoliation glaucoma. The prevalence of blindness secondary to glaucoma is higher and severity of glaucoma worse than in other studies. Predominate management of glaucoma is medical.

CONCLUSION: Glaucoma is a significant cause of blindness amongst South Africans, presenting in younger patients with more severe disease. The management thereof is placing a large burden on the healthcare system.

SESSION 3A
Surgical Retina

EPIRETINAL MEMBRANE: INVESTIGATING POST-OPERATIVE CYSTOID MACULAR OEDEMA [11]

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Retina Surgery Centre

OBJECTIVES: To evaluate the problem of post operative cystoid macular oedema after vitrectomy for epiretinal membranes.

DESIGN & METHOD: A retrospective OCT and demographic review of patients operated for epiretinal membrane during a one year period with emphasis on short term or chronic cystoid macular oedema.

RESULTS: Qualitative assessment of OCT appearance and demography, to be presented.

CONCLUSION: Epiretinal membrane peeling can improve visual acuity in patients. The complication of cystoid macular oedema causes post operative frustration and disappointment for both doctor and patient. Understanding the predictive factors and appropriate pre operative explanation can allow better pre operative counselling and post operative management.

PROSPECTIVE RANDOMIZED TRIAL TO EVALUATE SAFETY OF THE EVA NEXUS SURGICAL PLATFORM [12]

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OBJECTIVES: The EVA Nexus system offers several technical improvements. The Aveta canula system is ergonomically improved and omits the need for removal of the valve from the infusion canula. The new EquiPhaco needles in combination with SmartIOP provide excellent anterior chamber stability enabling surgeons to work at lower infusion pressures –and multiburst phaco mode to remove hard cataracts.. The active infusion system offers monitoring of flow rate / reflux and warns in case of risk of empty infusion bottle. This study is to evaluate whether these technical improvements results in improved surgical safety.

DESIGN & METHOD: In total, 250 eyes were prospectively included that underwent vitrectomy (53%) or phaco-vitrectomy (47%) using the EVA Nexus system. In all surgical reports, both surgical complications and device deficiencies were recorded. The occurrence of these intra-operative adverse events was compared to historically operated eyes.

RESULTS: The average age of the patients was 63 years, 33% were operated for retinal detachment, 17% for macular pucker, 11% to treat floaters, 9% silicone oil removal, 8% macular hole and 22% for other diseases. Surgery was done mostly under general anesthesia (86%) using 23G instruments in 75% of cases, 25% using

27G instruments. In case of combined phaco-vitrectomy, 85% of patients received a monofocal IOL, 15% had an EDOF IOL implanted. In 21%, suturing of the sclerotomy was performed (almost 100% in case of silicone oil removal). Device issues that occurred were priming cycle issues (n=4), eye pressure stability problems (n=6) and vitrectome performance issues (n=1). All these events occurred in the first 100 patients that were included, and were fixed with software updates. Device usability improvements included fewer canula losses, empty infusion bottle occurrences, irrigation problems (infusion line disconnection and air bubbles) were recorded. Surgical complications recorded in the anterior segment were: capsule zip / tear, iris prolapse, vitreous prolapse and dropped nucleus. All occurred rarely and less frequently compared to historically recorded surgical reports. Intra-operative events in the posterior segment recorded were hemorrhage from retinal vessel, choroidal hematoma, iatrogenic retinal damage/tear, subchoroidal infusion. Again, these events occurred rarely and less frequently than recorded in historical surgical reports.

CONCLUSION: The EVA Nexus with an active infusion system and smart IOP management provides a safe surgical platform which reduces the incidence of intra-operative adverse events and iatrogenic complications, both in anterior and posterior segment surgery.

LONG-TERM CLINICAL EVALUATION OF RETINITIS PIGMENTOSA PATIENTS IMPLANTED WITH A NOVEL EPIRETINAL PROSTHETIC DEVICE [13]

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OBJECTIVES: A novel autonomous infrared powered epiretinal prosthetic device with intra-retinal penetrating electrodes, the NR600, has now been implanted in end-stage Retinitis Pigmentosa patients as part of an ongoing multi-center clinical study. The technology uses a unique anchoring system in which the electrode array interfaces the retina exclusively, while the fixation points are in the ciliary sulcus, thus avoiding retinal risks and damage. A designated delivery system was developed for safe administration of the entire system into the eye in a folded state, protecting both the electrodes and the ocular structures, as well as facilitating the procedure and rendering it more robust. A phase 1 prospective clinical trial was designed to test the safety of the device.

DESIGN & METHOD: The NR600 Implant System is delivered into the eye through a limbal incision and is fixed to the ciliary sulcus. Once the system is secured in the anterior segment, the helical structure holding the device is released and the implant is guided to its pre-defined retinal site.

RESULTS: Nine patients were implanted to date and all tolerated the procedure well, demonstrating good and fast recovery. Adverse events included mild corneal edema, elevation in intra-ocular pressure and mild scleritis. All adverse events were responsive to medication and transient. Long-term clinical follow up of over a year demonstrated that the helix kept the device at the implantation site, the fundus remained clear with no evidence of fibrotic reaction, and the implant surface as well as the helix stayed free of tissue debris or sedimentation. OCT images showed no

thinning or morphological changes to the retina in the vicinity of the implant, with only slight tissue elevations immediately adjacent to the implant in some cases. Patients who had bare or no light perception prior to the implantation were able to identify figures and discriminate between objects, and displayed good orientation and mobility skills with the NR600 system using ultra low stimulation thresholds (6.5±2.5µA) across all patients.

CONCLUSION: The results corroborate the good safety outcome of the preclinical study and confirm the advantages of this surgical approach of building on familiar procedures of IOL fixation and of conducting the majority of the surgery in the anterior segment, away from the retina. Furthermore, the results of the study show positive efficacy for otherwise blind patients.

SESSION 4A
Ocular inflammation

INTRAOCULAR INFLAMMATION AS THE MAIN MANIFESTATION OF RICKETTSIA CONORII (TICK BITE FEVER) INFECTION [14]

Uys E
Pietermaritzburg Eye Hospital; Pietermaritzburg

OBJECTIVE: To report a case of intraocular inflammation caused by *Rickettsia* infection, the clinical features and review of the published literature.

METHODS: *Rickettsia conorii* or *Rickettsia* spp. infection was diagnosed based on the following criteria: (1) positive serology according to the European Guidelines, (2) titer normalization after specific treatment, and (3) complete resolution of ophthalmic disease and accompanying symptoms after antibiotic therapy.

RESULTS: A 15 year old female patient presented with severe vision loss over a short period of time. She is from KZN where *Rickettsia conorii* is prevalent. The main symptom was painless loss of vision with subsequent eye lid swelling, eye redness, photophobia, and ocular pain. Predominant ophthalmic signs included phlebitis, choroiditis, vitritis, and exudative retinal detachment. All other causes of choroidal and retinal disease were excluded. The patient required antibiotic treatment that resulted in the remission of the infection. Doxycycline was the first choice and the only antibiotic used to treat this patient. Unfortunately the visual outcome was poor.

CONCLUSION: Intraocular inflammation can occur as the main manifestation of *Rickettsia conorii* or *Rickettsia* spp. infection. It should be considered as a differential diagnosis for uveitis especially for patients living in areas where this infection is endemic. Antibiotic treatment remains effective in the management of *Rickettsia* infection

THE DIFFICULT DIAGNOSTIC JOURNEY OF A DEVASTATING DISEASE: OCULAR SCHISTOSOMIASIS [15]

Snyman C, Seobi T, Rawjee K & Makgotloe A
University of Witwatersrand

OBJECTIVES: To describe a rare case of granulomatous panuveitis caused by Shistosomiasis

DESIGN & METHOD: A retrospective case report.

RESULTS: A 20-year-old male, from Zimbabwe, presented with bilateral granulomatous panuveitis complicated by uveitic glaucoma and a previous history of treatment for schistosomiasis. His right eye had an exudative macula-involving retinal detachment. His blood work-up revealed a significantly elevated Serum angiotensin converting enzyme (ACE) of 126 IU/L and a negative human immunodeficiency virus (HIV). He had hilar lymphadenopathy and pleural effusions on Chest X-ray. On systemic assessment he had liver cirrhosis associated with a positive IgG and IgM serology for schistosomiasis cercariae. His liver biopsy confirmed hepatic schistosomiasis. Sarcoidosis was considered unlikely, in view of a non-suggestive high resolution CT chest. Tuberculosis was excluded based on negative serology and sputum. A presumptive diagnosis of panuveitis caused by schistosomiasis was made and the patient commenced on praziquantel in collaboration with infectious disease specialists. An Ahmed glaucoma valve was inserted and pars plana vitrectomy attempted for the retinal detachment.

CONCLUSIONS: Schistosomiasis is a rare cause of uveitis and should be considered in the differential diagnosis of patients with idiopathic uveitis from schistosomiasis endemic areas.

SESSION 6A
Anterior Segment Surgery

CONTINUOUS TRANSITIONAL FOCUS IOL FOR PRESBYOPIA CORRECTION [16]

Holzer MP, Ruiz Mesa R, Mendicute del Barrio J, Alió JL, Ribeiro FJ, Ferreira TB & Kim TI

PURPOSE: To evaluate the ability of the multisegmental Precizon Presbyopic NVA Multifocal Intraocular Lens (Ophtec, Groningen, The Netherlands) to provide near, intermediate and distance vision in patients undergoing cataract extraction / clear lens extraction (CLE) in a multicenter clinical trial.

METHODS: Prospective, open label, single-arm, multicenter clinical trial. The main outcome parameters were LogMAR corrected/uncorrected visual acuity scores at distance (uncorrected distance visual acuity, UDVA 4 m), intermediate (uncorrected intermediate visual acuity, UIVA 80 cm) and near (uncorrected near visual acuity, UNVA 40 cm), manifest refraction spherical equivalent (MRSE) and defocus curve. Lenses were available in powers ranging from +10.0 D to +30.0 D in 0.5 D increments, with add-on power of +2.75 D.

RESULTS: 55 patients were enrolled in the study and underwent bilateral uneventful MIOL implantation. Interim results at 3 months in 21 patients: Mean uncorrected bilateral VA scores were UDVA 0.01 ± 0.07, UIVA 0.16 ± 0.12, and UNVA 0.22 ± 0.11. Distance corrected VA scores were CDVA -0.02 ± 0.05 and DCNVA 0.22 ± 0.10. CNVA was 0.07 ± 0.08. The mean spherical equivalent was 0.16 ± 0.49 D. The mean sphere was 0.33 ± 0.56 D and the mean refractive cylinder was -0.35 ± 0.45 D. The defocus curve shows good functional VA scores at far, intermediate and near distance.

CONCLUSION: Bilateral Precizon Presbyopic NVA MIOL implantation effectively provides presbyopic patients with satisfying uncorrected near, intermediate and distance visual acuity.

OUTCOMES AND SATISFACTION OF PRESBYOPIA CORRECTION USING THE PRESBYMAX MONOCULAR ABLATION PROFILE [17]

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Tyger Valley Eye & Laser Centre, Bellville, Cape Town, South Africa

PURPOSE: To explore the safety, efficacy, and satisfaction of the PresbyMAX monocular mode for the correction of presbyopia.

METHODS: Prospective study. Twenty-two patients (mean age 44.5years (10 myopia patients and 12 hyperopia patients) were enrolled. The dominant eye was fully corrected for distance vision; the non-dominant eye was corrected using central PresbyMAX monocular mode. Binocular uncorrected distance visual acuity (BUDVA), near visual acuity (BUNVA), intermediate visual acuity (BUIVA), corrected distance visual acuity (CDVA), and mean spherical equivalent (SE) were tested at 1 day, 1 month, 3 months, and 1 year postoperatively. Questionnaire was performed preoperatively, 1 month, 3 months, and 1 year after surgery.

RESULTS: At the final visit, the mean safety index was 1.03 ± 0.14. There were 85.7% eyes with the same or better CDVA than the preoperative value, and 17.1% and 2.9% eyes gained 1 line and 2 lines of CDVA, respectively. All treated eyes achieved 20/25 or better BUDVA, and 95.5% achieved 20/32 or better BUNVA, which improved significantly compared with preoperative values ($P < 0.001$). BUDVA maintained stability from 1 month postoperatively, BUNVA and BUIVA kept stable since 1 week after surgery. Overall satisfaction was 95.5% (21/22) at 3 months visit, and 100% at the last visit. No differences in terms of visual acuity and satisfaction were found between the myopia and hyperopia groups.

CONCLUSION: The PresbyMAX monocular ablation profile was safe and effective in treating presbyopia, with great satisfaction achieved at postoperative 1 year.

IMMEDIATE SEQUENTIAL BILATERAL REFRACTIVE LENS EXCHANGE IN A LARGE POPULATION OF PATIENTS [18]

Venter J, Teenan D & Hannan S
Optical Express, Glasgow UK

PURPOSE: To analyse outcomes of immediate sequential bilateral refractive lens exchange in patients who underwent phacoemulsification and implantation of an intraocular lens for refractive reasons.

METHODS: Retrospective analysis of patients who underwent bilateral same-day intraocular surgery was conducted. The analysis included patients with no or minimal cataract changes (preoperative best corrected visual acuity 20/40 or better) and underwent intraocular surgery primarily for refractive reasons or correction of presbyopia. One-month postoperative data, patient experience questionnaire, and serious complications were reviewed in a cohort of 32,440 eyes of 16,220 patients. Of the cohort, 16% of the eye had a monofocal IOL, and 84% had a multifocal IOL implant.

RESULTS: Of all eyes, 86.2% were within 0.50D and 98.1% within 1.00 D of the target. Additionally, 70.2 % of eyes targeted for emmetropia achieved postoperative uncorrected distance visual acuity 20/20 or better. Of all patients, 88.4% were satisfied with their postoperative vision, and 95.0% would recommend the procedure to their friends and family. The rate of serious postoperative complications was low, and most had unilateral occurrence. There was no case of endophthalmitis in the cohort.

CONCLUSION: Immediate sequential bilateral surgery is a viable option in patients undergoing refractive lens exchange. The percentage of patients within 0.50D of the intended target was high, and there was no case of endophthalmitis in the entire cohort. However, sight-threatening complications have to be continuously monitored, as these would be devastating in patients undergoing an elective procedure.

SAFETY AND EFFICACY OUTCOMES WITH A CONTINUOUS-RANGE-OF-VISION INTRAOCULAR LENS [19]

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Optical Express, Glasgow, United Kingdom

PURPOSE: To report on the safety and efficacy outcomes a new TECNIS Synergy ZFR00V premium IOL indicated for patients looking for an improved continuous-range-of-vision.

METHODS: Outcomes of 324 presbyopic patients who underwent cataract surgery or refractive lens exchange with bilateral implantation of the TECNIS Synergy ZFR00V are reported. The age range of patients was 37 to 79 years, with pre-op refractive range of +7.25D to -11.25D and up to -3.50D of refractive astigmatism. Post-implant clinical safety and efficacy outcomes in addition to patient reported outcomes were analyzed.

RESULTS: Mean postoperative binocular distance visual acuity was +0.03 log MAR (range -0.18 to +0.52); intermediate visual acuity was -0.05 log MAR (range -0.30 to +0.32); and near visual acuity was +0.13 log MAR (range -0.10 to +0.50).

The mean gain of lines for distance visual acuity was 5, lines gained of intermediate was 6 and 7 lines of near visual acuity. Thirteen of the 549 implanted eyes recorded >2 lines loss of BCDVA, 2.4%. Procedure recommendation rates are high. Adverse event rates with this premium IOL remain low.

CONCLUSIONS: The safety and efficacy outcomes for this new continuous-range-of-vision IOL suggest it may be a good alternative for patients looking for meaningful gains in uncorrected visual acuities at distant, intermediate, and near ranges. Longer follow-up is warranted to better understand the comparative performance of this IOL.

SESSION 6B
Orbit and adnexal surgery

TREATMENT OF PERIOCULAR TUMOURS WITH MOHS MICROGRAPHIC SURGERY: A TWO-CENTRE RETROSPECTIVE STUDY [20]

Mabogo M & Lenake M
University of Pretoria

BACKGROUND: Mohs micrographic surgery (MMS) is a precise method of excising specific skin malignancies with the advantage of assessing 100% of the tumour margins. This tissue sparing technique decreases tissue damage, resulting in smaller defects and in most cases, same day reconstruction after tumour margin clearance. MMS has become the standard of care in many countries around the world and is now available in multiple centres around South Africa.

METHOD: This is a retrospective audit of periocular tumours treated with Mohs micrographic surgery and reconstruction in 2 centres in South Africa; SkinMatters in Gauteng Province and Summerhill Surgical Centre in the Western Cape.

RESULTS: We present demographic information, tumour histopathology, average number of stages required to achieve 100% clear margins, common reconstructive approaches, post operative complications, and recurrence rates.

CONCLUSION: In this study we present the experience of surgeons from 2 centres performing Mohs Micrographic Surgery including outcomes.

A RETROSPECTIVE ANALYSIS OF PERI- OCULAR BASAL CELL CARCINOMAS: A 20 YEAR RETROSPECTIVE ANALYSIS OF SURGICAL TREATMENT AND OUTCOMES [21]

Willies C

BACKGROUND: Basal Cell Carcinoma is the most common malignant tumour seen in the periorbital area. I have now been in private practice in Cape Town, for more than 20 years.

OBJECTIVE: I have sought to review all the cases I have treated from 2000 to 2022. To establish whether in fact the number of BCC cases has significantly increased in recent years in my practice.

METHOD: Retrospective analysis or evaluation of the cohort of BCC patients I have treated.

Specifically noting the following demographic data: Gender and age of patient / size of the lesion / laterality of the lesion / duration of history prior to presentation / primary presentation or previous treatment via another physician / position of the lesion in relation to the eye / historical subtype / histological method of assessment / surgical management / follow up period post operatively / recurrence.

RESULTS: Demographic data is discussed. Surgical outcomes are demonstrated with numerous clinical slides.

CONCLUSION: Periocular BCC numbers have increased in my practice over the past 22 years.

SESSION 7A
Miscellaneous

APICAL SYNDROME: THE FORGOTTEN OR THE UNKNOWN? [22]

Botha, TC

Apical syndrome is often missed among ophthalmologists and consequently mismanaged. This serves as a refresher for the general ophthalmologist in making this diagnosis. Ultimately with the aim of managing it appropriately. We present a short applicable literature review and one or two case studies on the topic.

DO PATIENTS' PRESENTING COMPLAINTS IN A PRIVATE PRIMARY EYE CARE FACILITY CORRELATE WITH THE SEVERITY OF THEIR CLINICAL DIAGNOSES? WHAT ARE WE MISSING? [23]

Smith J & Cook S
The Eye Centre East London

OBJECTIVES: Can a patient's presenting complaint be used to predict the severity of their underlying condition? It is difficult to get an urgent appointment to see a private ophthalmologist at The Eye Centre in East London. Receptionists triage patients according to their presenting complaints. We recognised that significant pathology may be missed using this system. As an alternative we started a primary eye care facility that is equipped for clinical assessments. The facility is run by a general medical practitioner and an optometrist and is connected to our private ophthalmology practice. The condition for attendance is that the person has to come on the day. We noticed that a significant number of patients that presented to the facility with mild or non-specific complaints turned out to have sight threatening conditions.

DESIGN & METHOD: In this retrospective case series, we evaluated 200 patients that presented to our primary eye care facility between May 2022 and the first week of July 2022. We categorised patients' presenting complaints into mild, non-specific, and severe. We divided their clinical diagnoses into sight threatening conditions and non-sight threatening conditions. The primary outcome of the study was to determine if patients' presenting complaints correlated with the severity of their clinical diagnoses.

RESULTS: A total of 200 patients were evaluated. Among these patients 53,5% (n=107) presented with mild complaints, 16.5% (n=33) presented with non-specific complaints and 30% (n=60) presented with severe complaints. Patients diagnosed with sight threatening conditions made up 36.5% (n=73) of the total, compared to 63.5% (n=127) of the total patients that were diagnosed with non-sight threatening conditions (Table 1). Out of the 73 patients diagnosed with sight threatening conditions, 30.1% (n=22) of them presented with mild complaints, 17.8% (n=13) with non-specific complaints and 52.0% (n=38) presented with severe complaints. Out of the 127 patients diagnosed with non-sight threatening conditions, 66.9% (n=85) presented with mild complaints, 15.7% (n=20) presented with non-specific complaints and 17.3% (n=22) presented with severe complaints (Table 2).

CONCLUSION: This real world study demonstrates that presenting complaints cannot be used in isolation to determine the urgency of an appointment date.

ADDENDUM:

Presenting complaint	(n)	%
Mild	107	53,5
Non-specific	33	16,5
Severe	60	30
Diagnosis		
Sight threatening	73	36,5
Non-sight threatening	127	63,5
Total patients	**200**	

Table 1. Percentage of patients according to their presenting symptoms and clinical diagnoses

		Diagnosis severity		
			Sight threatening	**Non-sight threatening**
Presenting complaint	**Mild**	(n)	22	85
		%	30,1	66,9
	Non-specific	(n)	13	20
		%	17,8	15,7
	Severe	(n)	38	22
		%	52,0	17,3
	Total		73	127

Table 2. Comparing the patients' presenting complaints to the severity of the clinical diagnosis

ADDRESSING THE ENVIRONMENTAL SUSTAINABILITY OF EYE HEALTH-CARE DELIVERY: A SCOPING REVIEW [24]

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Thiel CL, NYU Grossman School of Medicine, Department of Population Health, NYU Langone Health, New York, NY, USA

Steyn A, Johannesburg Eye Hospital, Johannesburg, South Africa

Somner J, Department of Opthalmology, Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK

Venkatesh R, Aravind Eye Hospital, Pondicherry, India

Burton MJ, National Institute for Health Research Biomedical Research Centre for Ophthalmology at Moorfields Eye Hospital NHS Foundation Trust and UCL Institute of Ophthalmology, London, UK

Ramke J. School of Optometry and Vision Science, University of Auckland, Auckland, New Zealand

OBJECTIVES: The demand for eye care is increasing globally due to both demographic change and the development of eye health-care services in low-income and middle-income countries. This expansion of service provision needs to be environmentally sustainable.

DESIGN & METHOD: We conducted a scoping review to establish the nature and extent of the literature describing the environmental costs of delivering eye-care services, identify interventions to diminish the environmental impact of eye care, and identify key sustainability themes that are not yet being addressed.

RESULTS: We identified 16 peer-reviewed articles for analysis, all published since 2009. The vastly different environmental costs of delivering clinical services with similar clinical outcomes in different regulatory settings is striking; in one example, a phacoemulsification cataract extraction in a UK hospital produced more than 20 times the greenhouse gas emission of the same procedure in an Indian hospital.

CONCLUSION: Despite a paucity of research evidence, there is a need for the measurement of environmental impacts associated with eye care to be standardised along with the methodological tools to assess these impacts. The environmental costs must be systematically included when evaluating the risks and benefits of new interventions or policies aimed at promoting safety in high income countries.

POSTER PRESENTATIONS

SETTING UP A REGIONAL SOUTH AFRICAN ROP REGISTRY: LESSONS AND CHALLENGES [25]

Van der lecq TH, Muloiwa R, Rhoda N & Holmstrom G
in collaboration with the ROPSA collaborative group
University of Cape Town

OBJECTIVES: This presentation is based on the first population based South African Retinopathy of prematurity epidemiology study. This is a component of the PHD study of the main author.

The primary objective of this project is to describe the regional prevalence and clinical profile of ROP in 5 neonatal intensive care units (NICUs) in the Western Cape. A secondary objective is a review of the feasibility of maintaining a long-term regional registry for this purpose.

DESIGN & METHOD: This is a prospective, observational cohort study which aims to collect data via a regional online electronic registry. Ophthalmic, demographic and neonatal data will all be captured as per the *South African Guideline for the prevention, screening and treatment of retinopathy of prematurity*. The data of all premature infants who receive ROP screening at 5 NICUs over a 1 year (1 June 2022 to 31 May 2023) period will be included in the study.

RESULTS: This presentation will highlight the results of data collected over the first 6 months of the study (from 1 June 2022 to 30 November 2022) and outline the lessons and challenges that have been faced in setting up the registry. The analysed results will include the following: the prevalence of any ROP at individual centres and overall in the region, the incidence of Type 1 ROP, gestational ages, birth weight, the frequency of associated risk factors, and the logistical/administrative challenges faced in collecting data from the various sites.

CONCLUSION: The analyzed data will allow a comparison of the regional prevalence of ROP and clinical profile with previously published hospital based studies. The conclusion will also include the practical implications of the challenges faced in using a regional electronic registry to collect the data and recommendations for a sustainable regional ROP registry going forward.

POSTER PRESENTATIONS

Registrars

CASE PRESENTATION: MACULAR TELANGIECTASIA TYPE 2 IN A PAEDIATRIC PATIENT [26]

Carey A
University of Witwatersrand

A 10 year old female, with a history of a pheochromocytoma excision 2 years prior presented in May 2022 to Charlotte Maxeke Johannesburg Academic Hospital with a history of bilateral progressive vision loss for the past 3 years. It was demonstrated on further investigations by OCT, OCT-A and FA that she had Macular telangiectasia type 2. The proliferative form was present in her left eye and the nonproliferative form in her right eye.

MacTel type 2 is a group of conditions characterized by changes in the macular capillary network and neurosensory atrophy. It is rare with a prevalence of 0.1% and commonly affects middle aged people. There have only been two other reported cases in the literature where children (aged 14 and 11 years) have presented with this condition.

In this presentation or poster I will present the clinical features of my patient and describe MacTel 2 as a condition with regards to its clinical presentation, its proposed aetiologies and its management. I will also briefly describe the presentation of the two other children that have been reported in the literature to date.

TREATMENT OF A CONJUNCTIVAL PAPILLOMA USING TOPICAL MITOMYCIN C [27]

Gaibie S & Asvat A
University of Witswatersrand

Conjunctival papilloma is a benign lesion of epithelial origin with minimal tendency towards malignancy. Treatment includes surgical excision, cryotherapy, cimetidine and topical agents such as MMC and Interferon alpha-2b. These could result in extensive ocular surface injury and have a high recurrence rate.

OBJECTIVES: Describe the response of bilateral conjunctival papillomas to topical Mitomycin C in an 11 year old patient at St Johns Eye Hospital

DESIGN: A case report

RESULTS: An 11 year old male presented to St Johns Eye Hospital with bilateral conjunctival masses. Bilateral conjunctival papillomas were diagnosed clinically. Topical Mitomycin C – 0.02% was initiated bilaterally and treatment response monitored with each cycle. Complete regression of lesions was achieved.

CONCLUSION: Treatment of a conjunctival papilloma with topical Mitomycin C led to complete regression of the lesion with no recurrent lesions noted on follow up.

FLUORESCEIN ANGIOGRAM AND OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAM FINDINGS IN A PATIENT WITH A BRANCH RETINAL VEIN OCCLUSION [28]

Hajee A
University of Witwatersrand

OBJECTIVES: To demonstrate the use of optical coherence tomography angiography for the diagnosis and treatment progression in a patient with a branch retinal vein occlusion.

DESIGN AND METHODS: A retrospective observational case study. One patient with a branch retinal vein occlusion was assessed, treated and followed up over a period of three months. Three times monthly intravitreal anti VEGF injections were administered with treatment progression analysed using SOCT Copernicus REVO NX (Optopol, Poland). A low-quality scan was excluded and repeated until a good quality scan was achieved. An internal fixation light was used to centre the scanning area. For all qualitative measurements, the automated segmentation with preset settings for the superficial vascular network and deep vascular network was utilized.

RESULTS: The case demonstrates that all of the clinically relevant information could have been obtained and the patient managed without the need for an FA. In comparison with FA, OCTA images are better in showing depth resolved images of the of the chorioretinal vasculature. Images are derived from a high number of cross-sectional OCT scans and provide for better visualisation of the microvasculature in the macular area. Depth-resolved, three-dimensional, retinal vascular analysis with OCTA will help better characterize the pathophysiology of the diseases affecting deeper vascular segments of the retina such as BRVO. The case above illustrates well the capillary non perfusion in the deep retinal plexus.

CONCLUSION: The ability of OCTA to provide high resolution depth encoded images makes it a valuable tool for clinicians and researchers looking to use it to understand the effects of the current generation of anti-VEGF agents and steroids on the retinal and choroidal vasculature in a high patient volume setup and for treatment follow up. Other advantages are that it is less time consuming (unlike FA) and is more comfortable for the patient as it is fast and doesn't require pupillary dilation. Resolution of images is excellent due to the large number of A scans taken to produce one image at a very high speed and the perfused retinal and choroidal vasculature is unobscured by staining or pooling defects. The procedure is also less costly than FA, given that there is no need for a nurse or a physician to perform the fluorescein bolus injection.

EPIPHORA SINISTER [29]

Linde L & Mustak H
University of Cape Town

CASE STUDY: We describe a case of progressive nasolacrimal duct obstruction and medial canthal mass secondary to an inverted papilloma with malignant transformation of the lacrimal sac.