

**ANALYSIS OF 57 POST-ENDOPHTHALMITIS RETINAL DETACHMENT AND PREDICTIVE FACTORS FOR VISUAL OUTCOME**Vivek Som<sup>1</sup>, Girish Gadre<sup>2</sup>, Anil Kulkarni<sup>3</sup>**HOW TO CITE THIS ARTICLE:**

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**ABSTRACT: OBJECTIVE:** Evaluation of cases of endophthalmitis developing Rhegmatogenous retinal detachment and managed with vitreoretinal surgery, their clinical profile, factors responsible for retinal detachment and the predictive factors for the final outcome. **SETTING:** Vivekanand Netralaya, Lions NAB Eye hospital, Miraj. **MATERIAL AND METHODS:** This is a retrospective nonrandomized case series involving 57 consecutive cases of post endophthalmitis Rhegmatogenous Retinal Detachment. 168 cases of endophthalmitis that were managed were reviewed. Amongst these cases 57 developed rhegmatogenous RD at various stages of presentation and management. All these cases were managed by Parsplana vitrectomy with Fluid Gas Exchange with endolaser and silicon oil/C3F8 implantation. **RESULTS:** 168 cases of endophthalmitis (90-posttraumatic/ 72-post-operative/ 6 endogenous), were managed of which 33.92% developed Retinal Detachment. Of the patients with RD 24.6% it was noted post vitrectomy surgery for endophthalmitis in the rest it was noted pre or intraoperative. **CONCLUSION:** Factors compatible with good visual outcome were macula on RD (68%), PVD induction (56%), and also the cases with silicon oil tamponade, breaks and retinal detachment noted intraoperatively (During vitrectomy for endophthalmitis) fared much better. With better surgical techniques, availability of antimicrobials, long acting tamponading agents the vitreoretinal surgical results are encouraging, can be even better if intervened early.

**KEYWORDS:** Endophthalmitis, Retinal detachment, vitrectomy.

**INTRODUCTION:** Endophthalmitis is a dreaded condition which can occur post intraocular surgery, penetrating trauma to globe and though not frequently due to endogenous causes. Management of endophthalmitis still remains a challenge and is fraught with controversies. The outcome is still guarded and the visual outcome depends on variety of factors.

The matter gets more complex if endophthalmitis is associated with retinal detachment. Such a situation is not very infrequent. Doft BM et al in their series of post cataract endophthalmitis noted an incidence of retinal detachment 8.3% with no difference in the vitrectomy and tap biopsy group.<sup>1</sup> Obviously the presence of retinal detachment in a case of endophthalmitis is a poor prognostic factor. Management of retinal detachment in case of endophthalmitis is riddled with many challenges.

**AIMS AND OBJECTIVES:** The study was done to evaluate the cases developing rhegmatogenous retinal detachment in cases with endophthalmitis and also to evaluate visual outcome and its predictive factors in cases of endophthalmitis with retinal detachment or developing retinal detachment following vitrectomy for endophthalmitis in the present era.

**MATERIAL AND METHODS:** This is a retrospective nonrandomized case series involving cases with retinal detachment in patients with endophthalmitis or cases that had undergone vitrectomy for endophthalmitis. The study group includes 168 consecutive cases of endophthalmitis managed at vitreoretina services of Vivekanand Netralaya, Miraj between February 2006 and February 2010.

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All cases of endophthalmitis including postoperative, post trauma and endogenous endophthalmitis who were managed were included in the study. 57 patients developed retinal detachment at some point of management either preoperatively, intraoperatively or after vitrectomy.

Detailed retrospective analysis of records of all the cases were done with special reference to type of endophthalmitis, preoperative visual acuity, history, slit lamp biomicroscopic examination, IDO and Bscan findings. In all the cases a standard protocol of Pars plana vitrectomy with base excision to the extent possible avoiding the necrotic retina followed by fluid gas exchange and tamponade by Silicon oil or C3F8 was followed. In cases with silicon oil injection, half dose Vancomycin and ceftazidime intra oil was used.

Additional procedures like tear repair, lensectomy, IOL explants, retained intraocular foreign body removal were done wherever required. The cases were followed up on day 1, 3 and then as per the merit of the case. Silicon oil removal was done at approximately 3months. The cases were followed for a minimum period of 6 months. 3 of the patients who had repeat retinal detachment surgery were lost on follow up at variable intervals. Of these 2 had lost vision and one had Perception of Light till last follow up, (Cases were included in the study but excluded while noting final anatomical result).

**OBSERVATIONS AND RESULTS:** Records of 168 cases of endophthalmitis were evaluated. The mean age of the study group was 68.51yrs. The male to female ratio was 3.75. Post traumatic endophthalmitis formed the single largest group with 53.6% cases followed by postoperative 42.8% and 3.6% endogenous endophthalmitis (Table 1).

Rhegmatogenous retinal detachment was noted in 57 cases. Post trauma group accounted for maximum number of cases 71.9% of retinal detachment followed by postoperative endophthalmitis and endogenous endophthalmitis.

Interesting thing was amongst the group rate of retinal detachment was noted to be highest in the endogenous endophthalmitis with 66.67% cases developing RD and lowest in the postoperative endophthalmitis group with only 16.67% developing RD. The probable reason being that in endogenous endophthalmitis cases the area of retinal abscess or necrosis leads to breaks and RD.

Postoperative endophthalmitis	72	42.8 %
Post traumatic endophthalmitis	90	53.6 %
Endogenous endophthalmitis	06	3.6 %

Table 1

Type	Number of cases	Percentage	Percentage (n = 168)
Postoperative endophthalmitis (72)	12	16.67%	21.05%
Post traumatic endophthalmitis (90)	41	45.5%	71.9%
Endogenous endophthalmitis (06)	4	66.67%	7.02%

Table 2: Distribution of cases with reference to the type of endophthalmitis

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41 cases of post trauma endophthalmitis group were evaluated with reference to the type of injury and 18 had penetrating injury, 7 perforating, 15 had retained IOFB and 1 globe rupture.

Preoperatively majority of the patients 89.5% had a Snellens visual acuity of less than 1/60. Whereas post retinal detachment surgery only 3.5% patients did not have perception of light and majority 63.1% of the patients had ambulatory vision more than 1/60 and 43.8% had postoperative visual acuity of more than 6/60.

	<b>Pre-op</b>	<b>Post-op</b>
No. pl	0	2
<1/60	51(89.5)	19(36.8)
1/60-6/60	3(5.26)	11(19.3)
>6/60	3(5.26)	25(43.8%)

**Table 3: Assessment of preoperative visual acuity and post op visual acuity**

Anatomical success rate was 44 (77%) (After first procedure), 13(33%) cases had recurrence out of which 6 could be reattached after second procedure (overall reattachment rate was 87.7%), which is comparable to 78% reported by Doft BM et al.<sup>1</sup> Out of Rest 7 patients 3 lost follow up.

	<b>Vision (&lt;1/60) N=21</b>	<b>1/60 to 6/60 (n=11)</b>	<b>Vision (&gt;6/60) N= 25</b>
Trauma	15(71.4)	8 (72.7%)	18(72)
Post-op	5(23.8%)	0	7(28%)
Endo end	1(4.7)	3(27.2%)	0
Preop vision < HM	21(100%)	9(81.8%)	10 (40%)
Defective projection	15(71.4%)	3(27.2%)	4(16%)
Tamponade gas	10 (47.6%)	4(36.4%)	8(32%)
Tamponade oil	11(52.4%)	7(63.6%)	15(60%)
RD noted after procedure	12(57.2%)	0	4(16%)
Intraop break	5(23.8%)	0	17(68%)
PVD induced	7(33.3%)	7(63.6%)	14(56%)
Not induced	7(33%)	2(18%)	2(8)

**Table 4: The Predictive factors for vision**

	<b>Vision(&lt;1/60)</b>	<b>Vision 1/60 to 6/60</b>	<b>Vision (&gt;6/60)</b>
Trauma (41)	15(36.6%)	8 (19.5%)	18(43.9%)
Post-op (12)	5(41.6%)	0	7(58.3%)
Endo end (4)	1(25%)	3 (75%)	0
Preop VA <1/60 (51)	21(41.2%)	20(39.2%)	10 (19.6%)
Defective PR (22)	15(68.2%)	3(13.6%)	4(18.2%)
Tamponade gas (22)	10 (45.5%)	4(18.2%)	8(36.3%)
Tamponade oil (33)	11 (33.3%)	7(21.2%)	15 (45.5%)

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RD after Rx (16)	12(75%)	0	4(25%)
Intraop break (22)	5(22.7%)	0	17(77.3%)
PVD induced (28)	7(25%)	7 (25%)	14(50%)
Not induced (11)	7(63.6%)	2 (18.2%)	2(18.2%)

**Table 5:Independent predictive factors and visual outcome**

Individual factors were analyzed with reference to visual outcome:

Evaluation was done regarding the timing of retinal detachment and the outcome. It was noted that intraoperatively noticed breaks and RD had fared much better with approximately 77% cases achieving more than 6/60 as compared to patients who developed RD post vitrectomy surgery with only 25% achieving 6/60 or more and 75 % achieved vision less than 1/60.

Information regarding PVD induction was available in 39 cases and of the cases in which PVD was induced 50% achieved more than 6/60 as compared to the other group of which only 18.2%.

**CONCLUSIONS:** The present study is very unique that as per pub med search not many studies have been done to evaluate the outcome of retinal detachment in cases of endophthalmitis. Incidence of Retinal detachment in endophthalmitis following surgical intervention is 24.6 %. Which is similar to studies done by Azad et al (33%),<sup>2</sup> Siqueira RC et al (25%)<sup>3</sup> & Philip T. Nelsen et al (21%),<sup>4</sup> but very less compared to EVS study (8.3%), probably because of inclusion of tap cases and exclusion of trauma cases. In our series Traumatic endophthalmitis accounted for the maximum number of cases of concurrent RD (72%) whereas the highest frequency of retinal detachment within an etiological group was seen with endogenous endophthalmitis, (67%), which may be because of the dehiscence of the abscess leading to retinal breaks and RD.

Concurrent endophthalmitis and retinal detachment patients with virulent organisms have poor prognosis and visual and anatomic outcomes were better in less virulent group.<sup>5</sup> In the present study the cases were not grouped as per the virulence of the organism causing endophthalmitis but was observed that use of silicon oil in had a relatively better outcome with 76.7% cases achieving ambulatory vision or better, with 45.5% achieving vision more than 6/60. It is proposed that this might be because of the antibacterial properties of the oil<sup>6</sup> and prolonged half-life of the intra oil antibiotics.

Majority of the patients (66.2%) gained ambulatory vision comparable to 88% reported by foster et al (non-virulent cases).<sup>5</sup>

Predisposing factors for bad visual outcome were, pre-op vision <HM (100%), defective projection (71.4%), Macula off RD (57.14%).

Whereas predisposing factors for good visual outcome were macula on RD (68%), PVD induction (56%). Cases with silicon oil tamponade, breaks and retinal detachment noted Intraoperatively (during vitrectomy for endophthalmitis) fared much better. Similar to results by Azad et al,<sup>2</sup> and Siqueira RC et al.<sup>3</sup>

With better surgical techniques, availability of antimicrobials, long acting tamponading agents the vitreoretinal surgical results are encouraging, can be even better if intervened early.

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