



SESSION: Controversies in Combined Surgeries (VRS with Cataract, keratoplasty or Glaucoma Surgeries)

DATE: September 1, 2023

HALL: HALL 1

TIME: 09.00-09.50

Moderators: Sibel Demirel, Eleonora Lavaque

Effect of phacovitrectomy and prior lens status on the surgical outcomes of 23 gauge pars plana vitrectomy for primary rhegmatogenous retinal detachment

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Objective: To report the effects of the prior lens status on the surgical outcomes of 23-gauge pars plana vitrectomy/phacovitrectomy for primary rhegmatogenous retinal detachment.

Methods: 69 eyes of consecutive patients were recruited between January 2020 and January 2022. All surgeries were performed by the same surgeon and same settings. All phakic patients underwent phacovitrectomy and all 23 gauge sclerotomies were sutured. Tamponade at the end of PPV was with 1000cs silicone oil (n=18), 5000cs silicone oil (n=12), SF6 (n=8), C3F8 (n=28) and Densiron (n=3). Preoperative ocular factors, intraoperative surgical procedures, tamponade agents, and postoperative best-corrected visual acuities were evaluated and compared between groups.

Results: 69 eyes (33 phakic, 36 pseudophakic) of 69 patients (56 males, 13 females) with a mean age of 55,7±13,2 years (17-82) were treated with 23 gauge vitrectomy for primary rhegmatogenous retinal detachment. 33 eyes (47,8%) underwent phacovitrectomy. There were no significant differences between the two groups by age, sex, mean axial length, PVR status, preoperative visual acuity, preoperative intraocular pressure, and the number of tears. Anatomical success was achieved in 87,9% of cases (29 out of 33) in the prior phakic group, 97,2% of cases (35 out of 36) in the prior pseudophakic group with single surgery; however, no statistically significant difference was observed (P=0.135). Postoperative complications included transient intraocular pressure rise (15,9%) fibrinous uveitis (18,8%) and posterior synechia (5,3%) were statistically similar between the two groups.

Conclusions: The success rates of primary PPV in prior pseudophakic patients with RRD were similar to the phacovitrectomy group. Simultaneously combined cataract surgery with retinal detachment seems safe and effective option but the retrospective and limited data presented in this study requires further prospective studies to confirm these findings.

Outcomes and complications of combined vs. sequential cataract and pars plana vitrectomy

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Aim: To compare the visual outcomes and rates of intraoperative complications in eyes that underwent combined cataract extraction (CE) and pars plana vitrectomy (combined group) with those that underwent sequential surgery (sequential group).

Retrospective Multicenter Database study.

Design: Retrospective Multicenter Database study.

Methods: CE data set pooled from 8 ey centers. The main outcome measures were the mean postoperative visual acuity (VA) and the rate of intraoperative complications in both groups.

Results: 2236 eyes in the combined group and 2270 eyes in the sequential group were included in this study. Mean preoperative VA was 1.0 logMAR in both groups. The mean logMAR postoperative VA was worse in the combined group than in the sequential group ($P < .0001$) at all timepoints, however, the differences in visual improvement between both groups decreased with longer follow-up time: 1.0 ± 0.7 vs 0.6 ± 0.6 , 0.7 ± 0.6 vs 0.4 ± 0.5 , and 0.7 ± 0.6 vs 0.5 ± 0.5 at 0 to 4 weeks, 4 to 12 weeks, and 12 to 24 weeks, respectively. Proportions of eyes that gained >3 logMAR units were 49% in the combined group and 66.2% in the sequential group ($P < .0001$). Logistic regression analysis showed that sequential surgery (odds ratio, 2.1) was a predictor for reaching 20/40 vision by 6 months. In the combined group, there was a statistically significantly higher rate of posterior capsular rupture. Surgery for IOL adjustment/ exchange was 2x higher in the combined group ($P < .0001$).

Conclusions: Postoperative visual gain was less in the combined group with a higher rate of posterior capsular rupture and need for IOL re-adjustments as compared with sequential phacovitrectomy. However, small differences in visual improvements between both groups by 6 months were observed.

Postoperative refractive outcomes in eyes undergoing combined phacovitrectomy surgery for Epiretinal Membrane

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Purpose:

To evaluate the post-operative refractive outcomes from three different IOL power prediction protocols for combined phacovitrectomy for epiretinal membranes.

Methods:

This single-center retrospective cohort outcome study of combined phacovitrectomy surgery performed by one surgeon. Eyes were divided into three protocols depending on the biometer (Zeiss IOL Master 500 and the Heidelberg Anterior), and the strategy to determine the posterior (RPE) peak. Protocol 1 accepted the proprietary software determination versus manual RPE identification in Protocols 2 and 3. The primary outcomes were the postoperative refractive prediction error (PE) and mean absolute error (MAE).

Results:

Seventy-five eyes of 67 patients were included; 24 eyes (32%) were in Protocol 1, 11 eyes (15%) in protocol 2 and 40 (53%) in protocol 3. The average PE of Protocol 1 (PE -0.24D) trended for myopia consistent with current literature. The PE for Protocol 2 and 3 combined was 0.008 D. A Mann-Whitney U test revealed a significant difference in the distribution score for MAE between Protocol 1, and Protocol 2 and 3 combined (U = 163.0, z = 0-4.676, p = <.001).

Conclusion:

This study demonstrated that post-operative refractive outcomes were accurate and consistent in protocols 2 and 3 where the biometry scans were interrogated to ensure the RPE peak was used to determine the AL, and not the ERM peak. A refractive outcome of ± 0.25 D was achieved in 90% (n=9) of eyes in Protocol 2 and 72% in Protocol 3 (n=72) which is comparable to standalone cataract surgery, whereas only 18% of eyes achieved this accuracy in protocol 1.

Combined surgery of phacoemulsification, vitrectomy and implantation of Ahmed's valve in the treatment of neovascular glaucoma

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Purpose: Neovascular glaucoma caused by diabetic retinopathy is a complication that leads to blindness. Often endophotocoagulation of the retina is neither feasible nor sufficient. Eye pathology tends towards rapid progression of the disease, so in eyes with preserved visual potential immediate intervention, phacoemulsification with vitrectomy and implantation of Ahmed's valve is required.

Materials-Methods: The results of 22 eyes treated for neovascular glaucoma, caused by diabetic retinopathy but still with preserved visual potential, are presented. In all eyes, at the first examination, decompensated neovascular glaucoma was diagnosed with visual acuity from light perception to 0.1. The chosen method of treatment is a combined operation, phacoemulsification with IOL in CP. In the same act, a 25g 4-port vitrectomy with extended panretinal endolaserphotocoagulation of the retina was performed and Ahmed's valve was implanted. Intraocular pressure and visual acuity are measured on the day of the first visit, the first control, and after 7, 30, 90 days. The data were statistically processed and the results presented using the Microsoft Excel program.

Results: The obtained results indicate a significant reduction of intraocular pressure by 62% with a standard deviation of ± 15 already at the first control without added postoperative antiglaucoma therapy in relation to the preoperative value. At subsequent controls, the intraocular pressure values were stabilized at an average value of 16mmHg with a standard deviation of ± 4 mmHg without added antiglaucoma therapy. The results also indicate a significant improvement in visual acuity up to 4 lines on the Snellen charts.

Conclusion: Based on the presented results, method of combined surgery in neovascular glaucoma of eyes with preserved visual potential is the method of choice. Phacoemulsification with IOL in CP and vitrectomy with extended panretinal endolaserphotocoagulation and Ahmed valve implantation is giving a results in the treatment of intraocular pressure and visual acuity.

Visual and anatomical outcomes of pars plana vitrectomy for dropped nucleus

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Objective: To evaluate visual and anatomical outcomes of pars plana vitrectomy (ppv) in patients with dropped nucleus following complicated phacoemulsification (pe).

Material-Method: A retrospective study was conducted at the Ophthalmology Department of Lahore General Hospital between 2017-2022. Study included 51 patients (33 males and 18 females) between age 35-85 years who were referred after complicated phacoemulsification with dropped nucleus. After informed consent, patient's demographic characteristics, interval between complicated pe and ppv, pre and post-ppv visual acuity, pre and post-ppv intra-ocular inflammatory status, pre and post-ppv IOP, the final intraocular lens (IOL) status and complications were recorded. Complications of retained lens fragments was confirmed by ophthalmoscopy or echography in all patients. All the patients underwent 23-G ppv, removal of dropped nucleus with IOL implantation. The range of followup was 2 months to 5 years.

Results: This study included 51 patients in which 33 were males (64.71%) and 18 were females (35.29%). The mean age was 52.5 years. Mean interval between pe and ppv was 7 days. Nuclear fragments were found in 34 (66.67%) eyes, cortical matter in 3 (5.88%) eyes while entire nucleus was dropped in 14 (27.45%) patients. Five (35.71%) patients of 14 patients had retinal detachment at time of presentation. All patients underwent 23-G ppv. Posterior chamber phacofragmentation was carried out in 32 (62.75%) eyes while in remaining 19 (37.25%) patients vitrectomy cutter was used for dropped nucleus. Out of 51, (11.76%) patients received an anterior chamber IOL at time of cataract surgery, 21 (41.18%) eyes IOL in ciliary sulcus, 7 (13.73%) had posterior chamber IOL, and remaining 17 (33.33%) patients were aphakic. Of these 17 aphakic patients, anterior chamber IOL was placed at time of ppv in 7 (41.18%) patients who were judged to have inadequate capsular support. In remaining 10 (58.82%) eyes, where capsular support was deemed adequate, posterior chamber IOL was inserted. Final visual acuity was 20/40 or better in 34 (66.67%) and 20/50 in 6 (11.76%) patients. Main cause of decreased visual acuity was cystoid macular edema and bullous keratopathy.

Conclusion: Poor visual acuity after dropped nucleus can be avoided by managing with prompt skillful ppv manipulation.

Buckle Phaco Vitrectomy for retinal detachment with PVR: Technique and outcome

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Introduction:

Adjuvant Buckle with vitrectomy, for retinal detachment with PVR, may be a useful tool for a better anatomical outcome with less number of reoperations, and may enable the surgeon to keep retinectomy for a later intervention if needed.

However, there is a challenging situation for the surgeon if the patient is phakic. As the surgeon may need to perform a combined phacovitrectomy.

Methods:

The encircling band is first inserted with slight tightening, then a routine phacovitrectomy is performed, then final tightening of the band is performed

Outcome measures:

Incidence of:

- Iris prolapse through limbal wound
- Loss of anterior chamber
- IOL dislocation
- Posterior capsular rupture

IOL centration

Postoperative iritis

SSAS (single surgery anatomical success)

InTraocular EMulsion of Silicone oil (ITEMS) grading system

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Aim: To propose the InTraocular EMulsion of Silicone oil (ITEMS) grading system for the assessment of silicone oil (SiO) emulsion, applicable in a routine clinical setting and validated through an expert-led consensus procedure.

Methods: Seven experts on intraocular liquid tamponades, led by a facilitator, performed a literature review on the detection of SiO emulsion. Based on the proposed ideas, a questionnaire was developed and submitted to the experts on the methods to detect SiO emulsion and the items to grade. After two rounds of individual ranking using a nine-point scale and related discussion, the final grading system was developed including items that reached consensus (score ≥ 7 from $\geq 75\%$ of members).

Results: The agreed ITEMS grading system includes the identification of SiO microbubbles and large SiO bubbles through slit lamp biomicroscopy, gonioscopy, fundus examination under mydriasis or ultra-widefield fundus photography. Moreover, macular and disc OCT are used to detect SiO-associated hyperreflective dots.

Conclusion: An evidence-based expert-led consensus was conducted to develop grading system of SiO emulsion, allowing, for the first time, homogenous collection of data on SiO emulsion. This has the potential to improve our understanding of the role and clinical relevance of SiO emulsion allowing comparisons between different studies.