

## Expulsion of intraocular contents while making ports of pars plana vitrectomy in corneal involvement with endophthalmitis: Disguised nightmare for the surgeon

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### Abstract

One of the most complex situations in vitreoretinal set up is cases of acute endophthalmitis presenting to the vitreoretinal surgeon when cornea has become involved. We should go for specific investigations such as blood culture, corneal and conjunctival scrapings, Brightness scan (B scan) to rule out retinal detachment. Therapeutic penetrating keratoplasty and pars plana vitrectomy is the only definitive modality of approach in such cases. The trochar and cannula at infusion port are inserted first without starting infusion. At this point of time if there is expulsion of contents through expulsive choroidal haemorrhage the intraocular contents are in the anterior chamber. The cornea is hazy and obstructs the surgeons view. The process is irreversible.

**Keywords:** pars plana vitrectomy, therapeutic keratoplasty, endophthalmitis

### 1. Introduction

Corneal involvement with endophthalmitis is a very difficult situation for any vitreoretinal surgeon because of the devastating loss of vision and also poor visual prognosis. We are discussing an intraoperative situation where trochar is inserted into the sclera and cannula is put in the sclera blood tinged or coloured fluid starts coming from the cannula. The recipient cornea when removed shows all the intraocular contents including intraocular lens, prolapsed vitreous and retina into the anterior chamber.

The situation is a true nightmare for the surgeon as the process is irreversible.

### 2. Main Text

One of the most complex situations in vitreoretinal set up is cases of acute endophthalmitis presenting to the vitreoretinal surgeon when cornea has become involved. The immediate work up is to take complete history of the patient and clinically find out the cause of endophthalmitis- a fulminant microbe or a fungus. The visual acuity is of the order of Hand Motions close to face or perception of light.

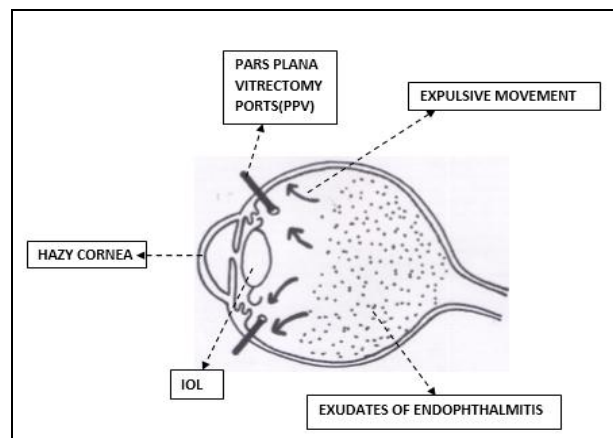
We should examine the eye under slit lamp under diffuse illumination as well as slit illumination in low and high power to find the extent of involvement of cornea. If the pupillary axis is involved in the cornea then anterior chamber details are not visible. The posterior chamber details are not at all visible. We should go for specific investigations such as blood culture, corneal and conjunctival scrapings, Brightness scan (B scan) to rule out retinal detachment.

Vitreous tap and intravitreal injections of antibiotics such as Vancomycin (1 mg in 0.1 ml) and Ceftazidime (2.25 mg in 0.1 ml) can be done in early set ups.

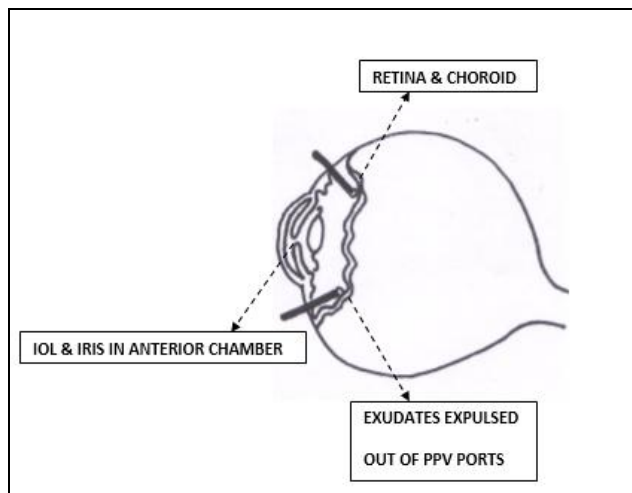
The definitive management of endophthalmitis with corneal involvement is not conservative because of fulminant infection and its irreversible nature. The definitive management is total penetrating keratoplasty alongwith pars plana vitrectomy.

The procedure is usually done under general anaesthesia. After cleaning and draping the eye pars plana ports are made before

injecting the infusion cannula (23, 25 or 27 gauge). Our article is concerned with expulsion of intraocular fluids including intravitreal exudates occurring at the time of making ports. As soon as the trochar is inserted into the sclera and cannula is put in the sclera blood tinged or coloured fluid starts coming from the cannula. It happens in routine vitrectomies also. At this point of time, infusion cannot be started before checking the cannula. After making the ports of pars plana vitrectomy, infusion cannula cannot be checked because of corneal edema. Corneal transplantation- Recipient cornea is trephined partially and the size of donor cornea is determined. The donor cornea is trephined graft is harvested for total penetrating keratoplasty. As soon as side port incision is given the intraocular contents are already in the anterior chamber. The surgeon is unaware of the situation. Expulsive choroidal haemorrhage occurred while inserting cannulae for pars plana vitrectomy. The recipient cornea when removed shows all the intraocular contents including intraocular lens, prolapsed vitreous and retina into the anterior chamber. Under any circumstances the situation is irreversible.



**Fig 1:** Figure showing expulsive movement of exudates out of pars plana vitrectomy ports



**Fig 2:** Second figure showing presence of intraocular lens, in the anterior chamber retina and choroid behind the iris

### 3. Discussion

In a study by Lakhanpal it was concluded that sclerotomies made during the acute event are detrimental to eyes <sup>[1]</sup>.

Systemic conditions which may serve as risk factors for expulsive choroidal hemorrhage include advanced age, arteriosclerosis, hypertension, diabetes mellitus, blood dyscrasias, and obesity. Ocular risk factors include previous surgery, aphakia, glaucoma, uveitis, high myopia, trauma, vitreous removal, laser photocoagulation, and choroidal sclerosis. A scleral buckle placed during vitrectomy is a risk factor for postoperative choroidal hemorrhage. A history of choroidal hemorrhage serves as a risk factor for surgery on either eye. Intraoperative risk factors include increased intraocular pressure, increased axial length, open-sky procedures, and Valsalva maneuvers. Intraoperative tachycardia has been identified as a significant risk factor or an early symptom of expulsive hemorrhage <sup>[2]</sup>. It is unclear whether local anaesthetic agents pose more risk than general anaesthesia.

The procedure of total penetrating keratoplasty with pars plana vitrectomy is unavoidable in endophthalmitis with corneal involvement. The question is when one has placed the vitrectomy ports and expulsive choroidal haemorrhage has occurred, the situation is irreversible in all possibilities. The triggering factors are

Negative pressure of infusion port which forces the endophthalmitis exudates out through the vitreous cavity <sup>[3]</sup>.

Liquified nature of exudates in the vitreous cavity is also responsible for outflow of exudates from the vitreous cavity.

### 4. Conclusion

We conclude that it is not only the expulsive choroidal haemorrhage rather other factors such as negative pressure of infusion ports and liquefied exudates in the vitreous cavity in cases of endophthalmitis with corneal involvement. A hazy cornea obstructs the surgeons view to a large extent. Therapeutic penetrating keratoplasty with parsplana vitrectomy is the only solution.

### 5. References

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