



BEAVRS 2019 ABSTRACTS

RETINAL DETACHMENT AND TAMPONADING AGENTS

Grace Kiew

Co Author(s): Arabella Poulson Douglas Newman Philip Alexander Martin Snead

Abstract Title: Pneumatic retinopexy or pars plana vitrectomy/scleral buckling for primary rhegmatogenous retinal detachment repair – what should we tell the patient?

Purpose: Recent reports appear to encourage the use of pneumatic retinopexy within the UK. We report a retrospective case series of retinal detachments suitable for pneumatic retinopexy treated with primary pars plana vitrectomy and/or scleral buckling to compare the primary and final success rates with published figures for pneumatic retinopexy.

Setting/Venue: Vitreoretinal Service, Addenbrooke's Hospital, Cambridge

Methods: Data was collected for retinal detachments treated with pars plana vitrectomy and/or scleral buckling at Addenbrooke's Hospital from 2015-2019. 128 cases were found to fit the following criteria: primary rhegmatogenous retinal detachments with a single break or group of breaks within 1 clock hour and location of breaks within 8 to 4 o'clock. Exclusion criteria included significant media opacity, proliferative vitreoretinopathy and pre-existing retinal conditions affecting visual outcome.

Results: Single-operation success rate for primary vitrectomy/scleral buckling at 6 months follow up was 93.8%, higher than published primary success rates for pneumatic retinopexy (60-80%). The overall anatomical reattachment success rate at 6 months was 97.7%. 76 patients (59.4%) had a visual acuity of 6/12 or better in the operated eye at 6 months follow up. Average logMAR score at 6 months was 0.32 ± 0.06 , a significant improvement from visual acuity at presentation (0.67 ± 0.14).

Conclusion: This study provides further evidence for superior rates of primary reattachment with pars plana vitrectomy and/or scleral buckling compared to published figures for pneumatic retinopexy. Patients should be counselled regarding the significantly higher failure rate with pneumatic retinopexy compared to primary vitrectomy/scleral buckling during discussion of management options.

Dong Young Park

Abstract Title: Vitrectomy with air tamponade in primary rhegmatogenous retinal detachment caused by superior retinal breaks: Preliminary report.

Purpose: The purpose of this study is to report on the anatomical restoration and functional outcomes of pars plana vitrectomy (PPV) with air tamponade for the management of primary superior rhegmatogenous retinal detachment (RRD).

Setting/Venue: Prospective 14 consecutive simple superior RRD cases operated at the University Hospitals Coventry & Warwickshire NHS Trust.

Methods: All of cases were operated by a single surgeon. Patients with RRD demonstrating a single retinal break or a group of breaks in detached retina within 1 clock hour above the 8- and 4-o'clock meridians were included. Eyes with PVR formation or inferior breaks excluded. During the PPV, the

peripheral and central part of the vitreous body was excised to eliminate the formation of vitreoretinal traction after surgery with sufficient removal of subretinal fluid. Cryotherapy or endolaser therapy was applied around retinal breaks, and the globe was filled with air. Post-operative reviews were at 1, 14, 60, and 120 days.

Results: We achieved 100% anatomical reattachment rate at 2 months. The median postoperative best-corrected visual acuity (BCVA) was 6/7.5 and 100% of cases achieved VA of 6/12 or better. On average, air in the eyeball was completely absorbed about 10 to 14 days after surgery. The rate of postoperative cataract surgery was 0% amongst 10 phakic patients at 2 months.

Conclusion: Effective anatomical & functional outcomes were achieved. The air was quickly absorbed meaning quicker VA recovery with potentially lower risk of postoperative cataract formation. This may also benefit people who often travelling by airplane. Long term assessment is required but this method could be used successfully in carefully selected cases.

Financial Disclosure: No

Khayam Naderi

Co Author(s): Khayam Naderi, Felicity Allen, Niral Karia, Aman Chandra

Abstract Title: An audit comparing the rate of rhegmatogenous retinal detachments following a posterior capsular rupture treated with anterior vitrectomy, and a dropped nucleus treated with a pars plana vitrectomy

Purpose: To compare the rate of rhegmatogenous retinal detachment (RRD) following posterior capsule rupture (PCR) complication during cataract surgery treated with an anterior vitrectomy, with pars plana vitrectomy (PPV) for the management of a dropped nuclear lens fragments (DNLF).

Setting/Venue: Southend University Hospital NHS Foundation Trust

Methods: Clinical and electronic records of all cataract operations requiring an anterior vitrectomy and cases of pars plana vitrectomy (PPV) for DNLF during the period 1st January 2013 to 11th March 2018 at Southend University Hospital were analysed. Details collected included pre- and post operative best corrected visual acuities (BCVA), lens status, and the occurrence of a RRD. A Chi-squared test was performed to assess the likelihood of a RRD following PCR managed with anterior vitrectomy, compared to cases of a DNLF managed with a PPV approach. Statistical significance was set at 0.05.

Results: During the study period 20,235 cataract operations were performed. 145 cases required an anterior vitrectomy with a mean BCVA of 0.33 logmar (range -0.18 to 2.80). 7/145 of these cases went on to develop a RRD. There were 55 cases of PPV for a DNLF with a mean BCVA of 0.32 logmar (-0.18 to 2.80), with no cases going on to develop a RRD. A Chi-squared test to assess the likelihood of a RRD between the two groups showed a p-value of 0.10.

Conclusion: Visual outcome is similar between those with simply a PCR and those with DNLF. Our results suggest that the risk of rhegmatogenous retinal detachment following a dropped nucleus may be lower than cases of posterior capsular rupture treated with an anterior vitrectomy.

Financial Disclosure: No

Natalia Vila, MD, PhD, FEBO

Co Author(s): Emmanouil Rampakakis, PhD Flavio Rezende, MD, PhD

Abstract Title: Endoscopy-Assisted Vitrectomy Outcomes During Silicone Oil Removal After Complex Retinal Detachment Repair

Purpose: This retrospective study recorded intraoperative findings during silicone oil removal and postoperative anatomical outcomes comparing endoscopy-assisted pars plana vitrectomy (E-PPV) vs pars plana vitrectomy (PPV) alone after proliferative vitreoretinopathy (PVR)-related retinal detachment (RD) repair.

Setting/Venue: Jewish General Hospital, Hôpital Maisonneuve Rosmont

Methods: This single-center retrospective study included patients who underwent PPV for silicone oil removal after RD with PVR from July 2009 to January 2017. Patients with diabetic tractional RD, history of trauma, uveitis, or endophthalmitis were excluded. After 2013, an endoscopic visualization system (E2 MicroProbe; Endo Optiks) was used in a nonrandomized fashion. Data collection included reattachment rate, intraoperative endoscopic findings and phthisis rate.

Results: Fifty-four eyes of 54 patients were included. The mean participant age was 58.4+ 12.9 years and 36 (65.5%) participants were male. The mean (+ SD) follow-up duration after oil removal was 24.3 + 20.1 months. Endoscopy-assisted vitrectomy combined with wide-angle visualization system was performed in 26 (48.1%) of the patients; the surgical management was modified after endoscopic examination in 17 (65.4%) of the cases. Reattachment rate in the E-PPV group was 96.2% compared with 76.0% in the PPV-alone group (P= .04).

Conclusion: Endoscopy-assisted vitrectomy for silicone oil removal appears to be advantageous for prevention of RD recurrence, thus achieving better reattachment rates. A thorough examination is facilitated by endoscopic visualization and contributory factors for anterior PVR can be identified and treated.

Financial Disclosure: Yes

Anna Grabowska

Co Author(s): Ahmed Razza, Tom H Williamson

Abstract Title: Results of relaxing retinectomy for proliferative vitreoretinopathy in rhegmatogenous retinal detachment.

Purpose: Relaxing retinectomy is an option for the treatment of proliferative vitreoretinopathy (PVR) complicating rhegmatogenous retinal detachment (RRD). It is our practice to exclusively use this method in all patients with PVR unresponsive to simple vitrectomy and tamponade.

Setting/Venue: St Thomas Hospital, London, UK

Methods: All patients from single surgeon's service who received retinectomy over a 17-year period were reviewed on an electronic medical record (VITREOR). Prognostic factors for anatomical and visual outcome were analysed. Primary success rate was defined as a flat retina with one operation without tamponade, secondary success was a flat retina with more than one operation with or without tamponade and failure the presence of any retinal detachment at last follow up.

Results: 134 eyes were examined with a median follow up of 1.4 years. Mean retinectomy size was 166 degrees. Primary anatomical success was 13%, secondary 72% and failure 13%. The use of small gauge surgery and delayed retinectomy were significantly associated with higher success rates. 88 underwent removal of silicone oil. In this group, 16% had oil in at final follow up and 9% were classified as failure. Overall, 47% achieved 6/60 vision or better, 10.4% 6/12 or better. Those patients with no oil in situ at follow up had better vision of 63% 6/60 or better, 15% 6/12 or better.

Conclusion: Relaxing retinectomy can achieve good results in the management of RRD complicated by PVR. Delayed retinectomy contributes to a higher retinal reattachment rate and oil removal. Success rates improved over time perhaps related to the adoption of small gauge surgery. Those patients who achieve oil removal have better visual outcomes.

Financial Disclosure: No

Edward Casswell

Co Author(s): David Yorston, Ed Lee, David Charteris

Abstract Title: Distortion following macula-involving retinal detachment repair

Purpose: To investigate changes in subjective and objective distortion in the first 6 months following macula-involving retinal detachment repair

Setting/Venue: Post hoc analysis of the PostRD trial: a prospective, multi-centred randomised controlled trial.

Methods: 262 patients with macula-involving retinal detachments undergoing repair with

vitrectomy and gas tamponade were asked to complete a distortion questionnaire and objective distortion assessment (D chart) 2- and 6-months post-operatively. Visual acuity, retinal displacement (measured with fundus autofluorescence imaging) and quality of life were also recorded.

Results: 2 months post-operatively 75.5% of patients reported subjective distortion, and this fell to 61.1% at 6 months. Over that period, distortion persisted in 56.5% of patients, resolved in 19.2% and developed in 4.6%. The median overall and weighted D chart distortion scores also fell between 2- and 6-months. The amplitude of post-operative retinal displacement was more strongly correlated with the D chart scores when compared with subjective distortion. On regression analysis, D chart scores were correlated with quality of life but subjective distortion was not.

Conclusion: Subjective and objective distortion are common following macula-involving retinal detachment, but seem to improve over time. Objective D chart scores were more closely correlated with quality of life and retinal displacement in comparison to subjective distortion.

Financial Disclosure: No

Roxane J Hillier

Co Author(s): Brosh K, Francisconi CLM, Qian J, Sabatino F, Juncal VR, Chaudhary V, Berger AR, Giavedoni LR, Wong DT, Altomare F1, Kadhim MR, Newson R, Marafon SB, Muni RH

Abstract Title: Retinal Displacement Detected with Fundus Autofluorescence Imaging following Pneumatic Retinopexy versus Pars Plana Vitrectomy for Rhegmatogenous Retinal Detachment (INTEGRITY STUDY)

Purpose: To compare retinal displacement following rhegmatogenous retinal detachment (RRD) repair with pneumatic retinopexy (PnR) vs pars plana vitrectomy (PPV) and determine its association with metamorphopsia and outer retinal abnormalities on optical coherence tomography (OCT).

Setting/Venue: Three academic vitreoretinal units (St Michael's Hospital (Canada), Newcastle Eye Centre (UK), Hamilton Regional Eye Institute (Canada))

Methods: Design: Retrospective consecutive case series. Participants: Patients with RRDs treated with PnR or PPV. Intervention(s) or Exposure(s): Gradable 3-months post-operative fundus autofluorescence (FAF) images. Main Outcome(s) and Measure(s): Proportion of patients with retinal displacement detected by assessment of retinal vessel printings (RVP) on FAF in PnR vs PPV.

Results: 238 eyes (114 PnR, 124 PPV). Statistically similar baseline characteristics between groups. Proportion with RVP was 7.0% for PnR and 44.4% for PPV ($p < 0.0001$). For small detachments (1-2 quadrants), proportion with RVP was 4.1% PnR and 34.4% PPV ($p < 0.0001$). Large (3-4 on FAF) 13.2% 54.7% among eyes macular displacement, mean displacement 0.137mm vs 0.297mm ($p = 0.002$). 96.5% 83.3% of those had OCT interdigitation zone abnormalities vertical metamorphopsia respectively, 55.6% in without logMAR visual acuity 0.57 0.35

Conclusion: Retinal displacement occurs more frequently and severely with PPV versus PnR and is associated with metamorphopsia. This study demonstrates differences in the anatomical integrity of retinal reattachment achieved following two surgical procedures for RRD. Recognition of the importance of retinal displacement following re-attachment will lead to refinements in surgical technique and improved functional outcomes.

Financial Disclosure: No

Richard Haynes

Co Author(s): Rodolfo Mastropasqua, Haifa Madi

Abstract Title: Removing emulsion by entering the 'time vortex'.

Purpose: Repeated fluid air exchanges can help clear emulsified oil from the posterior segment following ROSO, however turning the fluid infusion back on into an air-filled vitreous cavity can be dangerous as the BSS infusion jet can shoot at high speed at the retina creating an iatrogenic break.

Setting/Venue: Video demonstration in theatre of a simple technique of safely maximising the

clearance of emulsified oil from the AC and vitreous cavity.

Methods: Refilling of the vitreous cavity can safely and easily be achieved in a pseudophakic eye by running a Simcoe in the AC while the posterior segment is vented via a sclerostomy port. This has the beneficial effect of removing emulsified oil from the AC, posterior iris, zonules and IOL whilst simultaneously and safely refilling the vitreous cavity with BSS. Fluid air exchange can then be repeated to remove any remaining emulsion and the whole sequence repeated if needed to clear any lingering emulsion.

Results: The short video clip shows an unusual optical effect reminiscent of the 'time vortex' that occurs when the BSS flushes from the AC into the air filled vitreous cavity.

Conclusion: The 'time vortex' optical effect is caused by the coaxial microscope light undergoing total internal reflection from within the enlarging BSS droplet on the posterior surface of the IOL. The 'time vortex sign' indicates that the vitreous cavity is being gently refilled avoiding traumatising by the infusion jet.

Financial Disclosure: No

Matt Schneiders

Co Author(s): Ted Burton

Abstract Title: Does sclerotomy gauge affect surgical outcomes in treatment of primary rhegmatogenous retinal detachments?

Author: Matt Schneiders & Ted Burton

Purpose: To compare surgical success rates in the treatment of primary rhegmatogenous retinal detachment (RRD) after switching from 23 to 25 gauge (G) vitrectomy and to identify key influences on the surgical outcome.

Setting/Venue: Department of Ophthalmology, Norfolk & Norwich University Hospital NHS Foundation Trust, Norwich, United Kingdom

Methods: Data was collected prospectively using Medisoft electronic medical records for all primary rhegmatogenous retinal detachments treated by a single surgeon over a four-year period. All cases were included. Any missing data was retrieved from the case notes. The benchmark for surgical success was defined as an absence redetachment. All intraoperative surgical complications were included.

Results: 318 patients were surgically treated for a primary RRD. Mean visual acuity was logmar 0.85 pre-operatively and 0.37 post-operatively. Success rates achieved were 87% (2015-2016), 83% (2016-2017), 87% (2017-2018) and 96% (2018-2019). The success rate of treating inferior RRDs using a pars plana vitrectomy (PPV) and C2F6 gas tamponade was 81.8%. This increased to 90.0% when treatment was with a PPV and scleral explant ($p=0.21$). Success rates with 23G ports were 85%, compared with 94% when using 25G ports ($p=0.0125$). Intraoperative complication rates were 4.73% with 23G ports and 1.58% with 25G.

Conclusions: The efficacy and safety of RRD surgery may be enhanced by using the smaller 25 gauge port size. Scleral buckles may enhance the success of treating RRDs associated with inferior retinal breaks.

Guzaliya Safiullina

Co Author(s): Mr Florian Heussen Miss Shi Tan Mr Warren Apel Miss Kasia Chwiejczak

Abstract Title: IMPACT OF DURATION OF MACULA-OFF RETINAL DETACHMENT ON VISUAL OUTCOME PERFORMED WITHIN 24H AND WITHIN 3 DAYS

Purpose: To determine if macula-off RRD surgery performed promptly has any positive impact on visual outcomes and there are any significant difference in vision between patients operated within

24h and within 3 days.

Setting/Venue: Macula-off RRD surgeries performed by a consultant (Miss GS) and VR fellows at Cheltenham General Hospital, UK

Methods: A retrospective review of Medisoft Audit of Macula-off RRD performed during the period of 28 months, September 2016- January 2018, anatomical and visual outcomes were analysed, p-value is used for statistical significance. Log MAR VA were used prior to sx and 6 months after. A significant co-pathology cases such as advance glaucoma, endophthalmitis were excluded from the audit

Results: 68 out of 78 (87%) of Macula-off RRD had a reattached retina with 1 surgery Operated within 24h: 22 out of 45 of patients (49%) recovered 6/9 vision or better. Operated within 3 days: 30 out of 61 patients (49%) recovered 6/9 vision or better, mean improvement : 0.92 to 0.1 Log MAR , not statistically significant Group with less than 6/9 vision had improvement 1.5 logMAR to 0.5 logMAR, p 0.004, 48% had 0.3-0.4 logMAR, 48% had 0.5-0.7 logMAR (mean postop VA 6/15, p 0.004), 1 patient did maintained the same 1.98 LogMAR vision (CF)

Conclusion: 49% of patients with 6/9 or better vision in both groups: operated within 24h and operated within 3 days (not statistically significant). VA worse than 6/9 had mean improvement 1.5-0.5 log MAR VA (p value 0.004) operated within 24h and 2.3-0.6 logMAR operated group within 3 days (p value 0.044)

Financial Disclosure: No

Colin Goudie

Co Author(s): Aized Shahbaz, Danny Mitry, Jas Singh, Harry Bennett, Ashraf Khan

Abstract Title: Scottish Retinal Detachment Study: 10-year visual acuity outcomes from Edinburgh

Purpose: The Scottish Retinal Detachment Study prospectively collected all new cases of retinal detachment in Scotland over a two-year period (2007-09). We aimed to establish long-term visual outcomes for these patients.

Setting/Venue: Princess Alexandra Eye Pavilion, Edinburgh

Methods: All patients (and/or the optician) from the initial local cohort were contacted to provide most recent data 10 years after retinal detachment surgery. Electronic and paper hospital records were analysed to provide further clinical data.

Results: Of 233 patients initially recruited locally, long-term follow-up data was available for 113 (30 died, no data for 90). Of 52 macula-on patients, 71% had visual acuity $\geq 6/9$ and 6% $< 6/60$. 83% of macula-off patients with central visual loss of less than 3 days had VA $\geq 6/9$ (0% $< 6/60$) whilst for the remaining macula-off patients VA was $\geq 6/9$ for 50% and $< 6/60$ for 11%. 16% of patients redetached (50% within 3 months) and 16% had a retinal detachment in the fellow eye. 25/113 were phakic at ten years (6 treated with vitrectomy, 16 with cryo/buckle, 3 laser and 1 combined buckle/vitrectomy).

Conclusion: We present long-term prospective data from a large cohort of patients with retinal detachment. Our findings are consistent with the literature highlighting the importance of urgently treating recent macula-off detachments. A 16% incidence of retinal detachment in the fellow eye is higher than previously quoted.

Mohammad Samir Dowlut

Co Author(s): Naderi K, Wood T, Sandinha T, Tarafdar S, Heussen F, Keller J, Schneiders M, Saidkasimova S, Chandra A

Abstract Title: Use of heavy silicon oil tamponade (Densiron/Alaheavy) in clinical practice within multi-centred UK vitreoretinal (VR) units- anatomical re-attachment and complication rates.

Purpose: To assess the efficacy and safety of densiron (Geuder)/alaheavy (AlaMedics)(heavy silicon oil) in the management of retinal detachment within UK VR units.

Setting/Venue: Southend, Norwich, Liverpool, Dundee and Bristol VR units.

Methods: A retrospective case notes study of densiron and Alaheavy use within multiple UK vitreoretinal centres during 2015-2019. 173 cases of complex retinal detachment were analysed. Primary outcome measured was anatomic reattachment with heavy silicon oil (Densiron/Alaheavy). Secondary outcomes were indications for heavy silicon oil use, rate of recurrences, long term post-operative inflammation and intraocular pressure management following heavy silicon oil (HSO) removal.

Results: 173 cases of retinal detachment were treated with Densiron (n- 106) and Alaheavy (N -67). Mean patients' age was 61.0 years old. The main indications for heavy silicon oil use were retinal detachments associated with inferior retinal pathology (n-152). 113 (65.7%) patients had previous unsuccessful retinal surgery. Grade B PVR or worse were present in 43.6 % of cases. The initial and final reattachment rates with Densiron/Alaheavy oil were n -115 (66.9%) and n- 116 (67.4%) respectively. The median time of removal of heavy silicon oil was 98 days (Range 7-874). Raised intraocular pressure was present in 11 cases post densiron removal (12.0%, median densiron duration 109 days). Inflammation post densiron oil removal was present in 6 cases (6.7 %, median HSO duration- 101 days, 2 patients' long term densiron). Emulsification rate affected 23 patients in one centre (27.8%) (Densiron 4.8 %, Alaheavy 21.7%). There was no statistical difference in emulsification rates between Densiron and Alaheavy oil (P = 0.54).

Conclusion: Although reattachment rates were lower compared to other studies, this could have been due to case selection. Adverse effects regarding long term intraocular pressure and inflammation were similar to other conventional silicon oil and heavy oil studies. Heavy silicon oil should be considered as a management option for inferior retinal pathologies with similar side effect profile as silicon oil.

Redmer van Leeuwen

Co Author(s): Catherina HZ Li, Laura ME Scheerlinck, Albert T Liem, Lintje Ho, Peter AWJF Schellekens

Abstract Title: DURATION OF SILICONE OIL TAMPONADE IS STRONGLY RELATED TO THE RISK OF SILICONE OIL RELATED VISUAL LOSS

Purpose: We evaluated the effect of limiting the duration of silicone oil (SO) tamponade on the risk of Silicone Oil Related Visual Loss (SORVL).

Setting/Venue: University Medical Center Utrecht, The Netherlands.

Methods: In this retrospective study from 2015 to 2017, 392 eyes with a primary macula-on rhegmatogenous retinal detachment treated by vitrectomy with gas (n=353) or SO (n=44) tamponade were included. SORVL was defined as unexplained visual loss of more than two Snellen lines after SO removal and presence of a deep central scotoma in absence of other pathology. Results were compared to a similar cohort from 2011-2012 and SORVL cases from the literature.

Results: Overall visual loss was observed in 14.7% of patients with gas and 34.1% of patients with SO tamponade (p=0.001). Incidence of SORVL was 9.1%, which is much lower than the 29.7% found in our previous cohort (p=0.02). Median duration of SO tamponade was reduced from 109 to 76 days. In the literature, no SORVL cases were reported with a SO tamponade less than 80 days.

Conclusion: The incidence of SORVL significantly decreased after limiting the duration of SO tamponade to less than 80 days. This result suggests that the duration of SO tamponade is an important risk factor for SORVL and that it should be limited to prevent SORVL.

Roslyn Manrique

Co Author(s): Shamfa Peart, Alexander Brent, Konstantinos Tsaousis, Tahir Islam, Nardine Menassa, P. R. Chaudhuri

Abstract Title: Clinical outcomes after the use of heavy silicone oil (Densiron-68®) for the surgical

treatment of inferior retinal pathology

Purpose: To evaluate the safety and efficacy of Densiron-68[®] heavy silicone oil in the management of inferior retinal pathology due to various causes

Setting/Venue: Vitreoretinal Unit, Leicester Royal Infirmary, University Hospitals of Leicester, United Kingdom

Methods: A prospective audit was conducted at the UHL of consecutive operations in patients with inferior retinal pathology requiring long-term tamponade with oil: recurrent rhegmatogenous detachment (RRD), primary repair of RRD with proliferative vitreoretinopathy (PVR), proliferative diabetic retinopathy (PDR) with combined tractional and rhegmatogenous RD (T-RRD) and macular hole-related retinal detachment (MH-RD). All patients were operated by the same surgeon and had Densiron-68 heavy silicone oil for endotamponade. Measurable outcomes of the study were: the degree of inflammation, changes in intraocular pressure (IOP), presence of emulsification and anatomical and functional outcomes after removal of oil.

Results: Seventeen patients (twelve men) were included. Mean age was 64.6±11.7 years. Indications for surgery were recurrent RRD (47.1%), primary RRD with PVR (29.4%), PDR with T-RRD (17.6%) and MH-RD (5.9%). Average post-operative IOP after two weeks was 19.9±6.45 mmHg (mean change from pre-op: 5.4±8.99 mmHg). Three patients developed post-operative fibrin controlled with topical steroids. No patients had oil emulsification during the examined period. Average time to oil removal was 79.6±40.7 days. Retina remained flat in 85.7% after oil removal with two requiring further surgery due to superior detachments and one patient defaulted. Average vision improved from 1.12±0.69 to 0.69±0.36 logMAR.

Conclusion: In patients with inferior retinal pathology including combined T-RRDs, recurrent RRDs and PVR-related RRDs, Densiron is a good option for anatomical and functional success. It can be used for both primary and secondary repair. Post-operative inflammation is within normal limits and can be controlled with topical steroids.

Mohammad Samir Dowlut, Konstantinos Fotis, Aman Chandra.

Ophthalmology Department, Southend University Hospital NHS Foundation Trust, Essex, UK.

Title: Temporising Pneumatics for retinal detachment Outcomes of retinal detachment treated with intravitreal expansile gas as a primary prior to definitive retinal detachment repair.

Methods: Patients attending with retinal detachment out of hours were treated with initial expansile intravitreal gas/cryopexy and underwent subsequent further definitive treatment. Patients were offered this treatment when it was anticipated that that definitive treatment would be delayed due to lack of adequate vitreoretinal cover (surgeons, ward/theatre nurses, GA cover, etc...). The treatment was offered by the vitreoretinal fellow or one of the vitreoretinal consultants. Prospective data during 01/10/2017 to 01/08/2019 were collected on age, gender, type of retinal detachment, primary, secondary procedure, anatomical reattachment and functional outcome

Results: 7 patients were included. The mean age was 59.7 years old (SD 12.0). The majority of patients were female (n=5, 71.4%). 3 patients had macula off retinal detachment whilst 4 patients' macula was intact. 6 patients had superior retinal break whilst 1 patient had superior localised shallow retinal detachment and two inferior retinal breaks. The extent of the retinal detachment varied from 1 to 7 clock hours. The mean number of days prior to secondary intervention was 2 days. All primary procedures involved pneumatic expansile intravitreal gas (N=7) (Air - N1, SF6 - N5, C2F6 - N1). 2 patients who had primary pneumatic had combined cryopexy. Secondary procedures were required for 6 patients (3 PPV/CRYO/Air/Gas) whilst 1 patient required barrier laser for a delayed inferior retinal detachment (8 weeks post primary procedure). Pre-op visual acuity was as follows - N4 (< 6/36), N2 (> 6/7.5), N1 (not documented). All patients achieved post-operative visual acuity better than 6/18 (N=4 better than 6/12). All patients had retinal attachment after second procedure without further intraocular surgery. No adverse effects were encountered

Conclusion: Vitreoretinal centres are often faced with difficulty of managing emergencies with limited vitreoretinal service cover out of hours either locally or regionally (especially single surgeon led VR hospitals). Our experience suggests that primary pneumatic can be a safe intervention in delaying macula detachments (with positioning to temporary seal the breaks or with face down posture to protect the macula). This technique may be undertaken with limited facilities, and perhaps in settings without formal vitreoretinal theatres. With concerns about timely treatment of fovea involving retinal detachments, this technique may offer a useful strategy. Further studies into this and other options need to be undertaken.

VR INTERFACE

Marco Isac

Co Author(s): Marco Isac, MBBCh, Msc, MRCSEd Ophth Lyudmila Kishikova, MBBCh Daniela Vaideanu-Collins, MD, FRCOphth Ahmed Abdelwahab Saad, MD, FRCSG, FRCSEd, FRCOphth, CrtLRS

Abstract Title: Comparison between Vitrectomy +subretinal tPA with or without sub retinal air VS Intravitreal tPA +gas for the treatment of sub macular haemorrhage in nAMD

Purpose: To compare the outcome of vitrectomy, subretinal tissue plasminogen activator (TPA), and gas with and without subretinal air versus Intravitreal TPA and gas in the treatment of sub macular haemorrhage (SMH) due to Neovascular age related macular degeneration.

Setting/Venue: Vitreoretinal service Eye department, James Cook University Hospital

Methods: Retrospective analysis of 29 cases presented with SMH (sub macular haemorrhage) due to nAMD (neovascular age related macular degeneration) in the period between 01/2016 and 09/2018 at James Cook University Hospital. The presenting visual acuity (BCVA) LogMAR, size, location of SMH, procedure done and final BCVA after 6 months with any surgical complications have been recorded. 11 Cases (Group 1) received intravitreal tPA (50ug /0.1 ML) and 0.3 ml of pure SF6. 18 cases (Group 2) received 23 G Pars Plana vitrectomy, Subretinal tPA injection (25ug / 0.1 ml), and 20% SF6 gas filling. Group 2 was further divided into 2A (10 patients) who received only sub-retinal tPA and group 2B (8 patients) who received additional 0.1 ml of sub-retinal air.

Results: The mean BCVA at presentation was 0.0068 LogMar in group 1 and 0.0067 in group 2 ($p=0.8734$). The mean postoperative BCVA at six months was 0.31 in group 1 and 0.58 in group 2 ($p=0.0015$). Subgroup analysis of group 2 (with additional sub retinal injection of air in group 2B) didn't show statistically significant difference in the outcome ($p=0.7009$).

Conclusion: Vitrectomy, gas and subretinal TPA has more successful displacement rate and better visual outcome than Intravitreal TPA & Gas alone in treating SMH involving the fovea in AMD. Additional subretinal air doesn't seem to improve the outcome in cases having vitrectomy.

Ziyaad N. Sultan

Co Author(s): Richard Hagan, Teresa Sandinha

Abstract Title: Can reduced protocol multifocal electroretinogram (mfERG) detect macular hole prior to surgery.

Purpose: To evaluate a reduced protocol mfERG to detect subtle retinal changes in patients with optical coherence tomography confirmed (OCT) macular holes. Using 19 hexagons instead of ISCEV standard 61 or 103.

Setting/Venue: St Paul's Eye Unit, Royal Liverpool University Hospital, Liverpool, UK.

Methods: Prior to surgery, 11 patients underwent, mfERG, photopic negative response (PhNR) and cone-electroretinogram (cone-ERG), as part of our departmental service evaluation of macular hole surgery. Electrodiagnostics (EDTs) were conducted monocularly, with gold leaf electrodes and pupils dilated to 7mm (g. tropicamide 1%). mfERG was performed with 19 hexagons and white luminance $\sim 120\text{cd/m}^2$. and black $<1\text{ cd/m}^2$. PhNR was a 1.5cds/m^2 red flash, on 12 cd/m^2 blue background.

Cone responses 3 cds/m2, on 30 cd/m2. Macular hole responses in the index eye were compared to their fellow eyes.

Results: One of the macular hole patients had normal mfERG, that signified spontaneous closure prior to surgery. One fellow eye had previous macular hole surgery and was excluded. Average central hexagon (inner 2.5 degrees radius) response amplitude was 47uV (95% CI 40.3-53.6uV) for macular hole and 108uV (95% CI 93.7-122.8uV) for fellow eyes. All other parameters had overlapping confidence intervals and were within normal limits, including the ring averaged response from Ring 2 (2.5-10 degrees radius).

Conclusion: A reduced protocol mfERG can effectively identify which eyes have macular holes and which function normally. This protocol positively identified spontaneous macular hole closure, without investigator bias. In conclusion, less hexagons means faster, cheaper, more comfortable testing, with less reliance on steady fixation on a < 1 degree radius hexagon.

Financial Disclosure: No

Mr Manzar Saeed, Mr Manish Gunda

Abstract Title: Outcome of ILM Pedicle Graft – A New Technique for Persistent Macular Holes

Purpose: Primary macular hole (MH) repair is successful in up to 90% of patients. Treatment options for unsuccessful cases are limited. The purpose of this study is to evaluate the anatomical and visual outcomes of a novel technique, ILM pedicle graft, in patients with failed standard surgery with ILM peel.

Setting/Venue: Consecutive cases of failed MH surgery at Queen Elizabeth Hospital, King's Lynn, Norfolk

Methods: 12 eyes of 11 patients with refractory MH (Previous pars plana vitrectomy (PPV), ILM macular-rhexis, C2F6 gas and face down positioning), were treated with a modification of ILM flap MH closure. Of these 12 eyes, 11 were revision surgery and 1 eye was primary MH repair. A large ILM flap pedicle graft was fashioned and positioned over the MH assisted by fluid air exchange, followed by C2F6 gas and face down positioning. All patients were pseudophakic. Primary endpoint was rate of hole closure and best-corrected visual acuity 3 months after surgery.

Results: Hole closure rate was achieved in all 11/12 cases with 1-2 lines gain in Snellens visual acuity at 3 months. The technique did not work in the only primary macular hole case in this series. There were no significant ocular adverse events.

Conclusion: Some of the current techniques for failed MH surgery include ILM free graft, ILM inverted flap and silicone oil tamponade are promising but may be technically cumbersome with potential complications. ILM pedicle graft technique has shown benefits of highly satisfactory surgical control, and positive outcomes in refractory MH. There is minimal exploration of this technique in the literature, therefore a comparison with other techniques should be considered.

Wolf A, Freissinger S, Vounotrypidis E, Bayer I, Shajari M, Kreutzer T, Keidel L, Kern C, Priglinger S G, Department of Ophthalmology Ludwig-Maximilians-University, Munich, Germany

Abstract Title: Visual outcome of multifocal intraocular lenses after retinal detachment surgery .

INTRODUCTION: Implantation of multifocal intraocular lenses (mIOL) is constantly rising. However, mIOL have a complex optic and it is unclear how visual outcome will be in patients with mIOL after retinal detachment (RD) surgery. Purpose of this study was to evaluate this.

MATERIAL AND METHODS: The study consisted of a retro and a prospective part. In a retrospective manner, 21 eyes of 21 patients with a follow up period of more than 6 weeks with RD surgery in mIOL pseudophakic RD were evaluated in regards to best CDVA, duration of symptoms, and macula-status, reattachment-rate and other. These patients were compared to a matched group of monofocal pseudophakic RD (matching criteria: macular status, age and duration of symptoms)

In prospective manner a total of 18 eyes of 17 patients were evaluated with a follow up period of minimum 12 months. We evaluated in these patients following parameters: corrected distance visual acuity (CDVA), uncorrected distance visual acuity (UDVA), uncorrected intermediate acuity (UIVA), uncorrected near visual acuity (UNVA), defocus curve, subjective patient outcome, macula-status, duration of symptoms.

RESULTS: In the retrospective cohort we evaluated 42 eyes (21 with multifocal lenses, 21 with monofocal lenses). Postoperative CDVA of the multifocal IOL group 6 weeks after surgery was worse (0.3 logMAR) compared to the monofocal IOL group (0.17 logMAR) ($p = 0,021$). This was valid for macula-off status group as well as for macula on status group.

The prospective study cohort revealed high visual acuity in all measured distances (0,1 logMAR CDVA; 0.13 logMAR; UDVA; 0,1 logMAR UIVA; 0,11 logMAR UNVA), which corresponds to a gain of 2 snellen lines. The visual gain, however was higher in a previous macula-off status (gain of more than two snellen lines) compared to macula-on status (gain of nearly one snellen line).

In patients reported outcome of the multifocal IOL group no one had complains referring to the lens after one year, and most of the patients noted they would not need to wear glasses.

CONCLUSION: In our study CDVA after ppV for RD repair in eyes with multifocal lenses is worse than in eyes with monofocal lenses after a short period of at least 6 weeks, which was statistically significant. However, in a prospective evaluation after a longer follow up period of one year VA improves, especially in eyes with macula-off status. Patient reported outcomes after one year was without complains referring to lenses and Patients demonstrated a high contentness overall., indicating that IOL change is not necessary.

David Yorston

Co Author(s): David Steel, Al Laidlaw, Tom Williamson, Bill Aylward, BEAVRS database users group

Abstract Title: Do waiting times matter in macular hole surgery?

Purpose: To determine if waiting time (the interval between date of assessment and date of surgery) influences anatomical or visual outcome in macular hole surgery.

Setting/Venue: Twenty different NHS hospitals in the UK

Methods: Using the BEAVRS database, we analysed the influence of waiting time on anatomical and visual outcome following surgery for primary idiopathic macular hole. Data from nearly 2,000 operations were entered into an Access database, and were analysed with Medicalc, using stepwise multivariate logistic regression. Out of 1,999 operations, primary anatomical closure was achieved in 1,928 (96.4%). Visual success (VA 6/12 or better) was achieved in 855 of the closed holes (44.4%).

Results: For all holes, the factors affecting anatomical success were minimum linear diameter (MLD), incomplete ILM peel, and waiting times. However, in small holes ($<401\mu$), the only variable affecting closure was incomplete ILM peel. In larger holes ($>400\mu$), the variables were MLD and waiting time. For every week of waiting time, the risk of failure increases by 5%. The factors affecting visual success for all eyes were presenting VA, MLD, a duration of 0-4 months, ARMD, and the use of SF6. However, in eyes with a waiting time of <3 weeks, SF6 was not a risk factor for poor visual outcome.

Conclusion: Macular hole size increases with time. The measurement of MLD is usually taken at initial assessment, rather than on the day of surgery. This means that the MLD is often underestimated, leading to worse than expected outcomes. Waiting times should be minimised, and MLD should be measured shortly before surgery.

Financial Disclosure: No

David Steel

Co Author(s): Maged Habib Yunzi Chen Boguslaw Obara Amar Nasrulloh Ian Wilson Caspar Geenen

Abstract Title: Macular holes in 3D - what else can it tell us ?

Purpose: Macular holes are classified principally by size which is one of the strongest predictors of surgical outcome. They are typically measured in 2D on SDOCT. We sought to evaluate their 3D shape and dimensions and to compare that to clinician acquired 2D measures and tests of visual function.

Setting/Venue: Sunderland Eye Infirmary, Durham and Newcastle Universities.

Methods: OCT images of 104 eyes of 104 patients undergoing macular hole surgery were analysed using an automated 3D segmentation algorithm. Two clinicians measured the MLD and BD. Pre and postoperative visual acuities and other clinical relevant variables were extracted from the patients notes and compared to the hole parameters. In a second study we analysed eyes from a prospective clinical trial of 68 patients with macular holes of less than 400 microns who had had a protocol refraction pre and post op, and assessed the relationships between the automated measurements and pre and postoperative visual acuities.

Results: Using the algorithm derived values MH were found to have significant asymmetry in all dimensions. The minima of the minimum area (MA) were typically approximately 90 degrees to the horizontal, and differed from their maxima by 55 microns. Minima of the MA differed from the human measured MLD by a mean of nearly 50 microns with significant inter-observer variability. The resultant differences led to reclassification using the International vitreomacular traction study group classification in a quarter of the patients. The results of the prospective clinical trial analysis will be presented

Purpose: Macular holes are classified principally by size which is one of the strongest predictors of surgical outcome. They are typically measured in 2D on SDOCT. We sought to evaluate their 3D shape and dimensions and to compare that to clinician acquired 2D measures and tests of visual function.

Matthew Maguire

Co Author(s): Alistair Laidlaw David Steel David Yorston

Abstract Title: Failed primary idiopathic macular holes: anatomical features, outcomes and surgical techniques.

Purpose: Effectiveness and optimum techniques for redo macular surgery are poorly understood. Consequently, many techniques ranging from re-gassing to retinal and amniotic membrane transplants have been described. We aimed to analyse their effectiveness.

Setting/Venue: Clinical setting

Methods: A retrospective review across 4 hospitals. 53 Patients with idiopathic full thickness macular holes that had failed to close after primary surgery were included in this review. Exclusion criteria included: Myopia > 6 dioptres, traumatic FTMH, previous intravitreal surgery, Ocriplasmin treatment and FTMH associated with additional surgical pathology such as retinal detachment. Participating centres were asked to submit details outlining: patient demographics; duration of symptoms; presenting VA; primary surgical details; surgical outcome; post-operative VA; revision surgical details and final VA. Surgical details included surgical technique, adjunctive procedures (e.g. platelet use, ILM flap), tamponade and post-op posturing advice. OCT scans were requested at baseline, post-surgery, and after successful closure. Where patients underwent multiple surgeries, additional details and scans were requested. OCT scans were analysed for predictive factors of hole closure and visual outcome.

Results: 82 eyes were included from 82 patients across 4 centres. The mean patient age was 68.9 years and 73% female. 47% were right eyes and 78% were pseudophakic. Mean duration of symptoms was 9.2 months. Mean baseline VA was 37 ETDRS letters before primary and redo surgery. Mean final VA was 50 ETDRS letters after final redo surgery, with a mean change of 13 ETDRS letters. Of the redo techniques: 34% were radial NFL incisions, 17% Re-gas, 12% Retinal massage, 12% ILM free flap, 10% platelets, and 6% microdrain. Closure rates and mean VA change

for various techniques: NFL incision – 82% and 19 ETDRS letters; Re-gas – 79% and 8 ETDRS letters; Retinal massage – 60% and 7.2 letters; ILM Free flap - 90% and 11.75 ETRDRS letters; Platelets – 88% and 16 letters; Microdrain – 40% and 3.2 ETDRS letters. 37% of patients were predicted to achieve 6/12 VA or better had primary surgery been successful. The actual % of patients that achieved 6/12 VA was 18%. Suggesting primary failure reduces the chance of patients achieving 6/12 vision by half. **Conclusion:** Redo macular hole surgery achieves successful anatomical closure in 76% of cases, with a mean 13 ETDRS letter gain. 18% of patients achieved 6/12 VA or better after failed primary surgery. The effect of failed primary surgery reduces the predicted number of patients achieving 6/12 vision by half.

Timothy L Jackson

Co Author(s): Dr Catey Bunce (King's College London) Professor Noemi Lois (Queen's University Belfast) Professor Barnaby Reeves (Bristol University) Professor David Steel (Newcastle University).

Abstract Title: Vitrectomy, subretinal Tissue plasminogen activator and Intravitreal Gas for submacular haemorrhage secondary to Exudative age-Related macular degeneration (TIGER): a European randomised controlled surgical trial.

Purpose: To study the safety and efficacy of pars plana vitrectomy, subretinal tissue plasminogen activator (TPA) up to 25 micrograms, and intravitreal SF6 gas tamponade for the treatment of submacular haemorrhage (SMH) secondary to exudative age-related macular degeneration (AMD).

Setting/Venue: Up to 70 European vitreoretinal units.

Methods: We plan a multicentre, randomised, two-group, observer-masked, surgical trial. Key inclusion criteria are SMH at least 1 disc diameter across, at least 125 microns thick, involving the fovea, of up to 15 days duration. Randomisation is 1:1 to surgery with face forward posturing for 24 hours, or no surgery. Both groups receive intravitreal aflibercept monthly for 3 months, then 2-monthly. The primary outcome is a gain of at least 10 ETDRS letters at 12 months. Secondary outcomes are mean ETDRS visual acuity, Radner reading speed, National Eye Institute Visual Function Questionnaire, scotoma size, and area of subfoveal fibrosis and/or atrophy.

Results: The literature suggests 27% of patients receiving anti-vascular endothelial growth factor (VEGF) monotherapy gain 10 ETDRS letters. Our patient focus group determined that this would need to increase to $\geq 50\%$ to justify the risks and inconvenience of surgery. Based on this clinically meaningful difference (0.27 vs 0.50; risk ratio 1.85), 90.62% power, 5% two-sided significance, and 10% attrition, we require 210 participants to test for superiority.

Conclusion: TIGER should provide evidence whether vitrectomy, TPA and gas, combined with aflibercept treatment, is superior to aflibercept monotherapy.

Financial Disclosure: Yes

Kam Balaggan

Co Author(s): Niro Narendran, Yit Yang

Abstract Title: Fifteen vitreoretinal procedures and counting! Rescuing an only eye from exceptionally severe anti-VEGF-resistant haemorrhagic neovascular AMD

Purpose: To describe so-far successful salvaging of an only eye from exceptionally severe haemorrhagic neovascular age-related macular degeneration (nAMD) by multiple intravitreal tissue plasminogen (tPA) and C3F8 injections, and numerous pars plana vitrectomies (PPVs)

Setting/Venue: Wolverhampton and Midland Counties Eye Infirmary

Methods: A 72 year-old retired Professor of Optometry presented in January 2017 with a massive submacular haemorrhage and complete loss of central fixation in his only eye despite intensive previous anti-VEGF therapy. His fellow eye had no central fixation and VA limited to 6/120 due to a

large disciform scar secondary to anti-VEGF-resistant nAMD. Since then, he has undergone 15 intravitreal tPA/ C3F8 gas injections and pars plana vitrectomies (PPVs) with submacular interventions, as well as choroidal feeder-vessel laser photocoagulation, in an attempt to rescue central vision in his better eye.

Results: Initial surgery consisted of PPV with subretinal tPA, subretinal aflibercept and subretinal air. Subsequent PPV was performed for vitreous haemorrhage, and to drain now thrombolysed subretinal haemorrhage, improving acuity to 6/9. Despite intensive aflibercept, significant rebleeds, in combination with recurrent retinal detachments, occurred requiring numerous PPVs with subretinal irrigation, or oil insertion/removal. Despite no further anti-VEGF, the eye remained bleed-free until 2 months ago, requiring further vitreoretinal intervention. Currently he has resolving thin subfoveal haemorrhage, but despite this maintains a respectable acuity of 6/24 and N18 reading with paracentral fixation. Continued resolution will hopefully permit further planned choroidal feeder-vessel therapy.

Conclusion: This case highlights that even eyes with highly-active anti-VEGF-resistant membranes resulting in severe submacular haemorrhages can benefit from repeated VR interventions, sustaining reasonable distance and near visual function long after permanent and profound central visual loss would have been expected with observation alone.

Financial Disclosure: No

Kirti Madhukar Jasani

Co Author(s): Paula Larranaga Sher Aslam

Abstract Title: Surgical outcomes following treatment of refractory full thickness macular holes with silicone oil tamponade.

Purpose: To study the efficacy of vitrectomy with silicone oil insertion in the treatment of refractory full thickness macular holes (MH).

Setting/Venue: Vitreoretinal Department, Oxford Eye Hospital, John Radcliffe University Hospitals NHS Foundation Trust, Oxford, UK.

Methods: A retrospective consecutive case series was conducted of 15 patients with non-closing MH over a five-year period having undergone previous vitrectomy, internal limiting membrane (ILM) peel and gas tamponade. All patients underwent vitrectomy and insertion of 1000CS silicone oil as a secondary procedure with or without ILM peeling. Observed parameters included patient demographics, MH diameter, anatomical success and best corrected visual acuity. Removal of silicone oil was planned following confirmation of MH closure. Statistical analysis was performed using Stata Statistics/Data Analysis tool.

Results: Mean age was 69.3 years with mean refractory MH diameter of 560um. Anatomical closure was achieved in 14 out of 15 patients (93.3%). 12 patients (80%) had MH diameter over 400um with median MH diameter of 620um. 9 patients (60%) had further peeling of the ILM during surgery. 53.3% of patients achieved ≥ 2 lines of visual improvement with 8 patients having post-operative vision of 6/38 (LogMAR 0.80) or better. 40% of patients achieved ≥ 3 lines of visual improvement whilst 33.3% of patients had a reduction in vision following surgery. MH closure was associated with an improved VA. A large MH ($>400\text{um}$) at baseline was associated with less likelihood of achieving vision > 0.78 logMAR after surgery ($p = 0.038$, Chi square test). Multivariate analysis did not show any significant correlation with the other variables in the study.

Conclusion: Silicone oil has shown to be an effective and successful tamponade agent in the treatment of refractory macular holes when primary surgery with expansile gas has failed.

Shamfa Peart

Co Author(s): Abdul El-Khayat, Konstantinos Tsaousis, P. R. Chaudhuri

Abstract Title: Bilateral giant macular hole-related retinal detachments in a patient with Alport Syndrome

Purpose: To describe the clinical course and management of a patient with bilateral sequential long-standing giant macular holes which progressed to retinal detachments (RDs)

Setting/Venue: Vitreoretinal Unit, Leicester Royal Infirmary, University Hospitals of Leicester, United Kingdom

Methods: We describe a case of a 42-year-old female who presented complaining of reduced vision for several months. Known to have Alport syndrome and had been diagnosed with bilateral large chronic full thickness macular holes, the right since the 1980s and the left since 2005. She declined surgical intervention and subsequently defaulted from follow-up. On examination, visual acuity was 2.00 logMAR on the right and 1.2 on the left. She was found to have a right inferior RD due to a primary giant macular hole and a left posterior pole detachment with a giant macular hole. She was offered surgical repair.

Results: The patient underwent right phacovitrectomy, inferior drainage retinotomy, endolaser and silicone oil. The vitreous was very adherent. She developed an inferior redetachment under oil with proliferative vitreoretinopathy (PVR) grade C. She underwent oil removal, ILM and PVR membrane peel, endolaser and Densiron oil. She then underwent left phacovitrectomy, ILM peel, endolaser and Densiron. She had right then left removal of Densiron and on last review at seven and three months post-operatively, respectively, vision was 0.72 logMAR on the right and 1.0 on the left with flat retinas and a flat open hole configuration bilaterally with a reduced foveal defect.

Conclusion: Alport syndrome is associated with abnormal collagen synthesis which is thought to contribute to the pathogenesis of these giant macular holes. These cases can be surgically challenging especially when there is associated retinal detachment. We describe a case of anatomically and functionally successful repair of bilateral giant macular hole-related RDs

ANTERIOR SEGMENT MEETS POSTERIOR

Shamfa A.M. Peart

Co Author(s): P.R. Chaudhuri

Abstract Title: Phacovitrectomy for symptomatic posterior vitreous detachment-related floaters

Purpose: To evaluate the safety and efficacy of phacovitrectomy in the treatment of symptomatic floaters related to posterior vitreous detachment

Setting/Venue: Vitreoretinal Unit, Leicester Royal Infirmary, University Hospitals of Leicester, United Kingdom

Methods: A prospective case series was carried out under the care of a single surgeon (PRC) to assess the safety and efficacy of phacovitrectomy in the management of patients with symptomatic floaters due to posterior vitreous detachment. All patients had a posterior vitreous detachment confirmed by clinical examination and careful examination of the retinal periphery was carried out to exclude pathology. All patients underwent 23 gauge pars plana vitrectomy with 27 gauge chandelier endoillumination, close vitreous base shaving and endolaser to the peripheral retina with air tamponade. Five patients underwent combined phacoemulsification with lens implant and one patient was already pseudophakic.

Results: Six patients (two men) were included in the series. The indication for surgery in all cases was the presence of symptomatic floaters related to posterior vitreous detachment. The average age was 66 ± 5.5 years. Average pre-operative visual acuity was 0.24 ± 0.19 . There were no intraoperative complications and the use of endolaser photocoagulation was prophylactic. Average post-operative visual acuity was 0.08 ± 0.09 . Patients were followed up for 3 – 6 months and there were no complications. The retina remained flat in all cases. All patients reported resolution of the symptomatic floaters and were pleased with the outcomes.

Conclusion: Phacovitrectomy with chandelier endoillumination and close vitreous base shaving is a safe and effective technique for the treatment of symptomatic floaters related to posterior vitreous

detachment. Patient selection, careful clinical examination and a thorough intraoperative peripheral search all play an important role in the successful management of these patients.

Salem Murjaneh

Co Author(s): Suman Pilli

Abstract Title: Discussion of surgical challenges related to explantation of Oculentis cloudy intraocular lenses and the option of vitrectomy as a primary procedure

Purpose: The design and characteristics of Oculentis implant aim to provide better centration and stability. These characteristics can create significant surgical difficulties when it comes to exchanging the cloudy lenses. New surgical techniques are required to deal with such difficulties. Primary vitrectomy is an option. I aim to discuss my experience.

Setting/Venue: Patients with Cloudy Lenses referred to Royal Cornwall Hospital NHS Trust

Methods: Data of patients who presented with the diagnosis of cloudy intra-ocular lenses on the Medisoft electronic patients record. Retrospective review of the surgical technique and the surgical and visual outcomes.

Results: 70 patients presented with opacified Oculentis intraocular lenses 22 operations performed 2 patients had binocular lens exchange Of the Oculentis lenses removed, one was in the sulcus, the remaining were in the capsular bag. The lenses were replaced with: 2 Artisan posterior Iris clip intra-ocular lens 6 optic captured sulcus fixated 8 sulcus fixated 5 sutureless scleral fixated, Yamanni technique 1 in the capsular bag 21 had vitrectomy

Conclusion: The large dimensions of the Oculentis lens together with its central thickness, rigidity and the closed loop haptic which fibroses into the capsular bag create surgical challenges when it comes to exchange. Vitrectomy approach as a primary procedure could be considered to avoid surgical related anterior segment trauma and complications.

Financial Disclosure: No

Abdul El-Khayat

Co Author(s): Shamfa Peart Partha, Ray Chaudhuri

Abstract Title: Visual outcomes and complications following retropupillary iris-claw (Artisan) implantation for aphakia

Purpose: To evaluate the safety, visual results and effect on endothelial cell count (ECC) of secondary retropupillary iris-claw (RPIC) intraocular lens (IOL) implants in aphakia

Setting/Venue: Ophthalmology Department, University Hospitals of Leicester NHS Trust, UK

Methods: This was a retrospective case series looking at all consecutive RPIC IOL implants performed between Nov 2017 – May 2019 by one surgeon (PRC). The best corrected visual acuity (BCVA), complications and ECC were determined. The ECC of the fellow eye was also measured.

Results: 20 eyes were included in the study. Mean follow up was 8.6 months (range 2.5 – 16.5, SD 4.00). Mean improvement in BCVA (logMAR) at 3, 6 and 12 months was 0.48 (SD 0.63), 0.88 (SD 0.73) and 1.39 (SD 0.24) respectively. Mean % change in ECC at 3 and 6 months was -24.9% (SD 22.6%) and -25.3% (SD 24.5%) respectively. Fellow eye % change in ECC at 3 and 6 months was +2.1% (SD 5.5%) and +2.0% (SD 4.9%) respectively. There were no intra-operative complications. Post-operative complications included cystoid macular oedema (CMO) (n=11), wound leak (n=2) and retinal detachment (n=3)

Conclusion: In our series, RPIC IOLs provided good BCVA outcomes. There was a reduction in ECC in the same eye compared to fellow eyes and a large proportion of patients developed CMO. These findings may be partially explained by the prior complicated cataract surgery that most patients underwent

Financial Disclosure: No

Ibrahim Masri**Abstract Title:** Transconjunctival four-point fixation of a secondary IOL**Purpose:** Transconjunctival scleral fixation of an Akreos IOL using flanged 5'0 Prolene suture**Setting/Venue:****Methods:** The author presents a video of a single case highlighting a novel, previously undescribed technique of performing scleral fixation of an Akreos AO60 intraocular lens using 2 loops of 5'0 Prolene suture with flanged ends. This technique taps into the knowledge gathered by the many case series describing the Yamane flanged haptics technique to fixate a 3 piece IOL to the sclera and aims to be a less invasive version of previously described techniques using Gore-TEX sutures that require peritomy. This technique potentially minimises the risk of early postoperative hypotony, as well as late suture related complications.**Results:** The case was performed 2 weeks ago without any intraoperative complications. Day 1 post-op the patient had a well centred IOL, Vision was 6/12 and intraocular pressure of 18mmHg. Further relevant data will be collected during planned outpatient visits to include in the presentation.**Conclusion:** More cases and longer follow-up will be required to prove the value of this new technique**Financial Disclosure:** No**Guy Negretti****Co Author(s):** Mahi Muqit Weng O Chan**Abstract Title:** Artisan Lens Insertion in Vitrectomised Eyes**Purpose:** To present the visual acuity (VA) results and complication rates following Artisan intraocular lens (IOL) insertion in vitrectomised eyes.**Setting/Venue:** Moorfields Eye Hospital**Methods:** Outcome data was collected for all vitrectomised patients who had undergone Artisan IOL insertion between January 2014 and May 2019 at Moorfields Eye Hospital. All those with follow-up greater than 2 months were included in the analysis.**Results:** 69 eyes from 61 patients were included. Average follow up was 2 years. 55 (80%) eyes had at least one ocular comorbidity prior to Artisan IOL insertion. At final follow up 46 (67%) eyes had best corrected VA better than 20/40. Sixty-three eyes (91%) either gained or maintained VA. Mean post-operative spherical equivalent was -0.2D. 2 (3%) patient's lenses became de-enclavated requiring further surgery. 2 (3%) patients developed acute post-operative cystoid macular edema. 2 (3%) patients required additional topical IOP-lowering therapy to what they were using pre-operatively for glaucoma. 1 patient had mild corneal oedema which persisted for one year following surgery and subsequently resolved.**Conclusion:** Artisan IOL insertion is a safe and effective option for the surgical correction of aphakia in vitrectomised eyes lacking capsular support. Refractive results comparable to posterior chamber IOL placement can be achieved with these lenses.**Financial Disclosure:** Yes**Fidan Jmor****Co Author(s):** NATALIA VILA; Consultant Ophthalmologist, St Paul's Eye unit, Royal Liverpool University hospital**Abstract Title:** Modified Yamane technique: mastering the second haptic externalisation.**Purpose:** To report a modified version of the Yamane surgical technique for a sutureless intra-scleral fixation of a posterior chamber intraocular lens (IOL) which allows for a simplified and safer haptic manipulation.**Setting/Venue:** St Paul's Eye unit, Royal Liverpool University Hospital, Liverpool, UK.

Methods: A 27-gauge pars-plana vitrectomy cannula is placed at 3 and 9 o'clock positions to create scleral tunnels in the direction that IOL haptics are aimed to be externalized. Each IOL haptic (of a 3-piece IOL) is introduced into the lumen of an adapted Crawford stent. These silicone-tubed ends are then grasped with intraocular 27-gauge end-grasping forceps through the temporal or nasal sclerotomy to externalize the haptic, providing simplified haptic manipulation. Once both haptics are externalized, the tubing is removed, high-temperature cautery is applied to create a small bulb at the haptic tip and the haptics fixated in the scleral tunnels.

Results: This technique allows for a reduced risk of haptic damage during haptic externalisation (in particular to the second haptic), and leads to good IOL centration and stability.

Conclusion: This modification to the existing Yamane technique provides the benefits of preservation of haptic integrity during docking and fixation regardless of the 3-piece IOL used, and facilitating ease of performance.

Financial Disclosure: No

Sherif Shaarway, Riaz Asaria. Royal Free London Hospital

This a video presentation showing a technique for an old IOL implant replacement using Iris hooks for bag stabilization. 3 port 23 gauge trocars with an infusion cannula. Corneal incisions. Dispersive OVD to support the cornea. Inserting Iris hooks to support the bag during Lens Cutting and extraction Lens cutting and extraction. IOL implantation. The Technique shows safety and support to the capsular bag during lens exchange. This describes a useful technique to extract IOLs safely during IOL exchange procedures

To show a novel technique of IOL replacement

Piergiacomo Grassi

Co Author(s): Mr Stephen Winder FRCOphth, MD, Consultant Ophthalmic and Vitreoretinal Surgeon, Department of Ophthalmology, Royal Hallamshire Hospital, Sheffield University Hospitals NHS Foundation Trust, Glossop Road, Sheffield, S10 2JF, United Kingdom.

Abstract Title: Posterior polar cataract: is it a vitreoretinal condition?

Purpose: Posterior polar cataract (PPC) is being increasingly referred to vitreoretinal (VR) surgeons for management. To assess the incidence of posterior capsule tear (PCT) and of dropped nucleus/retained lens material (DN/RLM) in eyes with PPC undergoing routine cataract surgery, and to compare the PCT rate between VR surgeons and non-VR surgeons.

Setting/Venue: Royal Hallamshire Hospital, Sheffield University Hospitals NHS Foundation Trust, Sheffield, United Kingdom.

Methods: A retrospective multi-center chart review study was conducted composing of all patients diagnosed with PPC within Sheffield University Hospitals NHS Foundation Trust over last 7 years. A total of 111 eyes of 79 patients were diagnosed with PPC, 40 were males, 39 were females. The mean age was 61.5 years (± 35). The most common ocular comorbidities associated were non proliferative diabetic retinopathy (9 eyes, 8.1%), high myopia (8 eyes, 7.2%) and amblyopia (7 eyes, 6.3%).

Results: A total of 55 eyes underwent cataract surgery (49.5%), of whom 28 were operated by non-VR surgeons (50.9%) and 27 (49.1%) by VR surgeons. A total of 7 PCTs and 1 DN/RLM were recorded, were all managed with 3-pieces IOL implant into the ciliary sulcus at the same operation. PCT rate was 14.14%, DN/RLM rate was 1.81%, both rates were significantly higher compared to routine cataract surgery in non-PPC (respectively 1.4% - $p=0.001$, and 0.3% - $p=0.0009$). A VR-surgeon was the operating surgeon during 6 out of 7 cases with PCTs (85%) and during the DN/RLM case.

Conclusion: PCTs and DN/RLM are significantly more frequent in eyes with PPC undergoing routine cataract surgery compared to non-PPC eyes. There is no statistically significant difference in the incidence of PCTs and DN/RLM between VR and non-VR surgeons.

Pick 'n 'mix

SHI ZHUAN TAN

Co Author(s): Serafeim Antonakis, Shohista Saidkasimova, Alistair Laidlaw

Abstract Title: Outcome of super early vitrectomy for florid proliferative diabetic retinopathy (PDR)

Purpose: To investigate the anatomical and visual outcome of early vitrectomy in eyes with florid PDR with no established visual loss.

Setting/Venue: A multi-centre, retrospective, observational study of patients managed at St Thomas' Hospital, Maidstone Hospital and Norfolk and Norwich Hospital.

Methods: Diabetic eyes with multiple areas of active new vessels where there was no evidence of macular traction or any large area of established fibrosis or dense vitreous haemorrhage obscuring vision, were included in the study. A standard 3 ports pars plana vitrectomy (PPV) with either 23g or 25g was performed and endolaser was applied up to the ora serrata at the time of surgery. Patients with less than 6 months follow-up from surgery were excluded.

Results: Sixteen eyes of 12 patients were included in the study. All patients were type 1 diabetic (male:female =1.4:1). The mean age was 29.4 ± 4.3 years old. Thirteen eyes (81.3%) received intravitreal bevacizumab pre-operatively. The pre-operative median visual acuity was 0.3 logMAR which remained stable at 0.2 logMAR at last visit (median follow-up period: 6 months). 56.3% of eyes developed post-operative cavity bleed and 25.0% out of these eyes required cavity washout. Regression of retinopathy grading from active to stable was documented in 87.5% of eyes. There was no incidence of post-operative retinal detachment or clinically significant diabetic macular oedema.

Conclusions: In this small series where early PPV was performed in diabetic eyes before any established visual loss, we found no sight-threatening complications and early stabilisation of retinopathy was observed. Further study with larger number of patients and longer-term follow-up is indicated.

Financial Disclosure: No

Mahmut Dogramaci

Abstract Title: Intraocular forceps related parameters

Purpose: Using fine forceps to peel intraocular tissues like internal limiting membranes and epiretinal membranes requires steep learning curve. With innovative companies regularly introducing new intra ocular forceps designs, trainees as well as experienced surgeons are forced to adapt themselves to new tools. In this study we aimed to present a novel method to study various parameters related to intraocular forceps designs to enable the comparison between different forceps designs and provide new users an insight about the qualities of newly introduced forceps.

Setting/Venue: Princess Alexandra Hospital, Harlow, Essex, CM20 1QX

Methods: A purpose designed robotic system operating 5 stepper motors and fitted with 3 sensitive load cells, moisture sensor and 400X digital microscope was used to measure several parameters of ultra peel 25 gauge forceps manufactures by D.O.R.C, the parameters measured were bites size (BS) that is the distance between the inner surface of the grasping blades of the forceps and its relation with the applied force on its handles, the weight lifting ability of the forceps in relation to its BS, and denting force (DF) that is the force used

to push the forceps tips into the tissues before initiation of tissue grasping.

Results: There was nonlinear correlation between force applied on the handles and bite size. 300 grams/handle surface area (g/hsa) on each side was required for 50% closure and 686 g/hsa on each side was required for complete closure. When the BS of 0.5mm, and denting force of 1, 2, 3, 4 and 5 gram/forceps tip surface area (g/tsa) the maximum weight lifted by Ultra Peel forceps was 6.55, 19.2, 48.26, 17.35 and 6.56 respectively. For BS of 1mm and denting weight force of 1, 2, 3, 4 and 5 g/tsa maximum weight lifted was 0.5, 2.53, 16.14, 11.86, and 27.46 respectively.

Conclusion: The relationship between the bite size and the force applied to ultra peel forceps handles is nonlinear. Smaller bites require Less denting force to achieve the same weight lift therefore forceps with smaller bites may be safer to use to peel intraocular membranes.

Zheng Yang Xu

Co Author(s): Augusto Azuara-Blanco, Kazuaki Kadonosono, Timothy Murray, S. Natarajan, William Smiddy, David Steel, Thomas J Wolfensberger, Noemi Lois, CORDS Study Group

Abstract Title: A New Delphi Consensus-Derived Classification System for Quantifying Severity of Complications of Retinal Detachment Surgery (CORDS)

Purpose: To review the quality of harms reporting in recent randomised controlled trials (RCTs) in retinal detachment surgery and develop and propose a new classification system for quantifying severity of complications after retinal detachment surgery.

Setting/Venue: Queen's University Belfast

Methods: A systematic review of retinal detachment surgical trials published from January 2008 until December 2018 was conducted with a quality assessment against the CONSORT checklist for harm reporting in RCTs. A two-round Delphi survey was conducted amongst vitreo-retinal experts internationally (n=45) to generate a consensus (interquartile range ≤ 2) grading of severity of general complications of retinal detachment surgery, as well as complications specific to pars-plana vitrectomy, scleral buckle and pneumatic retinopexy, ranking from 1 (no clinical significance) to 10 (most severe).

Results: 45 trials were eligible. Overall harms reporting was suboptimal. Amongst the items most frequently omitted from the CONSORT checklist were 'use of a validated instrument to report complication severity' (reported in 8.9% of studies) and 'distinguishing between expected and unexpected complications' (reported in 4.4%). Of the Delphi respondents, the majority (98%) completed both first and second rounds, and a consensus was reached for all but 3 of the 84 complications assessed (96%). The least severe complications were subconjunctival haemorrhage and chemosis (graded 1), while the most severe complications were endophthalmitis and sympathetic ophthalmia (graded 9) and phthisis (10).

Conclusion: Current reporting of complications in retinal detachment trials is not adequate, and this is probably due in part to the lack of a validated instrument for grading severity. We propose the use of a new system of classification for quantifying severity of surgical complications based on expert consensus.

Manjit Mehat

Co Author(s): James Bainbridge Angelos Kalitzeos Thomas Kane

Abstract Title: Adaptive Optics Scanning Laser Ophthalmoscopy (AO-SLO) in vision impairment following removal of silicone oil (ROSO)

Purpose: Severe impairment of central vision following ROSO is well-recognised but poorly understood. Our aim was to understand the mechanism involved by imaging cone photoreceptors and correlating their appearance with retinal sensitivity by microperimetry.

Setting/Venue: Moorfields Eye Hospital, London

Methods: We performed an observational study including participants who developed impairment of acuity greater than or equal to 0.3 LogMAR within 2 weeks of ROSO. We performed optical coherence tomography (OCT), microperimetry and non-confocal split-detection AOSLO. The contralateral unoperated eye was used as an internal control.

Results: We enrolled 3 participants whose mean age was 47 (24 to 63) years. Their mean loss of best-corrected visual acuity (BCVA) following ROSO was 0.7 (0.7 to 0.9) LogMAR. OCT examination showed normal retinal morphology in each participant. AOSLO imaging showed normal foveal photoreceptor (PR) mosaic and normal mean cone density of 120,844 (+/-913,046) cones/mm². However, multiple droplet-like deposits were evident on the inner surface of the central macula, spatially corresponding to reduced retinal sensitivity on microperimetry in each affected eye.

Conclusion: In ROSO retinopathy, the cone photoreceptor mosaic and density appear normal, However, droplet-like deposits on the surface of the central are spatially associated with a central scotoma. The findings are consistent with an adverse effect of ROSO on cells of the inner retina.

Financial Disclosure: No

Neruban Kumaran

Co Author(s): Moin D Mohamed, Omar A Mahroo, Shi Z Tan, D Alistair H Laidlaw.

Abstract Title: Varied visual recovery from paracentral acute middle maculopathy following routine vitreoretinal surgery.

Purpose: To report two cases of paracentral acute middle maculopathy (PAMM), following routine vitreoretinal surgery with varied final visual acuities. PAMM is a recently recognised condition understood to be caused by deep capillary plexus ischaemia. Usually idiopathic there have been a small number of reports subsequent to procedures involving sub-Tenon's anaesthesia.

Setting/Venue: St Thomas' Hospital, London, UK and Maidstone Hospital, Maidstone, UK.

Methods: Retrospective case series of two subjects who developed PAMM, following routine vitreoretinal surgery. Visual acuity (VA), clinical examination, and retinal imaging with spectral domain optical coherence tomography (SD-OCT) were performed, demonstrating longitudinal changes in retinal structure and function.

Results: Two patients underwent uncomplicated vitreoretinal surgery with sub-Tenon's anaesthesia and subsequently developed decreased central visual function. SD-OCT revealed characteristic hyperreflective bands at the deeper layers of the inner retina. Interestingly, both patients had varied postoperative courses with one patient developing a central retinal vein occlusion and a final VA of 0.00 LogMAR, whilst the other a final VA of 1.00 LogMAR.

Conclusion: PAMM, although rare, should be considered in patients presenting with central visual loss following routine vitreoretinal surgery with sub-Tenon's anaesthesia. Furthermore, visual prognosis is noted to be varied.

Financial Disclosure: No

Christopher Gorman

Abstract Title: Surprising insights from unusual data

Purpose: Identify new patterns in referral to VR surgeons based upon financial data

Methods: As insurance companies have altered remuneration rates for cataracts new patterns of referrals to VR surgeons have emerged

Results: A new (indirect) economic measure for case complexity is proposed

Conclusion: everything has a price!

Financial Disclosure: Yes

Daniel Shu Wei Ting

Co Author(s): Ms Dawn Sim, FRCOphth, Moorfields Eye Hospital Ms Louisa Wickham, FRCOphth, Moorfields Eye Hospital

Abstract Title: A Digitally-Enabled Virtual Clinic in Monitoring Vitreo-retinal Surgical Cases: A pilot study

Purpose: To evaluate a proof-of-concept (POC) novel model of care to monitor post-operative vitreo-retinal cases

Setting/Venue: Moorfields vitreo-retinal clinic

Methods: We first identified the suitable cases based on the eligibility criteria. The inclusion criteria include post-rhegmatogenous retinal detachment (RRD) and macula hole repair patients. Exclusion criteria were only eye (operated eye), IOP >30mmHg, severe eye discomfort/complaint. Those patients, who were deemed eligible, underwent additional ophthalmic imaging tests - Optos wide field imaging and optical coherence tomography (OCT) macula. A fellowship trained retinal surgeon decided upon the management and follow-up plan based on the clinical data and images.

Results: Of the 12 patients deemed suitable, 10 of whom were included in this study (2 patients were not performed due to time constraint) – Macula hole (2 patients); Retinal detachment (8 patients). All patients underwent 23G vitrectomy, endolaser and endotamponade. 5 patients had SF6, 3 had C3F8 12% and 2 had silicone oil (due to presence of proliferative vitreo-retinopathy). Optos imaging was able to be captured in 8 patients, and OCT in 9 patients (the last one was not captured due to time limitation). These included 2 patients with partially filled gas and 2 with silicone oil. Based on the clinical data/imaging, the decision made by the retinal surgeon was consistent with 9 out of 10 management and follow up planning, except for a post-RRD patient who was found to have epiretinal membrane.

Conclusion: This POC study suggests the feasibility of a novel model of care to follow up post-operative vitreoretinal cases – RRD and macula hole. Future research is of great value to study its cost-effectiveness, patients' experience, satisfaction and clinic waiting time.

Financial Disclosure: No

Amreen Qureshi

Co Author(s): Qureshi, Amreen, FRCOphth1; Jalil, Assad, FRCOphth1, Sousa, David C, MD1, Patton, Niall, FRCOphth1, Dhawahir-Scala Felipe, FRCOphth1; Charles, Stephen J, FRCOphth1; Turner George, FRCOphth1; Ivanova, Tsveta PhD

Abstract Title: Outcomes of Suprachoroidal Haemorrhage Drainage: A 10-year Manchester Study

Purpose: The management of suprachoroidal haemorrhage (SCH) remains a challenge. We aimed to analyse and present the safety and efficacy outcomes of SCH drainage surgery over a 10-year period in one of the largest tertiary centres of UK.

Setting/Venue: Manchester Royal Eye Hospital, UK

Methods: A retrospective observational study of consecutive patients who underwent SCH drainage in Manchester Royal Eye Hospital over a 10-year period (2008-2018). Safety and efficacy were assessed by analysing: 1) surgery-related complications and 2) functional and anatomical success. Outcomes of those who underwent drainage alone versus combined drainage and vitrectomy were compared.

Results: Twenty patients (mean age 69.5±19.3 years) were studied. Age over 70 years, hypertension, cardiovascular disease, glaucoma and aphakia were the most commonly present risk factors for SCH. Eleven patients underwent external drainage only and nine patients had combined vitrectomy and drainage. Overall, mean pre-operative BCVA improved from 2.22±0.26 logMAR to 1.42±1.02 logMAR at last follow-up visit (p=0.002). Severe hypotony occurred in 4 patients. Overall anatomical and

functional success rates were both 75%.

Conclusion: Drainage of SCH with or without vitrectomy is a valuable approach in the management of extensive SCH, a condition generally associated with a poor prognosis.

Financial Disclosure: No

Michael Mikhail

Co Author(s): Ruggero Tartaro, Natalia Vila

Abstract Title: Two-step transconjunctival approach for suprachoroidal haemorrhage prior to clot liquefaction.

Purpose: To report a minimally invasive surgical approach for suprachoroidal haemorrhage (SCH) drainage prior to evidence of liquefaction on ultrasonography (US).

Setting/Venue: Vitreoretinal Surgery Service – St. Paul’s, Royal Liverpool University Hospital, Liverpool.

Methods: Single centre, prospective, consecutive case series. Patients with appositional suprachoroidal haemorrhage (SCH) and non-liquified clot were included. B-scan US Ultrasonography (US) was performed to measure choroidal detachment height and determine the drainage point. The surgical technique was done in two stages in the same setting. The first step involved injecting a total of 0.3mls of r-tPA (50micrograms/0.1ml) in the suprachoroidal space using a 30-gauge needle at the highest quadrant of the detachment under subconjunctival anaesthesia. Patient was transferred to the recovery room for at least one hour. The second step was performed under subtenon injection of lidocaine 2% and it involved the placement of self-retained infusion line in the anterior chamber, followed by insertion of a 23-gauge non-valved cannula 7.0 mm posterior to the limbus at 15 degrees from sclera. After drainage, the cannula was removed and sclerotomy was left sutureless. The primary outcome was the SCH reduction determined by US. The secondary outcomes were visual acuity and intraocular pressure measurements

Results: Four patients were included. Mean time between occurrence and presentation to our unit of patients with SCH was 7 days. The aetiology of the SCHs were the following: 1 complicated cataract extraction, 1 complicated combined cataract extraction and viscocanaloplasty, 1 orbital trauma post- cataract surgery, and 1 vitrectomy (macular hole). Drainage of the SCH resulted in resolution of the apposition on the surgical table visualized by indirect ophthalmoscopy by the surgeon, and ultrasonographic improvement by week 1 postoperatively in 3 out of 4 eyes. Visual improvement was achieved in the 3 eyes. Further surgery involved pars plana vitrectomy for concomitant vitreoretinal pathologies namely retained lens fragment and subluxated intraocular lens was done in two eyes. No complications related to this technique were noted.

Conclusion: This technique is minimally invasive, safe and effective in achieving drainage of SCH prior to clot liquefaction when prompt management is warranted. Waiting for natural dissolution carries the risk of inseparable retinae and retinal detachment, compromising functional outcomes.

Financial Disclosure: No

Manzar Saeed

Co Author(s): Manish Gunda

Abstract Title: Meet My Junior Fellow

Purpose: Investigating the efficacy of illuminated scleral indentation in pars plans vitrectomy

Setting/Venue: Oertli Video presentation showing the new Oertli ViPer illuminating scleral indenter

Methods: The new transilluminating scleral indenter by Oertli (Switzerland) was put to test in this technique. All cases underwent suture-less 23 gauge pars plana vitrectomy. Removal of anterior peripheral vitreous was considered important in these cases. Peripheral indentation with Viper illuminated indenter was carried out by the operating surgeon while simultaneously conducting vitrectomy. No assistance was used.

Results: ViPer indenter furnished very satisfactory visualisation of peripheral anterior retina with

ability to carry out vitrectomy safely and efficiently. There were no iatrogenic retinal breaks caused.

Conclusion: ViPer indenter is a safe alternative to non-proprietary trans-illuminating devices and potentially circumvents the need for a surgical assistant.

Financial Disclosure: No

Vignesh Paulpandian, Hussam Muntasser, Shohista Saidkasimova

Title: Prevalence of Vitreoretinal complications in patients receiving intravitreal injections in Norwich and Norfolk University Hospital over a period of Nine years

Venue: Norfolk and Norwich University Hospital

Purpose: This study aims to assess the relative risk of Vitreoretinal complications in patients receiving Intravitreal injections, identify the correct reporting strategy, and identify any factors that might predispose patients to this risk.

Methods: All those who received Intravitreal injections from January 1st, 2010 until September 1st 2019 were identified, there were 5453 patients, 6835 eyes injected, total number of injections were 62532.

Inclusion criteria: Patients who received IVT injection of any ocular drug who presented with vitreoretinal complications within 6 months of receiving the injection

Exclusion criteria: Tractional retinal detachment in diabetic patients; Vitreoretinal problems presenting more than 6 months after last IVT injection

Results: 7 had retinal detachments and 1 had retinal tear, 21 patients had sub macular haemorrhage. The risk for sub macular haemorrhage was considered to be related to the underlying retinal condition and not due to the injection per se. Number of injections prior to the complication were 1-24 injections. Time interval between the injection and the complication in days ranged from 7 to 107 days.

Conclusions: The risk of vitreoretinal complications per injection was 0.05%, though risk per eye was 0.42%. Both the risk per injection and per eye per course of injection should be reported in research and when consenting a patient to these treatments.

David Cordeiro Sousa, Jennifer Kim, Niall Patton

Abstract Title: Acute pulmonary oedema during paediatric retinal detachment surgery

Purpose: To report a severe systemic complication during a paediatric retinal detachment surgery.

Setting/Venue: Manchester Royal Eye Hospital, Manchester, UK.

Methods: Case-report. A 12-year-old girl with acute retinal detachment in her only good-seeing eye was admitted for urgent cryobuckle surgery under general anaesthesia. Apart from premature birth (30/40), she was fit and well with no previous history of cardiopulmonary disease or drug allergies. Anaesthesia induction was uneventful.

Results: The surgery started as standard, with 360° conjunctival peritomy, phenylephrine 10% topical administration to promote conjunctival vessels' vasoconstriction, followed by rectus muscles identification. Muscle slinging induced oculo-cardiac reflex (bradycardia to 40bpm) was treated with atropine 300 micrograms and avoiding muscle retraction. Within moments, systemic hypertension (over 150/100 mmHg), tachycardia (130bpm), and significant desaturation to 80% were noted. Clinical examination, serial chest X-ray's and sputum samples confirmed the diagnoses of acute pulmonary oedema, which was treated emergently. Progress was noted with reduced oxygen requirements and extubation after 40 minutes. The surgery was completed after total recovery.

Conclusion: Systemic absorption of ocular phenylephrine, together with atropine administration, induce an iatrogenic systemic sympathetic response with blood pressure and heart rate increases, left ventricular failure and consequent acute pulmonary oedema. Both surgeons and anaesthetists should be aware of this potentially serious complication.

ONCOLOGY AND INFLAMMATION

Heinrich Heimann

Co Author(s): Rumana Hussain, Colm Andrews, Carl Groenewald, Helen Kalirai, Sarah Coupland, Bertil Damato

Abstract Title: Metastatic disease in patients with choroidal melanoma undergoing surgical endoresection without neoadjuvant radiotherapy

Purpose: To test the hypothesis that endoresection of choroidal melanoma causes metastatic death if administered without neoadjuvant radiotherapy

Setting/Venue: Analysis of patient treated by enucleation or endoresection at the Liverpool Ocular Oncology Unit

Methods: Patients treated for choroidal melanoma by endoresection or by enucleation with a diameter <15mm and a thickness <12mm were included into this study. The NHS cancer registry notifications of date and cause of death were recorded.

Results: The cohort consisted of 505 patients (299 male, 206 female, median age 63.2 years). Treatment consisted of enucleation (n=400) and surgical endoresection without neoadjuvant radiotherapy. Median follow-up was 8.5 years. A total of 230 patients had died by study closure. The cause of death was metastasis from uveal melanoma in 40.0% and 40.2% of deceased patients treated by endoresection or enucleation. Cox multivariate analysis showed metastatic mortality to be associated with tumour diameter and chromosome 3 loss, but not type of treatment.

Conclusion: Surgical endoresection without neoadjuvant radiotherapy does not increase the risk for metastatic disease.

Shahanaz Ahmed

Co Author(s): CK Patel

Abstract Title: Current practices relating to intravitreal anti-VEGF treatment for retinopathy of prematurity and a proposal for the management of infantile endophthalmitis.

Purpose: Intravitreal anti-VEGF is a relatively novel treatment option for retinopathy of prematurity (ROP). Currently there is limited guidance on how to perform the procedure and management of complications, including endophthalmitis. This survey sought to understand current practices pertaining to intravitreal anti-VEGF therapy for ROP in the UK.

Setting/Venue: A UK-based national survey aimed at ophthalmologists involved in treatment of ROP.

Methods: An electronic survey was composed addressing the following areas: how intravitreal anti-VEGF is used in the management of ROP, details relating to the procedure and complications of intravitreal anti-VEGF injections. This was piloted locally then sent out to ROP screeners in the UK via an established database. Following analysis of the results, a literature review was conducted on infantile bacterial endophthalmitis.

Results: Overall numbers of anti-VEGF injections performed for ROP are small, with most units treating up to 5 eyes per year with anti-VEGF. Less than a third of primary treatment for ROP is with anti-VEGF in most units but is as high as 80% in some units. Most ophthalmologists inject 0.025mls of half-adult dose of either Ranibizumab or Aflibercept. There is some variability in practice, however most injectors wear gowns, use povidone-iodine in and around the eye and administer post-operative antibiotics. There is greater variability in post-procedure reviews and most units do not have a protocol for management of infantile endophthalmitis.

Conclusion: As numbers of anti-VEGF injections performed in infants are small, the availability of more comprehensive guidance would be beneficial in standardising treatment. Endophthalmitis is a

rare but serious complication of intravitreal injections. A protocol for managing endophthalmitis is suggested following a literature review and theoretical considerations of the premature eye.

Financial Disclosure: No

Jonathan Mark Smith

Co Author(s): Ankur Mehta, Ibrahim Masri , Maged Habib, David Steel

Abstract Title: Endophthalmitis- a sensitive subject...

Purpose: To present the sensitivity results of all acute post-operative endophthalmitis cases presenting to Sunderland Eye Infirmary over the past 20 years.

Setting/Venue: Sunderland Eye Infirmary

Methods: Review of a prospective data collection carried out on all acute post-operative bacterial endophthalmitis cases presenting to Sunderland Eye Infirmary over the past twenty years. With the assistance of our microbiology department, we identified - the number of culture positive and negative cases - the percentage of culture positive cases sensitive to Vancomycin or Ceftazidime - for culture negative cases - which cases failed to respond to intravitreal antibiotic therapy (defined as worsening vision, increased inflammation or more pain) - which cases required a 'rescue vitrectomy' due to poor response at 48 hours

Results: 142 cases were identified over the twenty year period. 17 were excluded as they were of fungal origin. 125 postoperative cases of bacterial endophthalmitis were analysed - 78 cases were culture positive 76 cases out of the 78 were sensitive to either vancomycin or ceftazidime (97.5%) 47 cases were culture negative - 12 cases could not be analysed as the notes had been destroyed. Within the remaining 35 cases - all responded to intravitreal antibiotic therapy. No cases required a 'rescue vitrectomy' at 48 hours.

Conclusion: Almost all cases of post-operative endophthalmitis are sensitive to standard intravitreal antibiotic therapy or respond well. In light of this we have moved away from performing a vitreous biopsy at presentation and will send vitreous specimens for PCR should a vitrectomy be required.

Rumana Hussain

Co Author(s): L Sandri, H Heimann

Abstract Title: OCT changes following Transretinal Biopsy of Choroidal Melanoma

Purpose: We assess the safety and efficacy of trans retinal choroidal biopsies without vitrectomy for prognostic genetic analysis

Setting/Venue: Liverpool Ocular Oncology Centre

Methods: Retrospective review of choroidal melanoma Primary proton beam radiotherapy 2011 – 2017 FU >1yr Prognostic 25g transretinal biopsy without vitrectomy and tamponade The main outcomes and measures: Rhegmatogenous retinal detachments (RRD) Tumour seeding Yielding samples adequate for cytogenetic analysis

Results: Reviewed 236 patients 95% cytology success, 85% genetics 105 patients qualified with good OCTs 3 cases of retinal detachment, zero cases of local tumour seeding OCT analysis shows vitreous plugging and buckle effect covering the round hole

Conclusion: Trans retinal choroidal biopsies without vitrectomy and tamponade are safe and effective at obtaining material for prognostic genetic analysis

Financial Disclosure: No

Alastair Coulson

Co Author(s): Divya Jacob, Lyudmila Kishikova, Ahmed Saad

Abstract Title: Toxoplasma related neuroretinitis: more than meets the eye

Purpose: The intracellular protozoan Toxoplasma (T. gondii) is a very common parasitic infection normally asymptomatic in immunocompetent patients following self-limiting lymphadenopathy and

fever. Neuroretinitis, which results in severe, painless visual loss, vitreal inflammation, mild RAPD, optic disc oedema and a macular star, is an unusual first presentation of the Toxoplasma which can rarely occur in mostly young, immunosuppressed patients. This case report demonstrates a rare presentation of toxoplasma related neuroretinitis in a young non-immunocompromised female.

Setting/Venue: Ophthalmic unit

Methods: Retrospective case report of a 34 year old female who developed sudden loss of vision, in the absence of any significant systemic symptoms, medical history or exposure to animals.

Results: The difficulty of this case was that the initial sign of the condition was swollen optic disc associated with visual loss leading consideration of alternative diagnosis, with the absence of any relevant ophthalmic or medical history which would suggest presence of toxoplasma involvement. With careful monitoring of the condition, a macular star sign has emerged which lead to testing for a toxoplasma serology from which the diagnosis was taken. Anti-toxoplasma triple therapy was started consisting of Oral Pyrimethamine, Sulfadiazine and Prednisolone with Folinic acid. The patient responded well to the treatment and her Vision improved within the following 6 months.

Conclusion: This case demonstrates the difficulty in diagnosis of a rare ophthalmic condition in the absence of classical risk factors or typical symptoms. This patient was not immunocompromised, had no contact with cats and had not been to a toxoplasma endemic area.

Financial Disclosure: No

Anca Axinte

Co Author(s): Mr A Chaggar, Mr O Makhzoum, L Boghiu, Mr D Park

Abstract Title: Microbiologic yields and complication rates of mechanised vitreous biopsy in endophthalmitis cases treated at University Hospital Coventry

Purpose: The purpose of our study was to find out the microbiologic test positivity and the complication rate for endophthalmitis cases treated in our hospital by mechanized vitreous biopsy between February 2002 and April 2019.

Setting/Venue: University Hospitals Coventry and Warwickshire, UK

Methods: 17 cases of endophthalmitis treated with mechanized vitrectomy at UHCW between February 2002 and April 2019 were analysed retrospectively; the endophthalmitis cases were post Intravitreal injections (53%), post cataract surgery (30%), post vitrectomy (6%) and endogenous (11%); all patients had a vitreous biopsy in the theatre, on the day of presentation, using a vitrectomy machine and were treated with Linezolid 600mg BD PO for 7 days.

Results: Retinal detachment rate of mechanized vitreous biopsy was 7.14% (Endophthalmitis Vitrectomy Study reports 8% for vitreous biopsy and 11% for needle tap). 64.2% of the treated endophthalmitis had positive cultures on 1st biopsy and 1 case had a positive culture following 2nd biopsy increasing positivity to 71.4% (EVS reports 66%positivity for culture for mechanized biopsy and 69% for needle tap). 35.7% of treated endophthalmitis had no growth after the 1st biopsy. 9 patients out of 17(52.9%) had visual outcomes between 6/30 to 6/9 following vitreous biopsy and intravitreal antibiotics.

Conclusion: Complication rates following mechanized vitreous biopsy are comparable to figures reported in the literature (7.1% vs 8%) and better compared to needle tap biopsy (7.1% vs 11%). Microbiologic test positivity after first biopsy has shown similar results to EVS (64.2% vs 66%).

Financial Disclosure: No

DAVID CORDEIRO SOUSA, ASSAD JALIL, JENNIFER KIM, FELIPE DHAWAHIR-SCALA, STEPHEN CHARLES, NIAL PATTON, GEORGE TURNER, TSVETA IVANOVA.

MANCHESTER ROYAL EYE HOSPITAL, MANCHESTER, UK.

Vitrectomy in Endophthalmitis: The Manchester Series. Current literature lacks large series or recent good quality evidence regarding the outcomes of early pars plana vitrectomy (PPV) for acute exogenous endophthalmitis.

Purpose: Our aim was to analyse and discuss the outcomes of PPV for endophthalmitis during a 10-year period (2008-2018) in a tertiary hospital in the UK

Retrospective cohort study. The clinical records of consecutive patients who had PPV for acute exogenous endophthalmitis were reviewed. Demographic data, aetiology, timing of onset, timing of vitrectomy, intra- and post-operative complications, baseline and final best-corrected visual acuity (BCVA), therapeutic regimens and microbiology details were collected. Primary efficacy and safety outcome measures were BCVA improvement of 2 or more logMAR lines, and intra or post-operative complications, respectively. Descriptive statistics and multivariate analyses were performed using STATA, and a $p < .05$ was considered for statistical significance.

Results: Forty-one patients with mean age of 70.7±18.6 years were studied. The most common aetiology was intravitreal injection (41%), followed by phacoemulsification (34%). Mean interval to vitrectomy was 1.8±1.5 [range 0 (same day) to 6.8] days. Median BCVA improved from 2.8 (range 1-2.8) logMAR to 1.6 (range 0.04-4) logMAR ($p < .001$), with 40% of cases reaching final bcva 1.0 logmar or better. In a multivariate model controlling for baseline bcva, and microbiology positivity, ppv within 24 hours was 81% less likely to achieve significant improvement (odds ratio="0.19," 95% confidence interval 0.03-0.98, $p = 0.049$)." presentation associated more intraoperative complications.

Conclusion: Favourable outcomes may be achieved with current antibiotic regimens and PPV for endophthalmitis. Our series suggests that a very early surgical intervention may be associated with worse functional outcomes. Tap/inject at presentation and a semi-urgent vitrectomy as required seems to be a sensible and safe approach

Ben Clarke

Co Author(s): Anastasios Sepetis Bhaskar Gupta

Abstract Title: Bilateral Endophthalmitis Following Simultaneous Bilateral Anti-VEGF Injection

Purpose: Description of a case of endophthalmitis in both eyes, 2 days after simultaneous bilateral Anti-VEGF injection. Discussion of technique, risk factors, management and outcomes.

Setting/Venue: University Hospital, Southampton. Injections performed in dedicated injection suite, with vitreous tap and vitrectomy procedures performed in eye theatres.

Methods: Case presented to eye casualty following pain and reduced vision in the left eye. The patient had undergone routine bilateral same-day injections 2 days earlier, then had gone for microblading cosmetic eyebrow enhancement the following day. The left eye underwent vitreous tap and injection of ceftazidime and vancomycin. Several hours later, the right eye deteriorated, and underwent the same management. The right eye was deemed to have better visual prognosis underwent emergency vitrectomy 36 hours later, with the fellow eye undergoing vitrectomy 72 hours after presentation. Both eyes were followed up with imaging and electrodiagnostic testing.

Results: Risks factors identified for bilateral infection were use of chlorhexidine preparation pre-injection (as opposed to povidone iodine) and cosmetic eyebrow microblading the following day, which may have been a source of haematological ingress for staphylococcus species as grown on microbiology samples. Both eyes made some recovery following treatment, and neither suffered retinal detachment, phthisis or evisceration. Final visual acuity was Logmar 0.8 right, 0.6 left.

Electroretinograms showed similar degradation of both widefield and pattern responses consistent with both retinal and macular dysfunction, and there was no significant electrophysiological difference between the eye with 36-hour vitrectomy versus 72-hour vitrectomy

Conclusion: This case demonstrates that bilateral endophthalmitis is possible after simultaneous intravitreal injections. Risk reduction in such situations should involve careful analysis of each case, and in particular use of povidone iodine skin preparation. We would recommend that patients with significant iodine allergy undergo staggered rather than same-day bilateral injections.

COMPLICATIONS

C.K. Patel

Abstract Title: One-eyed Morning Glory Disc RD Options after failed surgery

Purpose: Discuss the options for managing a complex retinal detachment

Setting/Venue: Oxford Eye Hospital

Methods: I will present case of a 30 year old patient who was blind in one eye from retinal detachment secondary to morning glory disc who developed sight loss in his only eye from retinal detachment.

Results: He was treated with a cryo-buckle drain. A retinal detachment has persisted without an obvious break.

Conclusion: I discuss management options with a survey of the literature on the topic to engage with consultants to map out further managements and to discuss new insights into pathogenesis of retinal detachment.

Financial Disclosure: No

NEW SURGICAL TECHNIQUE

Sher Aslam

Co Author(s): Paula Larranaga

Abstract Title: Amniotic Membrane for Recurrent Macular Hole

Purpose: To assess the safety and efficacy of using amniotic membrane for closure of a large macular hole

Setting/Venue: Oxford Eye Hospital

Methods: Single case report. Amniotic membrane graft was applied to a 1mm diameter macular hole that developed following reportedly uncomplicated phacovitrectomy with epiretinal membrane peel four months prior.

Results: There was successful closure of the macular hole with engraftment of the amniotic membrane. Vision improved from hand movements to counting fingers at 20cm. However, the central scotoma remained disabling requiring occlusion of the eye.

Conclusion: Amniotic membrane grafting was shown to be a safe and relatively straightforward method of achieving closure of a large macular hole in this case. However, resultant visual function was equivocal.

Jasmina Cehajic Kapetanovic

Co Author(s): Xue, Kanmin; Edwards, Thomas; Meenink, Thijs C.; Beelen, Maarten J.; Naus, Gerrit J.; de Smet, Marc D.; MacLaren, Robert E.

Abstract Title: First-in-human clinical trial of robot-assisted subretinal drug delivery under local anaesthesia

Purpose: To investigate the feasibility and safety of robot-assisted subretinal drug delivery in patients undergoing vitreoretinal surgery for acute sub-macular haemorrhage as a model for future robot-assisted retinal gene or cell therapy.

Setting/Venue: Nuffield Laboratory of Ophthalmology, University of Oxford and Oxford University Hospitals

Methods: We conducted a prospective randomized controlled surgical trial measuring safety outcomes in robot-assisted compared to standard manual retinal surgery under local anaesthesia in

patients with submacular haemorrhage (ClinicalTrials.gov NCT03052881). After standard vitrectomy, iOCT-guided (Zeiss Resight 7000) subretinal injection of recombinant tissue plasminogen activator was performed either by robot-assisted or conventional manual technique. We assessed surgical success, duration of surgery, adverse intraoperative events and tolerability of surgery under local anaesthesia.

Results: Twelve patients with acute central visual loss and OCT-confirmed sub-foveal haemorrhage were recruited to the trial, 6 in the robot-assisted and 6 in the control arm. The procedure was well tolerated by all participants and there were no adverse intra-operative events. Time taken to complete the subretinal injection was similar in both groups (robot-assisted mean 6.25 ± 1.46 min; manual 6.73 ± 2.74 min). Subretinal haemorrhage was successfully displaced at 1-month post surgery in all subjects except for one in the manual surgery arm. Gain in visual acuity at 1-month was similar in both arms (robot-assisted mean 0.97 ± 0.34 ; manual 1.373 ± 0.31).

Conclusion: This first in human study demonstrates the feasibility and safety of high precision robot-assisted subretinal drug delivery under local anaesthesia, simulating its potential future application in subretinal gene or cell therapy.

Financial Disclosure: Yes

VIDEO COMPETITION

Paul Chua

Co Author(s): Teresa Sandinha

Abstract Title: Nightmares for VR fellow.

Purpose: To share two interesting cases operated by fellow within one week.

Setting/Venue: St Paul's Eye Unit, Liverpool.

Methods: Case discussion and video presentation.

Results: Our first patient with congenital ectopia lentis underwent dislocated lens removal and secondary IOL implant. During the surgery, the faulty fragmatome produced a 'worm-like' material upon withdrawing the instrument. The second patient underwent straight forward retinal detachment surgery with densiron oil in situ; he presented to casualty clinic two weeks later with IOP of 70 and signs of endophthalmitis. During surgery, he was found to have four clock hours of posterior globe rupture Patient denied any trauma following surgery.

Conclusion: The first case illustrates lens changes caused by heat and to develop 2° plan when plan A fails. Enucleation was performed the following week in patient with endophthalmitis. It remained unknown why IOP was high despite the perforation and what caused it. Microbiology culture was positive for gram positive cocci.

Muhammad Kutubi

Co Author(s): Kam Balaggan

Abstract Title: A surgical approach in the management of symptomatic post-operative macular folds.

Purpose: To describe a surgical approach in the management of symptomatic macular folds following retinal detachment surgery.

Setting/Venue: Wolverhampton and Midland Counties Eye Infirmary

Methods: Video case report of a 60 year old lady who developed debilitating metamorphopsia and diplopia secondary to significant macular folds following 23G vitrectomy surgery for macular-off retinal detachment, and who subsequently opted for corrective surgery. The temporal hemi-retina was detached via subretinal injection of 2ml balanced salt solution through multiple posterior retinotomies using a 25/39G cannula. A peripheral retinotomy and perfluorocarbon liquid was used for subretinal fluid drainage and retinal flattening. Wide ILM peel including over the macular folds was performed, and 30% SF6 gas used as tamponade. Face down posturing was prescribed for seven days.

Results: Optical coherence tomography and autofluorescence imaging showed significant flattening of the macular folds. The patient reported a substantial improvement in metamorphopsia and diplopia.

Conclusion: Surgical intervention to detach and then reattach a folded macula can be effective in correcting macular folds, ameliorating its associated symptoms and improving anatomical features.

Financial Disclosure: No

Ben Clarke

Co Author(s): Bhaskar Gupta, Stephen Lash, Serafeim Antonakis

Abstract Title: Inadvertant Macular translocation with Inferior Retinal Folding in a Macula-sparing Rhegmatogenous Retinal Detachment

Purpose: Description of an unusual case of symptomatic macular shift with inferior retinal folding, following technically routine surgery for a macula-sparing rhegmatogenous retinal detachment.

Setting/Venue: University Hospital, Southampton. Emergency procedure was performed in eye theatres, with subsequent follow-up in eye outpatients on same site.

Methods: Clinical and imaging review of patient postoperatively. Optical coherence tomography (OCT), autofluorescence and OCT angiography were performed. Orthoptic examination was used to exclude motility disorders.

Results: The patient presented with binocular diplopia post-operatively, and was shown to have an inferior retinal fold, confirmed with OCT imaging. Orthoptic examination could not exclude 4th cranial nerve palsy, but autofluorescence imaging confirmed macular shift via altered position of macular pigmentation, and hyperfluorescent vascular tracks as previously described in the literature. Unfortunately this occurred despite the macula having been spared pre- and intra-operatively.

Conclusion: This case demonstrates that macular shift is possible in macula-sparing detachments. Ophthalmologists should consider counselling patients about this pre-operatively, and be aware of the possibility of fluid shift during intra-operative and post-operative manoeuvres. Autofluorescence is the best way to detect shift, which will not always be evident on orthoptic examination.

Financial Disclosure: No

Francesco Sabatino

Co Author(s): Roxane Jo Hillier

Abstract Title: Management of recurrent optic disc pit maculopathy (ODPm) with pars plana vitrectomy (PPV) and inverted internal limiting membrane (ILM) flap.

Purpose: To report a case of PPV and ILM flap for managing recurrent ODPm.

Setting/Venue: Newcastle Eye Centre, Royal Victoria Infirmary, Newcastle upon Tyne

Methods: Case report

Results: A 24 year old male previously underwent right PPV, ILM peel and gas for ODPm following blunt trauma. He subsequently developed a full-thickness macular hole (FTMH) and underwent phacoemulsification, PPV and additional arcade-to-arcade ILM peel and gas. Post-operatively, the FTMH closed and 6/24 best corrected visual acuity was achieved. Spontaneous ODPm recurrence occurred 3 years later and the patient underwent further surgery. Intra-operatively, an inverted ILM flap was harvested from the retina superior to the optic nerve and laid onto the pit along with gas tamponade. Post-operatively, optical coherence tomography (OCT) imaging confirmed resolution of ODPm. Video demonstration of the technique and detailed pre-and post-operative multi-modal imaging will be presented.

Conclusion: An inverted ILM flap technique resulted in closure of an optic disc pit and resolution of ODPm when a previous wide macular ILM peel had already been performed. This may be an effective treatment modality for recurrent ODPm.

Financial Disclosure: No

E-POSTERS

Lyudmila Kishikova

Co Author(s): Alastair Coulson Divya Jacob Ahmed Saad

Abstract Title: Multifocal choroiditis: a ruthless eye disease

Purpose: Multifocal choroiditis (MFC) is described as a chronic bilateral progressive inflammatory chorioretinopathy that usually affects healthy myopic white women with no associated systemic/ocular diseases. The retinal pigment epithelium (RPE), outer retinal spaces is most predominantly affected. The patient demonstrated in this case also had severe acute presentation of aggressive multifocal choroiditis that was reliant on on systemic steroids.

Setting/Venue: Ophthalmic unit

Methods: Retrospective case report of a 30 year-old Caucasian, 10 weeks pregnant female with bilateral severe loss of vision and systemic association of rapidly progressive rash and arthritis.

Results: The patient was extensively investigated for inflammatory and infectious aetiology by a multidisciplinary team including rheumatology and obstetrics and gynaecology. She had a normal full blood count, serology for syphilis, autoantibody testing, toxoplasmosis, borreliosis, brucellosis, Epstein-Barr virus and herpes simplex virus was negative. Antistreptolysin was moderately raised. Serial retinal optical coherence tomography scans were performed and were critical for assessing disease activity, and demonstrating the extent of retinal and choroidal lesions. It showed extensive damage to outer retina in macular area with loss of IS/OS photoreceptor junction, a healthy looking pigment epithelium, thickened choroid, preserved inner retina in both eyes.

Conclusion: The nature of this case was particularly challenging due to the involvement of pregnant young female. Careful treatment consideration measuring risks and benefits concluded the use of systemic steroids which then lead to recovery of her vision.

Financial Disclosure: No

Abdallah A Ellabban

Co Author(s): Ahmed B Sallam, Mohammad Z Siddiqui

Abstract Title: European Vitreoretinal Society (EVRS) Survey on the Use of Laser Protective Goggles in Vitreoretinal surgery

Purpose: To report trends for use of laser protection when performing retinal laser using slit lamp, endolaser, indirect laser, or 3D vitreoretinal surgery.

Setting/Venue: Survey questionnaire from European Vitreoretinal Society (EVRS) members.

Methods: The laser used for retinal treatment is a class-4 laser with high output power up to 2W. It can cause eye damage as a result of direct, diffuse or indirect reflections of the beam. The American National Standard for Safe Use of Lasers in Health Care Facilities and European Standards mandate the use of ocular protection within the nominal ocular hazard distance (NOHD). We performed an online survey sent to the members of the EVRS on the trends of the use of laser protection during retinal surgery for the operating surgery, assistant, ancillary staff when performing retinal laser using either slit lam or endolaser or indirect laser, or 3D vitreoretinal surgery.

Results: Responses from 165 members were recorded. Most of the respondents practiced in Europe 84/165 (50.9 %), followed by US/Canada 46/165 (27.9%). In retinal surgery, most respondents (98.2 %) used laser protection either microscope filters or protective goggles when performing laser. Rates of laser protection by ancillary staff were only 60.3% for indirect laser and 54.0% for slit lamp laser. Nine (5.4 %) reported no laser protection was used for the assistant. 3D retinal surgery was used by 32 (19.4 %) respondents, of whom, 46.9% use protective goggles, for the surgeon or ancillary staff while in the remainder (53.1 %) no protection was used. When asked about their belief toward the use of laser protection, 28.1 % reported as mandatory, 39.7 % as not necessary and 32.1 % as equivocal/not sure.

Conclusion: Use of laser protection methods is not strictly adopted in real world practice particularly for the ancillary staff or during 3D vitreoretinal surgery, which can cause potential ocular hazard

Amritpal Singh Chaggar

Co Author(s): Prof James Wolffsohn, Dr Amy Sheppard, Mr Mark Hero, Mr Dong Park

Abstract Title: The Presence of Mid-vitreous Opacities associated with Posterior Vitreous Detachment

Purpose: Increase awareness of this finding and how to differentiate from other opacities in the vitreous which may indicate pathology

Setting/Venue: University Hospital Coventry and Warwickshire/Secondary care clinic

Methods: A total of 135 patients with symptoms of acute PVD were reviewed in a PVD clinic. All patients had clinical examination with slit-lamp fundoscopy, indirect ophthalmoscopy with scleral indentation and Spectral Domain Optical Coherence Tomography of the posterior vitreous and retina. Images and videos with a slit-lamp camera were also obtained

Results: All patients with complete PVD were found to harbour these opacities. However we identified one case with partial PVD which also exhibited these opacities. It appears these opacities manifest once there is vitreo-retinal separation with a discontinuity in the vitreous cortex which permits migration of these opacities anteriorly. At present SD-OCT is unable to reliably detect and differentiate these opacities in all cases and therefore detailed clinical examination is required for accurate diagnosis

Conclusion: Mid-vitreous opacities are a universal finding in eyes with PVD. It is vital to differentiate these opacities from other similar opacities which may be associated with potentially sight-threatening conditions. Although OCT may detect these opacities, detailed clinical examination is required for accurate differentiation

Lyudmila Kishikova

Co Author(s): Ahmed Saad

Abstract Title: It is not always rhegmatogenous!

Purpose: To present a case of uveal effusion and retinal detachment in an eye with extremely short axial length

Setting/Venue: Ophthalmic unit

Methods: 65 year old patient presented to the eye casualty with some flashes and shadows in his right better eye and amblyopic left eye. He was found to be highly hypermetropic with Axial length of 18.2 and 17.8 mm. Examination revealed Right inferior and inferior temporal retinal detachment with no tobacco dust. There were no retinal breaks seen. Left eye was found to have old inferior retinal detachment with pigment marks and mottled fundus. Explanation and reassurance were given. He was offered surgical option of sclerotomy/ scleral window to drain the fluid.

Results: Given the surgical option available for this unusual retinal detachment, the patient opted to go ahead for conservative approach and observation only. Follow up at 2 and 4 weeks showed slow resolution of subretinal fluid.

Conclusion: Spontaneous exudative retinal detachment in eyes with short axial length can be watched and often required no treatment.

Financial Disclosure: No

Gregory Ho-Yen

Co Author(s): Dr. Hamza Adbou Mr. Alex Brent

Abstract Title: Spontaneous posterior capsular rupture due to poorly controlled diabetes

Purpose: To describe and illustrate an unusual case of spontaneous posterior capsular rupture in a 38yr old phakic patient who had not undergone any eye surgery.

Setting/Venue: Illustrated clinical case report. Birmingham Midlands Eye Centre (BMEC), City Hospital, Dudley Road, Birmingham, B18 7QH

Methods: Clinical history with slit-lamp photography, B-Scan images and 20MHz UBM images

Results: A diabetic patient presented to the Eye Casualty with a sudden onset reduction of vision in her left eye and a HbA1c > 146mmol/mol. Several months prior, she had been diagnosed with cataracts related to her diabetes. There was no history of trauma and there were no indications of any other ocular conditions that can be associated with spontaneous posterior capsular rupture. The rupture is evident on slit-lamp photographs and 20MHz UBM images. Opacifications consistent with lens matter in the vitreous cavity are evident on the B-Scan ultrasound images. She was managed with a phaco-vitreo-lensectomy.

Conclusion: To the authors' knowledge this is the first report of a spontaneous posterior capsular rupture due to lens swelling caused by poor glycaemic control in diabetes.

Divya Jacob

Co Author(s): Lyudmila Kishikova Alastair Coulson Ahmed Saad

Abstract Title: A rare case of Serpiginous choroiditis: a success story.

Purpose: Serpiginous choroidopathy is a rare, chronic, progressive inflammatory disease, seen to affect the retinal pigment epithelium, choriocapillaris and choroid. The purpose of this report is to illustrate a rare case of a patient with serpiginous choroiditis, who achieved significant improvement in vision after treatment.

Setting/Venue: Ophthalmic Unit

Methods: Retrospective case report of a 50 year old male the who was managed by ophthalmology services following a severe acute deterioration in the vision.

Results: Extensive investigations covering a range of inflammatory and infectious causes has been carried out, excluding these causes. Serial retinal optical coherence tomography scans were performed and were critical for assessing disease activity, and for demonstrating the extent and progress of retinal and choroidal lesions. It showed interruption of IS/OS photoreceptor junction in macular area in the right eye with disrupted RPE, and a preserved inner retina in both eyes. Treatment was initiated with topical prednisolone and cyclopentolate, with subsequent oral prednisolone. Subjective and clinical improvement was noted within a week.

Conclusion: Serpiginous choroiditis is a rare and challenging ophthalmic condition to manage. Anti-inflammatory agents have been very successful in this case leading to an excellent visual outcome.

Financial Disclosure: No

Thomas Nixon

Co Author(s): Allan Richards Philip Alexander Martin Snead

Abstract Title: Inherited and de novo Bi-Allelic Pathogenic Variants in COL11A1 Result in Type 2 Stickler syndrome with Severe Hearing Loss

Purpose: To describe a case of Type 2 Stickler syndrome (T2SS) with two different variants on COL11A1, one causing a dominant negative effect and one only affecting exon 9. Exon 9 is only expressed in the vitreous and inner ear, but not joint cartilage. Homozygous loss-of-function COL11A1 variants are usually lethal.

Setting/Venue: Addenbrooke's Hospital, Cambridge

Methods: The patient was assessed in the NHS England Stickler Syndrome diagnostic service for ocular, auditory, orofacial and musculoskeletal signs of Stickler syndrome. The patient's DNA was analysed by next generation sequencing using the Illumina Trusight One sequencing platform and

screened for variants in genes known to cause Stickler syndrome (COL2A1, COL11A1, COL9A1, COL9A2, COL9A3). The effect of sequence variants on pre-mRNA processing of exon 9 was assessed functionally using minigene analysis. Cultured dermal fibroblasts obtained from the patient were used to prepare RNA and primers designed for allele specific RT-PCR.

Results: The sixteen year old patient had myopia (-5D), severe hearing loss and global developmental delay. There was bilateral sectoral lamellar cataract, posterior vitreous detachment and several horseshoe tears in one eye. There were no joint or palate anomalies. Two heterozygous variants were found in COL11A1, c.1245+2T>C (maternal inheritance) and c.4109_4126del (de novo). The c.4109_4126del variant is predicted to have a dominant negative effect, causing T2SS. The c.1245+2T>C variant is predicted to affect the splice site of exon 9, and minigene analysis confirmed that it caused exon skipping. Allele specific RT-PCR confirmed that the genes were on separate alleles.

Conclusion: This patient with type 2 Stickler syndrome has a pathogenic COL11A1 variant on one allele and a disease-modifying variant affecting only exon 9 of COL11A1 on the other allele, causing a more severe ocular and auditory phenotype than dominant T2SS, but without the usual mortality of homozygous loss-of-function COL11A1 variants.

Financial Disclosure: No

Sherif Shaarawy

Co Author(s): Professor Paulo Stanga.

Abstract Title: This is a video to show how intraoperative Optical Coherence Tomography is useful and effective during vitrectomy procedures with peeling of the Internal limiting membrane and how useful it could be as an assisting tool for fellows.

Purpose: To Show the importance of iOCT during vitrectomy and ILM peel

Setting/Venue: MREH

Methods: 3 Port 23g vitrectomy. Zeiss Lumiera 700 OCT with Callisto module and intraoperative OCT.

Results: Intraoperative OCT is a very useful tool for PPV surgeries with ILM peels.

Conclusion: Intraoperative OCT is a very useful tool for PPV surgeries with ILM peels.

Abdallah Ellabban

Co Author(s): Mark T Costen, Atiq R Babar

Abstract Title: Automated Direct Perfluorocarbon Liquid/Silicon Oil Exchange: Tips for Improved Success in Complex Retinal Surgery

Purpose: Direct PFCL/SO exchange is often required to prevent retinal slippage in complex retinal surgeries as giant retinal tear or large retinectomies. This step is technically challenging especially with small-gauge vitrectomy. We describe a simple method of fully automated direct PFCL/SO exchange and tips for better fluidics control.

Setting/Venue: Hull University Teaching Hospitals

Methods: Using small gauge vitrectomy setting, the oil syringe is connected to the 3-way cannula. The infusion is taken off the eye and primed with oil. The extrusion line is connected to an aspiration cannula for active extrusion. The automated injection/extrusion mode is activated and controlled from the footswitch. The injection rate is set up at 30-40 mmHg, while the extrusion rate is adjusted at 150-250 mmHg. The eye pressure is maintained throughout the procedure, which often takes only 5-8 minutes.

Results: This technique provides better control of the eye pressure throughout the exchange process while using small gauge vitrectomy. It does not require an assistant or additional chandelier light or extra high viscosity oil infusion cannula. Active aspiration makes it easy to remove the last PFCL bubble compared to passive technique. It is quicker than the usual passive aspiration technique and

offers surgeons better control of the fluidics. A video presentation will highlight the main tips of the procedure, comparing the passive versus automated technique.

Conclusion: Automated PFCL/Silicon oil exchange is a simple, quick and safe method. Maintaining the eye pressure is the critical step for successful exchange and preventing complication.