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Clinical Study on Visual Outcome in Vitreous Haemorrhage in Diabetic Patients Underwent Early Vitrectomy

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Abstract: ***Introduction: Diabetic Retinopathy Vitrectomy Study (DRVS) has shown a clear benefit from earlier surgery in patients with PDR presenting with vitreous hemorrhage.Since the publication of the DRVS report, there is a trend toward early vitrectomy for diabetic vitreous hemorrhage. Purpose: To study the visual outcome of vitreous hemorrhage in diabetic patients with PDR who have undergone early surgical intervention in form of vitrectomy with endolaser. Methods: In this prospective, non-comparative, interventional, hospital-based study 10 eyes of 10 diabetic patients with PDR with vitreous hemorrhage were operated within 3 months of onset of hemorrhage, between March 2018 - October 2018. They underwent early vitrectomy in the form of 23G pars plana vitrectomy with argon green endo laser. Patients were followed up for 6 months. Visual outcome at the end of 6 months, depending upon macular status visual improvement was assessed with snellen's chart. Results: Number of patients with 6/60 vision were -3 , with 6/36 vision was-1, 6/18 were 1 and with 6/12 was 1 and 6/9 were 3 at the end of 6 months. Conclusion: With early intervention good vision can be achieved in PDR patients with vitreous hemorrhage.***

Keywords: Diabetes, diabetic retinopathy, vitreous haemorrhage, pars plana vitrectomy.

1. Introduction

Vitreous haemorrhage is the most common complication of PDR that causes decreased visual acuity and also interferes with pan retinal photocoagulation. Earlier studies suggested PPV and endo laser photocoagulation for vitreous hemorrhage that was persistent and non-clearing for more than 3 months.[1, 2, 3, 5, 6]. However, the Diabetic Retinopathy Vitrectomy Study (DRVS) has shown a clear benefit from earlier surgery in patients with Type 1 diabetes, as delay in the surgery may lead to development of aggressive fibrovascular proliferation with increased risk of tractional Retinal Detachment.[4]

2. Aim of the Study

To study the visual outcome of vitreous hemorrhage in diabetic patients with PDR who have undergone early surgical intervention in form of vitrectomy with endolaser.

3. Material and Methods

In this prospective, non-comparative, interventional case series 10 eyes of 10 diabetic patients were operated between March 2018 - October 2018.

Total patient	10
Mean age	49.3 years
Meanduration of diabetes	20.3 years
Males	6
Females	4
Mean duration of vitreous haemorrhage	2 months
Age group under study	30-60 years age group

Inclusion criteria

Proliferative diabetic retinopathy with vitreous haemorrhage.

Exclusion criteria

- Proliferative diabetic retinopathy with neovascular glaucoma.
- Previousvitrectomy.
- Advanced PDR.
- Tractional retinal detachment with vitreous haemorrhage.

Pre-op examination

Ocular examination:

- Visual acuity testing by means of Snellen's chart.
- Slit lamp examination.
- Measurement of intraocular pressure.
- Fundus examination.
- USG B-Scan.

Systemic investigations

- Blood pressure.
- Complete blood count.
- HbA1C with FBS and PPBS levels.
- Renal profile.
- Fasting lipid profile.
- ECG.

Procedure performed:

23G Pars plana vitrectomy with argon green endolaser.

Operating surgeon:

All surgeries were done by single surgeon.

Follow up period - 6 months:
Follow ups at 1st, 2nd, and 6th months.

4. Results

LOGMAR visual acuity and snellen's equivalent

Table 1: Showing log Mar visual acuity and Snellen's equivalent at 1, 3 and 6 months

Snellen's	LOGMAR VISUAL ACUITY	No. Of Patients		
		At 1 Month	At 3 Months	At 6 Months
FC at 1m	2.00		1*	
6/60	1.00	7	3	3
6/36	0.778	3	3	1
6/24	0.602		3	1
6/18	0.477			1
6/12	0.301			1
6/9	0.176			3

* Patient with deteriorated vision at 3 months due re-haemorrhage after initial improvement.

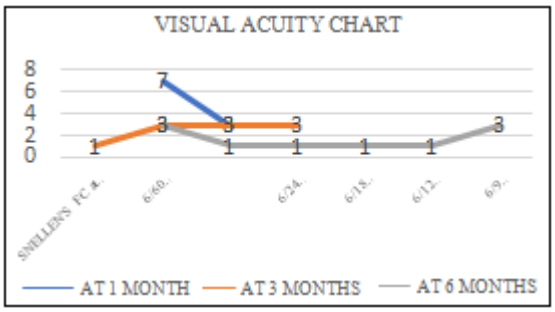

Figure 1: Line diagram showing log Mar visual acuity and Snellen's equivalent at 1, 3 and 6 months

Complications

Table 2: Showing complications in patients at day 1 post-op, 1 month, 3 months and 6 months

Complications	At Day 1 Post-Op	At 1 Month	At 3 Months	At 6 Months
Corneal Edema	6	0	0	0
Corneal Abrasion	7	0	0	0
Anterior Chamber Reaction	8	0	0	0
Raised IOP	6	2	0	0
Cataract	0	4	4	4
Re-Haemorrhage	0	0	1	0

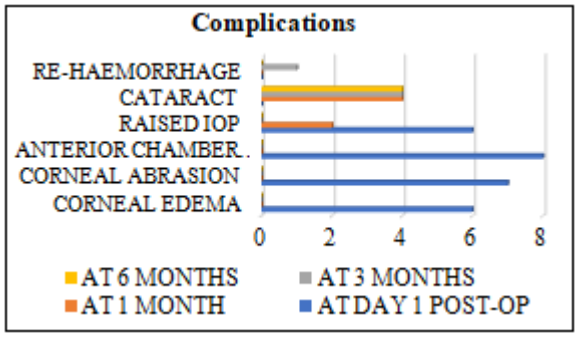

Figure 2: Bar diagram showing complications in patients at day 1 post-op, 1 month, 3 months and 6 months

5. Discussion

- We took 10 cases of vitreous haemorrhage with proliferative diabetic retinopathy, within 3 months of onset.
- All the patients underwent pars plana vitrectomy with argon green endolaser.
- In our study, we found that improvement in BCVA was significant throughout 6 months follow up with maximum improvement seen at 3 months, which were statistically significant ($p<0.0001$).
- In our study at the end of 6 months percentage of patients with visual acuity better th6/36 were 60% and between 6/60 -6/36 were 40%.
- Raised IOP was seen in 6 (60%) out of 10 eyes in first week, out of which 4 came to baseline by 1 month and rest 2 came to baseline by the end of 3 months.
- 4 (40%) eyes out of 10 developed cataracts mainly posterior subcapsular.
- One (10%) out of 10 eyes developed rebleeding at the end of 3rd month.
- Since the publication of the DRVS report, there is a trend toward earlier and lower threshold for vitrectomy for diabetic vitreous haemorrhage. With improved surgical techniques the results of PPV for non-resolving vitreous hemorrhage have improved compared to DRVS.

6. Conclusion

So, in this study we found that early intervention in form of pars plana vitrectomy with endolaser within 3 months of onset of haemorrhage can be effective in saving vision in these patients, instead of waiting for 3-6 months and taking risk of greater damage to retina..we took only 10 cases and followed up for 6 months , so larger study with long follow up will be needed in future.

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