



SESSION: Surgery for Proliferative Diabetic Retinopathy

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HALL: HALL 1

TIME: 11.25-12.15

Moderators: Samir El Baha, David Pelayes

To the question of proliferative vitreoretinopathy classification

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The purpose of this work was to study the anatomic and topographic specifics of vitreous body (VB) and vitreoretinal interface (VRI) changes at different proliferative diabetic vitreoretinopathy (PDVR) during chromovitrectomy of A,B,C stages of proliferative diabetic vitreoretinopathy (P.Kroll's classification of PDVR, 2007). Vitreocontrastography – original vitreous visualisation technology. The first group included 52 patients (52 eyes) with diagnosed PDVR, stage A. According to B-scanning, 22 patients had PVD with local fixations causing local tractional elevation 0.7-0.9 high; 30 patients had hemophthalmia, the retina is attached. In the stage B group 47 patients (47 eyes). In the third group stage C were 32 (32 eyes). Vitreocontrastography Results: Definition of the new stage– A-1: It is necessary to note that the application of the developed technique of VB imaging (in comparison with the reference classification) made it possible to identify the new stage of PDVR defined by us A-1. A1. Anterior cortical layers are preserved, VB structures are preserved (cisterns.), The retina is fully attached without the visible ophthalmological changes of the vitreous and retina, VB layer with certain topography (taking the central area of the eye fundus.) vitreous layers in the central zone of VB layers in the central area of VRI vascular arcades. In 70% of the cases this layer can be quite easily separated from the retina by the forceps (average level of adhesion), in 30% the VB layer is characterized by a high level of adhesion with the possibility of their partial removal. Stage A-2. - Anterior cortical layers and VB structures are preserved. In the central zone 2-3 layered VB cortical layer is preserved. The layers are formed by vitreoschisis zones. On the retinal surface VB layer firmly fixed to the ILM in the macular zone is contrasted.

Trimanual vitrectomy for severe proliferative diabetic retinopathy

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Purpose: To describe and evaluate a novel technique of pars plana vitrectomy (PPV) under chandelier illumination which is aided with the vital dyes and perfluorocarbon liquids for the management of the complex diabetic vitrectomy cases.

Methods: We conducted a prospective interventional comparative study on 40 eyes of 36 patients with advanced diabetic eye disease requiring PPV. The study was conducted in a single tertiary referral center. Eyes were divided on 1:1 basis by stratified randomization into two groups. Group 1 had trimanual vitrectomy done assisted with chandelier illumination, perfluorocarbon liquid (PFCL) and vital dyes. Group 2 had the conventional bimanual vitrectomy done assisted with chandelier illumination only. All patients were followed up for a minimum of 6 months after the surgery.

Results: Forty eyes of 36 patients with the mean age of 51.42 years (range 28–69) were evaluated. The anatomical success at 6 months could be achieved in all the eyes in both groups. The complete removal of the pre-retinal proliferations could be accomplished in all the eyes in the trimanual PPV group, and only in 85% of the eyes in the bimanual PPV group. Operative time was significantly shorter in the trimanual PPV group ($p < 0.001$). More eyes in the trimanual PPV group (55.0%) could achieve better vision ($> 6/60$) 6 months after the operation compared to the bimanual PPV group (50.0%), but this difference was not statistically significant.

Conclusion: Trimanual PPV is a novel, safe and effective technique that can improve the results of the complex diabetic PPV.

Peripheral streak of pre-retinal hemorrhage after vitrectomy completion – A sign of Vitreoschisis

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Vitreoschisis is well documented during surgery for complications of Diabetic Retinopathy. It may lead to incomplete removal of vitreous and postoperative complications. It is important to recognise and remove second membranes during vitrectomy. Several methods like use of Triamcinolone or shiny appearance of retina help to identify these membranes. After completion of vitrectomy, streaks of loose pre-retinal blood are often seen in the equatorial or pre-equatorial retina. Despite repeated attempts the vitrectomy cutter is not able to remove them. This mostly appears innocuous and is often left as such. This presentation describes how these peripheral streaks of blood are not harmless, they are in fact a sign of incomplete vitreous removal. A sheet of vitreous is usually present over these pre-retinal haemorrhages. This sheet is very adherent to underlying retina and cannot be removed using conventional suction techniques. This sheet has to be removed using active suction in anterior to posterior direction. Once this sheet is separated from retina the remaining peripheral blood can be easily removed with vitrectomy cutter. Non removal of this sheet resulted in postoperative complications like ERM and RD. Recurrent vitreous cavity hemorrhage was significantly more in these eyes.

Diabetic vitrectomy: mind set & different attack strategies

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A presentation to show Mind set in vitrectomy for diabetics setting a fixed plan for every case together with different attack strategies that should be tailored to each membrane

Surgical Outcomes of Mitomycin C in Severe Proliferative Diabetic Retinopathy Cases

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Purpose: To investigate the effect of adjuvant Mitomycin-C (MMC) use on the anatomical and functional success of vitreoretinal surgery (VRS) in severe proliferative diabetic retinopathy (PDR) cases with tractional or combined retinal detachment (RD).

Methods: The medical records of patients who underwent VRS due to large fibrovascular membranes covering the posterior pole, and secondary RD due to severe proliferative diabetic retinopathy between 2016–2022 were reviewed retrospectively. Demographic and clinical data were analyzed in 2 groups as intraoperative “MMC sandwich technique” with intravitreal adjuvant MMC used (Group A) and not used (Group B).

Results: 23 eyes of 18 patients, 13 of whom were in Group A, were included in the study and followed for 12 months (9–24 months). The two groups were statistically similar in terms of age, gender, visual acuity (VA) and intraocular pressure (IOP), duration of diabetes, and retinal tear ($p>0.05$). Tractional membrane extent was three quadrants and above at similar rates in both groups ($p=0.356$). Tractional membranes were peeled in all patients during VRS with silicone tamponade. Single surgery success rates were higher in Group A compared to Group B (92% and 70%, respectively), which was statistically significant ($p=0.005$). Although the final anatomic success (retinal attachment) rates were higher in Group A (100%), no statistically significant difference was observed in Group B (90%) ($p=0.091$). Silicone oil removal rates between groups were similar (Group A: 92%; Group B: 80%; $p=0.126$). At the final examination, VA ($p=0.504$) and IOP ($p=0.743$) were statistically similar between the two groups. None of the patients developed complications secondary to MMC use.

Conclusion: In RD cases with severe proliferative diabetic retinopathy with a high risk of developing proliferative vitreoretinopathy, high anatomical success can be achieved with VRS using the MMC sandwich technique and adjuvant MMC without the risk of hypotonia, macular and optic nerve toxicity.

Immediate sequential vitrectomy for diabetic retinopathy

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Introduction/Aim:

Currently data on immediate bilateral sequential surgery IBSS in diabetic retinopathy is very limited. We present a case scenario when IBSS in severe proliferative diabetic retinopathy (PDR)/ tractional retinal detachment (TRD) can be the approach of choice.

Fourty-two year-old poorly controlled type1 diabetic female with asthma, obesity, fibromyalgia and complex social background who presented to Royal Hallamshire Hospital in Sheffield, UK in November 2022 with very poor vision (VA): Hand movements in the right eye (RE) and 1.5logMAR in the left (LE). Intraocular pressures were normal. She had no previous treatments to her eyes. Fundal view was limited due to bilateral vitreous haemorrhage. Ultrasound revealed attached retina in the RE and TRD in the left. She required general anaesthesia (GA) and decision was made to perform IBSS to minimize risks of repeated GA and allow for optimal timing of surgery.

One week later the surgery was carried out using 27G pars plana vitrectomy (ppV) approach. Both eyes required delamination and segmentation and full panretinal photocoagulation. In the RE air was used as a tamponade, while in the LE SF6 gas was used. Bothe eyes received intravitreal anti-VEGF at the end of surgery as well as subconjunctival cefuroxime and betamethasone. LE was operated as first. Povidone iodine preparation and sterile draping was done separately for each eye. The surgical team re-scrubbed and all the equipment was changed.

At postoperative visit at day 6. BCVA: 0.3 LogMAR in the RE and HM due to gas in the LE. She could not attend a few subsequent appointments due to ill health and transportation issues, but she reported good vision and ability to watch television and read books two months after the surgery during a telephone consultation. Apart from odd black floater she does not have other issues.

Diabetic tractional retinal detachment in Mexico

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Diabetic retinopathy is a very common complication in patients with diabetes. It is the leading cause of blindness in people of reproductive age; it occurs in approximately 50% of patients with 10 years of diabetes and 90% of patients with more than 30 years of diabetes.

Retinal detachment is a serious and common complication in patients with diabetic retinopathy and must be treated as soon as possible to try to avoid blindness.

Vitrectomy is necessary, following an elaborate and detailed technique in order to release traction removing fibrous tissue and membranes attached to the retina, as well as the use of laser to prevent the appearance of new blood vessels and also used to prevent further bleeding.

At the end of vitrectomy surgery, silicone oil or gas is often used in order to keep the retina in the proper position to restore vision.

ILM peeling in Diabetic Vitrectomy - **Susana Martinez**