

RESULT OF PARS PLANA VITRECTOMY IN POST TRAUMATIC ENDOPHTHALMITIS

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First Author:
Dr. Anuja Bhatt, Resident Doctor in Ophthalmology, anujabh18@gmail.com
Corresponding authors:
Dr. Aashka Shah, MS ophthalmology, shah7aashi@yahoo.in
Order of Authors:
Dr. Aashka Shah, MS Ophthalmology, shah7aashi@yahoo.in
Dr. Sapan Shah, MS Ophthalmology, sapan_sha@yahoo.com
Dr. Anuja Bhatt, Resident Doctor in Ophthalmology, anujabh18@gmail.com
Dr Rutuja Brahmhatt, Resident doctor in Ophthalmology
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Abstract: Traumatic endophthalmitis is one of the ophthalmological emergencies, which is notable cause for poor visual outcome. In this retrospective review of treatment on traumatic endophthalmitis, we identify the susceptibility factors to obtain better postoperative visual acuity after PPV to reduce the incidence of visual impairment in post- traumatic endophthalmitis.

Abstract

Aim:

To evaluate visual outcomes and identify prognostic factors after pars plana vitrectomy (PPV) surgery for traumatic endophthalmitis.

Methods:

Medical records of 20 patients diagnosed with traumatic endophthalmitis that had undergone pars plana vitrectomy were retrospectively reviewed.

Result:

20 patients all underwent PPV surgery. 50% of them obtained BCVA better than fingers counting (FC). Good final visual prognosis was significantly associated between trauma and PPV treatment.

Conclusions:

Good visual outcomes can be achieved for most patients who undergo vitreoretinal surgery after open globe trauma.

Key word:

Endophthalmitis, Pars plana vitrectomy

INTRODUCTION

Traumatic endophthalmitis is one of the ophthalmological emergencies, which is notable cause for poor visual outcome. The type of pathogenic microorganism, nature of the injury, the presence of a foreign body, delayed primary repair of open wound injury by greatest than 24 hours and the geographical region in which the trauma occurred are all important factors influencing both treatment and prognosis. 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 traumatised eyes [1–6]. In this retrospective review of treatment on traumatic endophthalmitis, we identify the susceptibility factors to obtain better postoperative visual acuity after PPV to reduce the incidence of visual impairment in post- traumatic endophthalmitis.

METHOD

A retrospective analysis was performed on 20 consecutive patients presenting with post-traumatic endophthalmitis to tertiary eye care center.

The diagnosis of post-traumatic endophthalmitis was based on history, clinical symptoms (worsening vision, eye pain, photophobia and tearing) and signs (purulent exudate at the site of injury, chemosis, hypopyon, fibrin

in the anterior chamber, and vitreous haze/opacification) following previous ocular injury aided by B-scan to evaluate for vitreous opacity, IOFB and status of retina and choroid. CT scan to evaluate a retained IOFB if the history is suspicious for one.

In all cases, first of all, immediate systemic and topical antibiotic and anti-inflammatory therapy were initiated. Patients presenting were immediately given 2 doses of intravitreal antibiotics/ anti-fungal with or without steroids on 2 alternate days in the following doses

Vancomycin:1000mcg in 0.1ml

amikacin 400mcg in 0.1ml

dexamethasone: 400mcg in 0.1ml

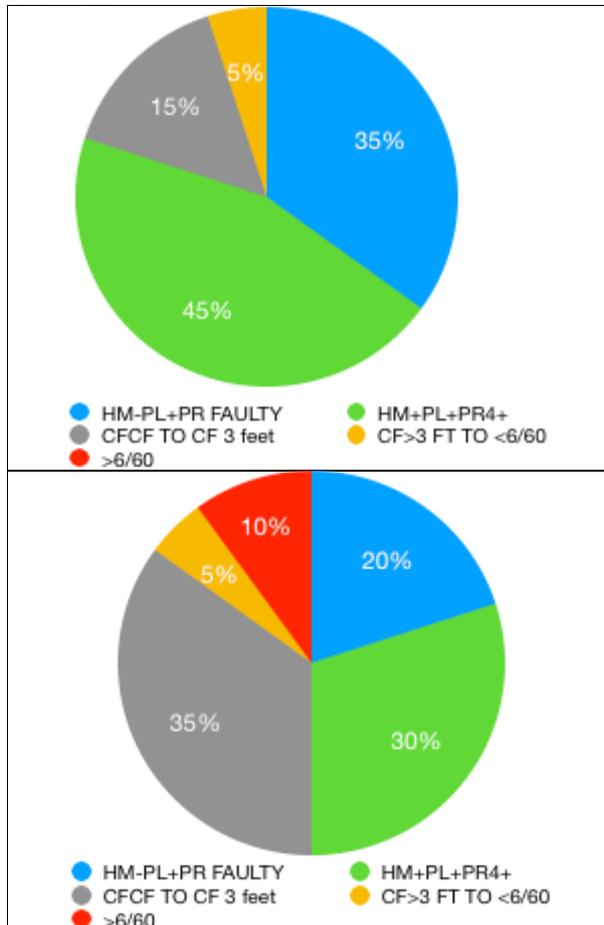
amphotericin 5mcg in 0.1ml

then the patients were posted for surgery which included the following procedures:

pars plana vitrectomy with or without lensectomy+/- removal of IOFB+/- endolaser+/- silicon oil injection/injection/another tamponade.

Data on gender, age, timing of surgery, initial and final best corrected visual acuity (BCVA), type of trauma and treatments were recorded and analysed. The clinical variable factors associated with postoperative visual acuity including gender, time between injuries and treatment or PPV surgery, laceration length, presenting visual acuity, with IOFB or not, retinal detachment, corneal or scleral perforation, lensectomy, and silicone oil tamponade treatment were specifically analyzed.

RESULT



Before timely surgical treatment 80% of the patients suffered severe vision impairment and endured BCVA worse than counting fingers (FC). After emergent PPV surgery 50% of them obtained BCVA better than FC. Indicating the substantial reduction of the incidence of vision impairment or blindness after viteroretinal surgery for traumatic endophthalmitis.

More than 95% of the patients without IOFB or retinal detachment could get BCVA improvement just after PPV surgery. For those with IOFB or retinal detachment ones, 90% patients with silicone oil tamponade and 35% that underwent lensectomy recovered and obtained improved BCVA. The prognosis for mild traumatic endophthalmitis is favorable after PPV surgery. Those serious cases could also obtain better prognosis and benefit from PPV as well as the use of silicone oil or removal of lens.

DISCUSSION

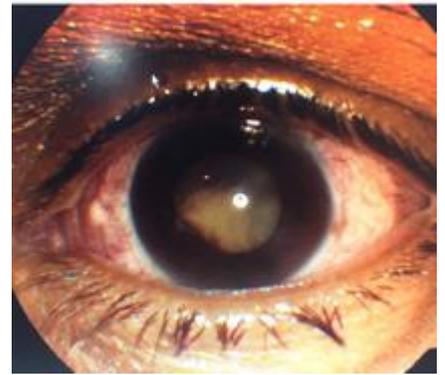
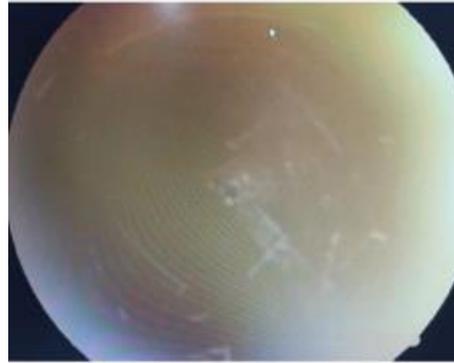
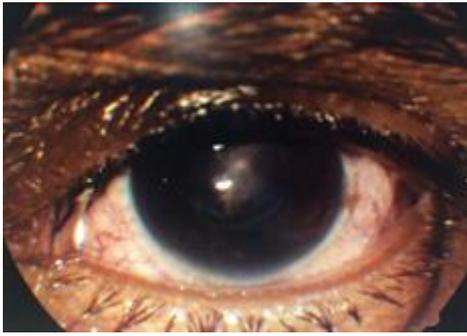
The incidence of traumatic endophthalmitis ranges from 6.8% to 9.5%, remaining as one of the leading causes of non-congenital unilateral blindness [7]. Risk factors for traumatic endophthalmitis include the presence of an IOFB, injury in a rural setting, wound contamination with organic matter, primary wound closure delayed for longer than 24 h after injury, and involvement of the lens capsule [8–11]. Vitrectomy treatment is suggested to be performed immediately after endophthalmitis is diagnosed [12–14]. In our cases, results also firmly showed that immediate vitrectomy for traumatic endophthalmitis with suitable intravenous medication was effective to preserve the eyeball and visual acuity. In our study 20 patients 80% (16/20) of patients achieved increased best corrected visual acuity after par plana vitrectomy. Besides, 10% (2/20) of patients got BCVA better than 20/200. Endophthalmitis was much alleviated after the initial emergent vitrectomy and was brought under control with the continued usage of intravenous and topical antibiotics. The possible mechanism was that early emergent vitrectomy could remove the infecting microbiologic load and allow better diffusion of antibiotics within the eye, which might be helpful in retaining useful vision.

Previous studies have demonstrated that the clinical features associated with better visual acuity outcomes included better presenting visual acuity, early presentation to the institutes, and isolation of a nonvirulent organism [15, 16]. In current study similar result were demonstrated.

As for the use of silicone oil in traumatic eyes, the main indication for silicone oils is complicated retinal detachment. Azen et al. [17] 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 [18, 19]. 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, 90% of the patients obtained BCVA improvement after PPV and silicone oil tamponade simultaneously, which was the same result as mentioned above. 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.

There were some limitations in the present study. First, the sample size was limited to 20 patients, which precluded some statistical analyses. Also, the data was taken from a hospital and may not be representative of patients who are treated in other settings, thus limiting the generalizability of the findings. Second, because the primary treatments were performed by different surgeons, patients experienced variable delays in treatment.

PRE-OPERATIVE



POST OPERATIVE

CONCLUSION

It can be concluded that prompt diagnosis with administration of intravitreal and systemic antibiotic and corticosteroid followed by vitrectomy can lead to improved visual outcome in case having limited retinal injury. Visual prognosis is always guarded to poor and depends on the virulence of infecting organism, presence of retinal detachment, timing of treatment and extent of initial injury.

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