



SESSION: Ocular Trauma Management

DATE: August 31, 2023

HALL: HALL 1

TIME: 15.30-16.00

Moderators: Hakan Durukan & Ahmed Mansour

Endoscope-assisted vitrectomy in the treatment of 133 severely traumatized eyes without light-perception

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Purpose: To evaluate the effect of endoscope-assisted vitrectomy (EAV) in eyes with no light perception (NLP) or doubtful light perception (dNLP) after severe trauma and analyze characteristics and functional 'outcomes.

Methods: The medical records, and surgical video when necessary, of all involved cases with visual acuity (VA) of NLP or dNLP after suffering severe ocular trauma from 2003 to 2022, were retrospectively analyzed to determine the effect of EAV and ocular outcomes.

Results : Of the 118 NLP and 15 doubtful NLP eyes that underwent EAV were included in the study, the mean follow-up was 9.34 ± 13.77 months, final VA was better than 0.01 in 5 eyes (3.76%), counting fingers in 19 eyes (14.29%), hand motion in 43 eyes (32.33%), light perception in 24 eyes (18.05%), NLP in 36 eyes (27.07%) and 3 eyes lost information. Three eyes underwent secondary enucleation. Among the 133 patients, there were a total of 4 injury types, namely rupture, intraocular foreign body (IOFB), penetrating and contusion, accounting for 74.44%, 15.79%, 7.52% and 2.26% respectively, and the incidence of endophthalmitis was 3.0%, 38.1%, 30.0% and 0.0%, respectively ($P=0.000$), and the retinal detachment rates were 97.0%, 90.5%, 80.0% and 66.7%, respectively ($P=0.020$). The choroidal detachment rates of patients with rupture, IOFB, penetrating and contusion were 82.8%, 38.1%, 40.0% and 33.3%, respectively, ($P=0.000$). One hundred and five eyes (78.9%) underwent EAV via cornea instead of pars plana. In 76 eyes, the preoperative IOP was below 10mmHg (5.69 ± 2.50 in average, below 6 in 48 eyes), the postoperative IOP was 11.87 ± 4.07 in average (still below 10mmHg in 20 eyes, below 6 in 3 eyes) ($P=0.000$).

Conclusion: Treated with EAV, most severely traumatized eyes without light-perception can avoid enucleation and having a long-term improvement in VA with normal IOP. The trans-corneal EAV is practical, especially in eyes with choroidal detachment and hypotony.

Posterior Segment Intraocular Foreign Bodies: a 10-Year review

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Introduction: An intraocular foreign body (IOFB) requires urgent treatment to prevent blindness or globe loss. It is estimated that IOFBs account for 16-41% of all open-globe injuries. Most IOFBs are metallic (75-85%) and the most common location is the posterior segment. Young men are most affected, accounting for more than 90% of cases in some series.

Purpose: To assess the clinical presentation of patients with posterior segment IOFBs (PS-IOFB) and establish prognostic factors for visual acuity compatible with driving ($\geq 20/40$).

Methods: Retrospective cohort study enrolling all PS-IOFB submitted to surgery at Centro Hospitalar Universitário do Porto (CHUPorto), Portugal in the last decade. A multivariable analysis was performed using a logistic regression model through a stepwise approach to fit the model and find independent clinical predictors for final visual acuity.

Results: This study included 71 eyes of 71 patients. Most patients were adult males (87.3%) of working age (mean \pm SD age 41.48 \pm 13.49). Home (33.8%) and industrial places (32.4%) were the most common locations and 30 traumas occurred during working-related activities. Six (8%) patients presented with endophthalmitis, 48% had lens injury and 24% presented with retinal detachment. The majority (85.9%) of IOFB were metallic. The median (interquartile range) time to first procedure was 1 (0-2) days, with most IOFB (60.6%), retrieved at that moment. In this study, good presenting visual acuity (VA), lens sparing, and absence of retinal detachment were associated with good final VA.

Conclusion: Open-globe injuries with IOFB are a public health issue that impose preventable social and economic burden as it affects mostly working-age subjects. Hence, early intervention and preventive measure are of uttermost importance to prevent social and visual disability

Penetrating Ocular Trauma, tips and tricks to expect the unexpected!

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Penetrating ocular trauma always presents challenges during surgery.

This presentation is aimed at showing different types of situations in a variety of penetrating ocular traumas with and without IOFB(s), showing tips and tricks on how to deal with a variety of challenges including visualization, IOFB managements and other challenges related to complications.

with this presentation I aim at presenting my way in management of such challenging cases in all aspects while expecting the unexpected in penetrating ocular trauma surgery surprises.

Prognostic factors for visual outcomes following intraocular foreign body removal

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Objective: To determine the influence of prognostic factors on the visual outcome in patients who underwent vitrectomy for intraocular foreign body.

Material-Method: A retrospective study was conducted at the Ophthalmology Department of Lahore General Hospital between 2017 and 2021. Study included 62 patients between age of 25-55 years who presented with open-globe injuries and retained IOFBs. After informed consent, detailed pre-operative examination was carried out. All patients underwent 23-G ppv with removal of IOFB. In 43 patients, IOFB was removed during first 24 hours after accident. While in 19 patients, who presented after primary repair, IOFB was removed later than 24 hours after incident. Forcep removal was done in 43 (69.35%) eyes, endomagnet was used in 12 (19.36%) of eyes while 7 (11.29%) foreign bodies were removed with vitrectomy probe. Followup period was 5 years for 29 cases, 3 years for 21 patients while 12 patients had a followup of 1 year. On each followup visit bcva was noted.

Results: This study included 60 patients. All the patients were males (100%). Mean age was 40 years. Metallic foreign bodies accounted for 49 (79.03%) cases and non-metallic foreign bodies were present in 13 (20.97%) eyes. Entry wound was in cornea in 24 (38.71%) cases, corneoscleral in 29 (46.77%) and sclera in 9 (14.52%) eyes. Size of IOFB ranged from 0.5mm to 22mm in its largest diameter, mean of 5.65mm. Posterior segment was the most frequent location found in 35 (56.45%). Traumatic cataract was found in 35 (56.45%). Retinal detachment was found in 27 (43.54%) cases while 19 (30.64%) eyes presented with vitreous hemorrhage. Final bcva was improved more than two letters on snellens chart in 38 (61.29%), remained same in 21 (33.87%) while decreased in 3 (4.84%) cases. Despite systemic antibiotics, 3 (4.84%) eyes ended up in endophthalmitis. None of the eyes were enucleated.

Conclusion: Prognosis of an IOFB injury is for the most part uncertain due to a complex combination of parameters. Main prognostic factors related to better visual outcome were initial bcva, time of surgery (first week), initially attached retina, and scleral entry site. Prognostic factors for poor final visual acuity is location, size of IOFB and endophthalmitis.

Effect of Adjuvant Mitomycin-C in Severe Traumatic Retinal Detachments Surgery with Retinotomy-Retnectomy

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Introduction and Purpose: It was aimed to investigate the effect of adjuvant Mitomycin-C (MMC) use on the anatomical and functional success of patients who underwent retinotomy-retinectomy (RR) during vitreoretinal surgery (VRC) in cases of traumatic retinal detachment (RD) with proliferative vitreoretinopathy (PVR).

Method: The files of patients who underwent VRC and RR due to severe traumatic RD 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: Thirty eyes of 30 patients, 15 of whom were in Group A, were included in the study. The two groups were statistically similar in terms of age, gender, trauma type, trauma zone, visual acuity (VA) and intraocular pressure (IOP) ($p>0.05$). Proliferative vitreoretinopathy (PVR) rate was similar in both groups with PVR B and above ($p=0.296$). Patients who underwent at least 1 quadrant RR were added and the RR width was similar in both groups ($p=0.639$). After RR and VRC, postoperative recurrence and recurrent surgery rates were lower in Group A compared to Group B (6.7% and 60%, respectively), and this difference was statistically significant ($p=0.005$). Final anatomical success (retinal attachment) rate was 95% in Group A and 68% in Group B, and this difference was statistically significant ($p:0,022$). Silicone removal rate was similar in both groups (Group A: 47.1%; Group B: 66.7%; $p=0.456$). At the final examination, VA ($p=0.628$) and IOP ($p=0.813$) were statistically similar between the two groups.

Discussion: In traumatic RD cases requiring retinotomy-retinectomy, lower recurrence rates and better anatomical results can be achieved by using the MMC sandwich technique and adjuvant Mitomycin-C. Prospective studies with more patients are needed on this subject.