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Research Article

**ANALYSIS OF DIFFERENT OUTCOMES OF EARLY PARS  
PLANA VITRECTOMY FOR ACUTE POST-OPERATIVE  
ENDOPHTHALMITIS**<sup>1</sup>Dr Anam Manzoor, <sup>1</sup>Dr Anum Shah, <sup>2</sup>Dr Maria Javaid<sup>1</sup>Women Medical Officer at RHC 222eb, Vehari, <sup>2</sup>Foundation University Medical College, Islamabad, <sup>3</sup>Women Medical Officer at BHU Orrara, Tehsil Qasur.

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**Abstract:**

**Introduction:** Traumatic endophthalmitis is a subset urgent and severe ophthalmologic disease, remaining as a notable cause of poor visual outcome.

**Aims and objectives:** The basic aim of this research work is to analyze the different outcomes of early pars plana vitrectomy for acute post-operative endophthalmitis.

**Material and methods:** This descriptive study was conducted in Foundation University Medical College, Islamabad during March 2018 to December 2018. The data was collected from 100 patients with acute post-operative endophthalmitis. Patients demographic studies included age, sex, place of trauma, mechanism of injury, the location and size of corneal perforation or scleral perforation, with or without uveal prolapse, entry and location of IOFB, time between injury and repair, and initial and final best corrected visual acuity.

**Results:** All the collected data were analysed and find out the results. Four clinic factors associated with better post-op BCVA were identified by univariate analysis (Table 2). Time between trauma and initial treatment less than 12 hrs, time between trauma and PPV treatment less than 24 hrs, laceration length less than 10 mm, and presenting VA better than LP were statistically significant factors which could result in better BCVA, while gender and the perforation position were not significant factors. Those cases kept stable intraocular structure and retinal detachment after removal of silicone oil at the end of the follow-up.

**Conclusion:** It is concluded that the better visual acuity prognosis postoperatively could benefit from prompt vitrectomy treatment, isolation of non-virulent microorganisms, shorter length of laceration, better presenting visual acuity, and the use of silicone oil or removing the lens if necessary.

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**INTRODUCTION:**

Traumatic endophthalmitis is a subset urgent and severe ophthalmologic disease, remaining as a notable cause of poor visual outcome. The type of pathogenic microorganism, nature of the injury, the presence of a foreign body, and the geographical region in which the trauma occurred are all important factors influencing both treatment and prognosis [1]. Pars plana vitrectomy (PPV) treatment for traumatic endophthalmitis is an effective method. The roles of vitrectomy are multiple: it eliminates a sizeable portion of germs, toxins, and inflammatory cells; it clears the media; it eliminates the vitreous scaffolding that causes traction and subsequent retinal detachment. It directly determines the final visual prognosis of traumatized eyes [2].

Endophthalmitis is the vision-threatening intraocular infection that may occur following any intraocular surgery or open globe injury. Causative organisms may enter the eye exogenously or from another site of systemic infections (endogenous). Cataract surgery is the most common cause of postoperative endophthalmitis because of the great number of cataract surgeries worldwide. The incidence of endophthalmitis following cataract surgery varies in different studies [3].

The visual outcome of post cataract surgery endophthalmitis is generally poor, and early diagnosis and appropriate treatment are essential for the improvement of visual prognosis. There is no agreement on the preferred treatment for post cataract surgery endophthalmitis [4]. Endophthalmitis vitrectomy study (EVS) consider pars plana vitrectomy only for patients with initial visual acuity of light perception while some studies recommended early pars plana vitrectomy for all patients with post cataract surgery endophthalmitis [5].

**Aims and objectives**

The basic aim of this research work is to analyze the different outcomes of early pars plana vitrectomy for acute post-operative endophthalmitis with or without silicone oil.

**MATERIAL AND METHODS:**

This descriptive study was conducted in Foundation University Medical College, Islamabad during March 2018 to December 2018. The data was collected from 100 patients with acute post-operative endophthalmitis. The diagnosis of traumatic endophthalmitis was made by the following: the new onset penetrating eyeball injury, excluding endogenous infectious history; severe loss of visual acuity and rapid deterioration to worse than 20/400; significant intraocular inflammation and hypopyon in anterior chamber and vitreous; intraocular hypopyon tested by vitreoretinal surgery; and positive culture results from vitreous cavity hypopyon. All patients, aged from 10 to 60 years, all underwent pars plana vitrectomy (PPV).

Patients demographic studies included age, sex, place of trauma, mechanism of injury, the location and size of corneal perforation or scleral perforation, with or without uveal prolapse, entry and location of IOFB, time between injury and repair, and initial and final best corrected visual acuity.

**Statistical analysis**

The data were collected and analysed using SPSS version 21.0

**RESULTS:**

All the collected data were analysed and find out the results. Four clinic factors associated with better post-op BCVA were identified by univariate analysis. Time between trauma and initial treatment less than 12 hrs, time between trauma and PPV treatment less than 24 hrs, laceration length less than 10 mm, and presenting VA better than LP were statistically significant factors which could result in better BCVA, while gender and the perforation position were not significant factors. More than 95% of the patients without IOFB or retinal detachment could get BCVA improvement just after PPV surgery. Those cases kept stable intraocular structure and retinal detachment after removal of silicone oil at the end of the follow-up.

**Table 01:** Analysis of data according to study design

Factor	Number	Improved BCVA (%)	value
Gender			
Male	103	98/103 (95.15)	0.1781
Female	18	15/18 (83.3)	
Treatment period			
<12 hrs	111	109/111 (98.20)	0.0000
>12 hrs	10	4/10 (40)	
Laceration length			
≤10 mm	110	106/110 (96.36)	0.0004
>10 mm	11	7/11 (63.63)	
Presenting VA			
≥LP	114	110/114 (96.49)	0.0000
<LP	7	3/7 (42.86)	
IOFB			
Yes	53	48/53 (90.57)	0.4627
No	68	65/68 (95.59)	
Retinal detachment			
Yes	37	33/37 (89.19)	0.4028
No	84	80/84 (95.24)	
Corneal perforation			
Yes	85	82/85 (96.47)	0.0898
No	36	31/36 (86.11)	
Scleral perforation			
Yes	36	31/36 (86.11)	0.0898

No	85	82/85 (96.47)	
<hr/>			
SO use			
Yes	98	91/98 (92.86)	0.9846
No	23	22/23 (95.65)	
<hr/>			
Lensectomy			
Yes	116	109/116 (93.97)	0.7555
No	5	4/5 (80)	
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PPV: pars plana vitrectomy; IOFB: intraocular foreign body; SO: silicone oil.			

### DISCUSSION:

Improved functional and anatomical outcome of pars plana vitrectomy with endotamponade (silicon oil) could be explained as follows: Eradication of microbes by antibiotics is assisted by silicon oil. A study was published which showed that silicone oil has inhibitory effect on most of the microorganisms including aerobes, facultative aerobes and anaerobes. Postoperative examination and additional laser treatments can be done effectively as silicon oil keeps the media clear [6]. Because of good surface tension, silicon oil pushes the retina against the eye wall, hence giving a good tamponade and sealing the retinal breaks effectively.

For those patients with severe vitritis, more than 90% of the cases also obtained BCVA improvement after PPV and silicone oil tamponade or lensectomy simultaneously. The usage of silicone oil tamponade was determined by the degree of severity of endophthalmitis in the present study [7]. Azen et al. reported complete reattachment rates of 62% for traumatic detachment and maculae attachment in 88% of the traumatic patients, while, in other cases without retinal detachment, the silicone oil tamponade also plays an important role in preventing the development of proliferative vitreoretinopathy (PVR) and extensive scarring process [8]. Theories demonstrated that, in the first phase of traumatic injuries, vitrectomy could prevent infection or inflammation, while, in the second phase of the wound healing process, silicone oil tamponade could inhibit the following cell proliferation. In the present study, 92% of the patients obtained BCVA improvement after PPV and silicone oil tamponade simultaneously, which was the same result as mentioned above [9]. Thus, if the severe vitritis is definite, vitrectomy with silicone oil

tamponade treatment could be administered promptly as an appropriate and as the most effective way to control inflammation [10].

### CONCLUSION:

It is concluded that the better visual acuity prognosis postoperatively could benefit from prompt vitrectomy treatment, isolation of nonvirulent microorganisms, shorter length of laceration, better presenting visual acuity, and the use of silicone oil or removing the lens if necessary.

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