



SESSION: Surgical Tips & Tricks / Management of Complications (My way)

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HALL: HALL 1

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Moderators: Ahmed Mansour, Çağrı Beşirli

Macular hole RD: our novel flower petal technique

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We demonstrate a modified internal limiting membrane (ILM) inverted flap technique for closure of macular holes (MHs) concurrent with rhegmatogenous retinal detachment in myopic eyes. Multiple ILM flaps were created in a flower-petal configuration around the MH over the detached retina after shallowing the retina as much as possible. Traction was always in a direction that allowed the optic disc to act as an anchor to limit iatrogenic breaks and to bridge the hole with multiple, more secure flaps should one of the flaps revert or break away. The technique proved safe and efficient in MH closure in our series of eight cases. The modification described provides an effective approach for challenging myopic cases in which ILM flap creation is needed over a detached retina.

Management of Retinal Detachment with Coexistent Macular Hole by Submacular Placement of Retinal Autograft

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The aim of this report is to describe the technique of submacular autologous neurosensory retinal transplantation in patients with retinal detachment with a coexistent macular hole. Initially, 23 G pars plana vitrectomy was performed. Subsequently, a peripheral vitrectomy under indentation was carried out. If necessary, 360-degree broad internal limiting membrane (ILM) peeling was performed after ILM staining. An autologous neurosensory retinal patch, which is larger than the macular hole diameter, was released from the upper nasal quadrant for the left eye and the upper temporal quadrant for the right eye. The retinal tissue was prehended by 23 G microforceps and then inserted under the macular hole. Fluid perfluorocarbon (PFCL) was injected and the retina was re-attached. A subfoveal autologous neurosensory retinal patch was repositioned in the center of the macular hole with gentle manipulation under PFCL, if necessary. After the fluid-air exchange, laser retinopexy was performed for the peripheral tears. Subsequently, 5000 cs silicone oil-PFC exchange was also performed. The outcome of this technique was evaluated in this technical report

A case of rhegmatogenous retinal detachment with an unpredictable macular tear treated with autologous retinal graft

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Purpose: To report a case of regmatogenous retinal detachment with macular tear treated with autologous retinal graft.

Methods: A 40-year-old male presented with decreased vision following trauma with a piece of stone. The view of posterior segment was precluded due to cortex material. Ocular ultrasonography detected total retinal detachment.

Results: During 25-G pars-plana vitrectomy, an unexpected large macular tear more than 1 disc diameter in size was observed. Autologous retinal graft was the only possible surgical option to close this macular tear. A retinal graft was taken from nasal upper periphery under perfluorocarbon and spread over macula. Five months after PPV surgery, the retinal graft was in place and integrated with the edge of the tear and visual acuity was increased to 20/400.

Conclusions: An autologous retinal graft may be an effective surgical option in the presence of macular tear.

A sandwich method of amniotic membrane transplantation in a challenging case of high myopic macular hole associated retinal detachment

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Purpose: To describe a surgical technique using a double-layer amniotic membrane graft to repair a high myopic macular hole (MH) related chronic retinal detachment (RD) with subretinal bands.

Method: Video presentation.

Case: A 3-year-old boy with a diagnosis of Knobloch syndrome presented with tapetoretinal degeneration and macular atrophy in the right eye and a chronic total retinal detachment (RD) with subretinal bands associated with myopic macular hole (MH) in the left eye. A surgery of 360 encircling band followed by a pars plana vitrectomy and subretinal band extraction through a retinotomy was performed. The retinotomy and MH were closed utilizing an amniotic membrane graft and tamponaded by 5000 cs silicone oil. RD recurred in two weeks postoperatively due to contracture of the amnion graft inside the MH. A second intervention included removal of the contracted graft via the MH and transplantation of one amniotic graft prepared in a larger size, placed into the hole and a second one placed over the hole in a sandwich fashion with a 5000cs silicone oil tamponade. Retina stayed reattached with MH closed and the amniotic grafts in place providing ambulatory vision.

Conclusion: Sandwich technique for amniotic membrane graft can be used to provide a strong seal for RD associated with high myopic MH where other procedures fail.

Toxicity in VR surgery

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Aim: to evaluate viability of retinal cells after the use of multiple intraoperative devices.

Material-Methods: We collected real-life clinical cases of toxicity associated to the use of intraocular devices in vitreoretinal surgery, characterized by post-operative retinal necrosis, pale optic disc, damage of outer retinal layers at the posterior pole, peripheral inflammatory foci. For all cases, the surgical technique and the devices used were reported and reproduced in the lab on porcine eyes to analyze retinal toxicity. We correlated the clinical findings detected in the eye with the findings detected in the lab, analyzed according to the International Organization for Standardization. We also reported the cumulative toxicity of combined use of medical devices.

Results: Clinical and surgical data of forty-six patients were collected. The surgical technique and medical devices used were reproduced in the lab on porcine eyes. Retina extracted from 25 porcine eyes globes subjected to no surgery and sham surgery showed optimal cell viability (96-100%). Retina extracted after the surgery with residues removal showed good cell viability (86%), while retina from eye bulbs after surgery with high residues and cytotoxic control resulted in high retinal cytotoxicity corresponding to low average cell viability of 40% and 29%, respectively. We also reported that the cell viability, membrane damage and metabolic activity of human ARPE-19 was significantly affected by TA in any formulation (TA no-alcohol, TA with alcohol, TA diluted) compared to lutein, and the interaction of TA with PFCL increase the cytotoxicity.

Conclusions: VR performed with the combined use of multiple medical devices does affect retinal viability if the residues of used medical devices are not properly removed. Moreover, the use of TA is cytotoxic, and even more in presence of direct contact between TA and PFCL. An adequate surgical technique is recommended to avoid dangerous iatrogenic interactions.

Trans-choroidal Hybrid Technique In Management Of Subretinal Proliferation

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Purpose

To evaluate combined techniques and the surgical impact in management of sub retinal proliferation in old standing retinal detachment

Introduction

Subretinal proliferation in retinal detachment may complicate the surgical procedure and postoperative visual outcome and its location may add difficulties in removal with carrying risk for more interoperative complications

Methods

Approaching the SRF through posterior placed 23G cannula after removal of cortical vitreous with posterior hyaloid and insertion of crocodile forceps in the subretinal space through the trocar in the area of highest fluid level till reaching the good point of attack with good grasping and gradual withdrawal of membranes to get out from the globe through posterior placed trocar. Other sub retinal proliferation especially peripherally place was removed by regular techniques either from above the surface of the retina through small retinotomy or from under surface of the retina through large retinotomy and folding of the retina.

Conclusions

The commonest way for removal of sub retinal perforation either above surface of the retina through small retinotomy or from under surface of the retina through large retinotomy and folding of the retina and removal of sub retinal proliferation either unimanually or bimanually but the main problem in these techniques in posterior placed sub retinal proliferation especially under macula is the high incidence of post operative PVR in posterior placed retinotomy while on doing large peripheral retinotomy and folding the retina to grasp the sub retinal proliferation under the macula is interoperative trauma to the choroid under the macula while reaching to posterior placed proliferation so the best way for removal of these proliferation is transchoroidal approach in sub retinal space without any additional retinal tear grasping the membranes and their removal out from the eye the postoperative recovery in these patient was rapid with least post operative complication

Dye-assisted occult retinal break detection in retinal detachment surgery

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Purpose: To demonstrate that subretinal blue dye injection can be considered a useful tool in finding occult rhegmatogenous tiny retinal breaks in eyes with recurrent retinal detachment(RD).

Method: 11 eyes of 11 patients with recurrent retinal detachment were treated between 2018 and 2021. In all cases, the preoperative and intraoperative internal search did not demonstrate any obvious break or hole. MembraneBlue-Dual (Trypan Blue 0.15% + Brilliant Blue G 0.025% + 4% PEG) was then injected into the subretinal space using a 41-gauge cannula. Perfluorocarbon heavy liquid was then injected into the vitreous cavity displacing the subretinal fluid toward the retina periphery. The eye was rotated such that the dye was vented out of a very tiny break located. After silicon oil removal and absorption of the gas tamponade, retinas remained attached at six-months follow-up.

Results: All patients had the clinical history of retinal detachment surgery (8 eyes PPV, 3 eyes pneumatic retinopexy) In all eyes, the retinal breaks were identified successfully intraoperatively with subretinal dye technique. In five cases (38.4%) the tears was identified at the posterior edge of the laser retinopexy scar. In four cases (30.7%) the redetachment was attributed to a previously unidentified, unlasered break. In four cases (30.7%) the dye leakage was seen from the edge of a previously lasered break. Postoperative BCVA was 0.8 ± 0.1 logMAR at third month and 0.7 ± 0.1 logMAR at sixth month.

Discussion: Failure to identify a retinal tear during RD surgery is a well-known clinical challenge that may adversely affect the outcome. The detection of retinal tears with dye may be a useful surgical technique.

Risk factors and management of cystoid macular edema following pars plana vitrectomy for rhegmatogenous retinal detachment

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Purpose: To discuss the main risk factors of the development of cystoid macular edema (CME) complicating pars plana vitrectomy (PPV) for rhegmatogenous retinal detachment (RRD) and how to manage it.

Methods: This is a retrospective study from January 2019 to January 2023, including 325 patients admitted for primary RRD in our ophthalmology department. All patients included underwent 23G vitrectomy, cryo or laser retinopexy of the tear(s) followed by gas tamponade. A complete ophthalmic examination and Spectral Domain optical coherence tomography (SD-OCT) were performed at regular postoperative intervals, i.e., at 1 month, 3 months and 6 months.

Results: Twenty nine patients presented macular edema after surgery. The mean duration of macular edema onset (tomographic diagnosis) was 45 ± 15 days. BCVA was 1/10 after the onset of macular edema. Patients over 50 years old, with preoperative macula off RRD, duration of RRD >1 week and proliferative vitreoretinopathy were more prone to develop macular edema. A statistically significant improvement in BCVA and central retinal thickness 6 months after intravitreal dexamethasone implant compared to baseline and patients treated with bevacizumab injections.

Conclusion: This study confirmed that postoperative CME is a frequent complication after RRD surgery; we identified. As CME potentially delays visual recovery, postoperative follow-ups should include SD-OCT. Intravitreal dexamethasone implant seem to be effective in the treatment of this complication.

Comparison of the efficacy and ocular surface effects of sutureless, suturation and external diathermy techniques used in the closure of sclerotomies after 25-Gauge Transconjunctival Vitrectomy

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Purpose: To evaluate the efficacy of sutureless (rubbing), suturing and external diathermy techniques used in the closure of leaky sclerotomies after 25-gauge (25G) Transconjunctival Vitrectomy (TV) and to compare their effects on the ocular surface.

Metod: 60 eyes of 60 patients who underwent 25G TV in a tertiary eye hospital were studied prospectively. Three different techniques used for closure of sclerotomies were compared. Intraocular pressure (IOP), hypotonia, complications related to hypotonia and ocular surface dynamics (Tear break uptime (TBUT), Oxford scoring and OSDI questionnaire) were evaluated on postoperative (postop) 1st day, 1st week and 1st month.

Results: 17 (28.3%) sclerotomies were closed with sutureless, 23 (38.3%) with diathermy, and 20 (33.3%) with suturing. The mean IOP values on the postop 1st day were found to be significantly lower in the sutureless group (13.8 ± 5.8 mmHg) compared to the diathermy (19.7 ± 8.3) and suture (21.3 ± 9.6) groups ($p=0.014$). There was no significant difference between the 1st week and 1st month IOP values ($p>0.05$). Hypotony (IOP < 6.5 mmHg) was observed in 3 (5 %) patients in the sutureless group and in 1 (1.6%) patient in the diathermy group on the postop 1st day. It was not observed in any group at 1 week and 1 month. No hypotony-related complications were recorded. Compared the mean Oxford scores, postop 1st day sutureless group (0.61 ± 0.96) was found to be significantly lower than the diathermy (1.32 ± 0.7) and sutured (1.78 ± 1.03) groups ($p=0.002$), but no significant difference 1st week and 1st month. There was no significant difference between the groups in FBUT and OSDI scores in all postop periods.

Conclusion: The risk of early postoperative hypotony should be kept in mind when closing sclerotomies with the sutureless technique. Postop efficacy and ocular surface parameters are evaluated, external diathermy is a useful alternative to suturing.

Management of Infusion Misdirection Syndrome During Cataract Surgery With 26 Gauge Injector

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Purpose: To evaluate the efficacy and safety of retrolenticular fluid aspiration in the emergency management of acute intraoperative infusion misdirection syndrome (IMS).

Case presentation: The patient was a 70-year-old woman. Slit-lamp examination revealed a grade 2 nuclear cataract and Shaffer 4° open-angle in the left eye at the first visit to our department. Pseudoexfoliation (PEX) was observed in the slit lamp examination in the left eye. In the patient who developed IMS, active retrolenticular fluid aspiration was performed by transconjunctival/ transscleral route from the pars plana (3.5 mm periphery from the limbus) with a 26G syringe. The direction of the needle was followed through the operating microscope throughout the procedure, and the aspirated fluid was taken from the retrolental anterior vitreous. IOP was monitored digitally throughout the aspiration procedure. The red reflex was followed up for possible suprachoroidal hemorrhage.

Conclusion: In the management of IMS, decompression methods such as vitrectomy with the help of a trocar inserted through the pars plana or aspiration with a needle have been used more frequently. Retrolenticular fluid aspiration was performed from the patient with the help of a 26G injector and no retinal complication developed.

Use of Subretinal BBG Dye to localise a missing retinal hole in Rhegmatogenous Detachment

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Locating and treating a retinal hole or tear is a key step in a Retinal Detachment surgery.

Unfortunately the retinal break cannot be localised in about 5-7% of cases of Rhegmatogenous Retinal Detachment. This incidence is much more in pseudophakics and in eyes with hazy media.

This presentation demonstrates a technique whereby the BBG dye is injected after vitrectomy, in the subretinal space in cases of Retinal Detachment with non localisation of the retinal break. PFCL is then injected into the vitreous cavity. The PFCL increases the hydrostatic pressure of the sub retinal space there by leading to egress of the BBG stained dye from the retinal breaks. This helps in locating the retinal break and subsequently towards a successful surgery