

“EFFECTIVENESS OF DRAINAGE OF PRE-MACULAR SUB-HYALOID HAEMORRHAGE INTO VITREOUS CAVITY WITH ND YAG LASER”

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ABSTRACT

Premacular subhyaloid haemorrhage refers to blood accumulation in the subhyaloid or the retrohyaloid space, which lies between the posterior hyaloid face and the internal limiting membrane of the retina. Premacular subhyaloid haemorrhage has a circular shape in beginning and latter assumes a hemispherical configuration with a straight upper margin due to the effect of the gravity and typically is boat shaped. The source of blood in subhyaloid haemorrhage is the capillaries of the retinal blood vessels. Premacular subhyaloid haemorrhage may occur from various vascular or haematological disorders which include anaemic retinopathy, proliferative diabetic retinopathy, blunt trauma, branch retinal vein occlusion, Valsalva retinopathy, retinal macroaneurysm rupture, Terson syndrome, age related macular degeneration, etc. Sudden, painless and profound loss of vision is the most common presentation. Data collected from hospital records available at BMCRI, Minto ophthalmic hospital 14 eyes of 13 Patients were included of which 5 were females and 8 were males for the accrual period between Feb 2006 to Dec 2013. Inclusion criteria was considered; Sub-hyaloid haemorrhage involving macula, Sub-hyaloid haemorrhage measuring more than 2 disc diameters, Patients who have received no prior treatment for the subhyaloid haemorrhage and excluded from Media opacities. Fourteen eyes of 13 patients were studied. Average age of patients was 34.07yrs with age ranging from 9yrs to 66 yrs. 8 patients were males and 5 were females. Etiologies of sub-hyaloid haemorrhage seen in our study were valsalva retinopathy (8 eyes), aplastic anaemia (2 eyes), severe anaemia(1 eye), BRVO (1 eye), proliferative diabetic retinopathy(1 eye) and trauma(1 eye). Nd-YAG laser was effective in all 14 eyes. The entrapped haemorrhage was released into vitreous cavity and macular area which showed significant clearing by 2-3 weeks. There is a need for prospective study and comparative study to evaluate and compare various treatment options for subhyaloid hemorrhage.

KEYWORDS: BRVO, Nd-YAG, Sub-Hyaloid, ARMD

INTRODUCTION

Premacular sub-hyaloid haemorrhage can occur due to proliferative diabetic retinopathy, valsalva retinopathy, BRVO, ARMD, retinal macroaneurysm, leukaemia/ other blood dyscrasias, trauma, Terson's syndrome. Spontaneous absorption may take months to years. Persistent visual impairment may occur with spontaneous absorption which can be due to macular pigmentary changes, epiretinal membranes or toxic damage to photoreceptors due to prolonged contact with iron or hemoglobin. Treatment options include observation for small haemorrhage, vitrectomy, injection of tPA with pneumatic displacement of SHH and Posterior hyaloidotomy/ photo-disruption of ILM using Nd YAG / Argon green laser.

MATERIALS AND METHODS

Data collected from hospital records available at BMCRI, Minto ophthalmic hospital 14 eyes of 13 Patients were

included of which 5 were females and 8 were males for the accrual period between Feb 2006 to Dec 2013. Inclusion criteria was considered; Sub-hyaloid haemorrhage involving macula, Sub-hyaloid haemorrhage measuring more than 2 disc diameters, Patients who have received no prior treatment for the subhyaloid haemorrhage and excluded from Media opacities

OTHER EVIDENT CAUSES FOR VISUAL LOSS

Patients underwent the following pre-treatment and post-treatment evaluation-best corrected visual acuity, detailed anterior and posterior segment evaluation, fundus photography, B-scan and Fluorescein angiography if necessary, OCT in few cases. Horizontal and vertical dimensions of hemorrhage were measured in comparison with disc using calipers in digital imaging system. Nd YAG laser was applied through slit-lamp using the central lens of Goldman 3-mirror lens. 2.5 mJ initially increasing by 1mJ. Maximum of 7.5 mJ was used. Laser spots were applied to the most dependent part avoiding fovea and major vessel. Large hemorrhages required 2 openings. Follow up was scheduled on 3rd day, 1 week, 2 weeks, 1month and 2 months of procedure

OUTCOME MEASURES

Immediate outcome -release of blood into vitreous cavity, Primary outcome- improvement in visual acuity and resorption of vitreous haemorrhage &Complications of procedure if any was noted

RESULTS

Fourteen eyes of 13 patients were studied. Average age of patients was 34.07yrs with age ranging from 9yrs to 66 yrs.8 patients were males and 5 were females. Etiologies of sub-hyaloid haemorrhage seen in our study were valsalva retinopathy (8 eyes), aplastic anaemia (2 eyes), severe anaemia(1 eye), BRVO (1 eye), proliferative diabetic retinopathy (1 eye) and trauma(1 eye). Nd-YAG laser was effective in all 14 eyes. The entrapped haemorrhage was released into vitreous cavity and macular area which showed significant clearing by 2-3 weeks. Visual acuity improved to 6/6 in 8 eyes. 13 eyes regained vision from hand movement or counting finger or close to face to 6/6 to 6/12. The patient with bilateral presentation secondary to aplastic anaemia had improvement upto 6/9. One patient with proliferative diabetic retinopathy was also treated with scatter laser in the inferior quadrant in addition to hyaloidotomy for the subhyaloid hemorrhage. This patient had improvement only upto 6/24. Follow up period ranged between 3 months to 3 years. No complications like retinal or choroidal haemorrhage, macular hole, retinal detachment were seen in the follow-up period.

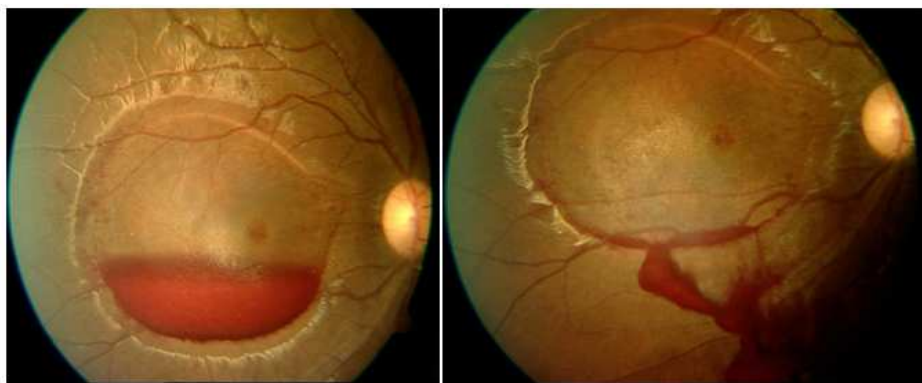


Figure 1

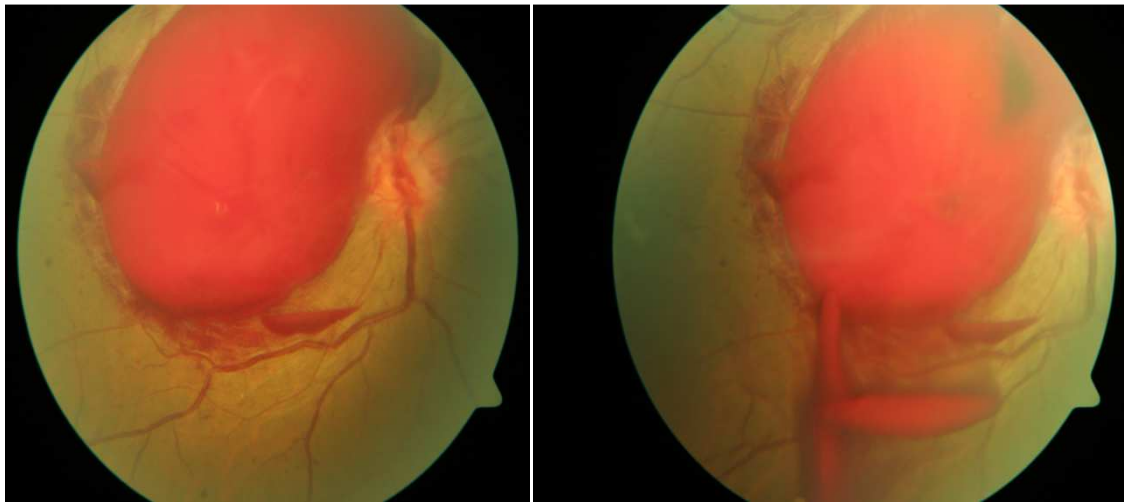


Figure 2

Figure Striae seen around the hemorrhages (images on left side) indicating a sub ILM hemorrhage which is confirmed post hyaloidotomy due to loculation of hemorrhage in subhyaloid space(images on right side)

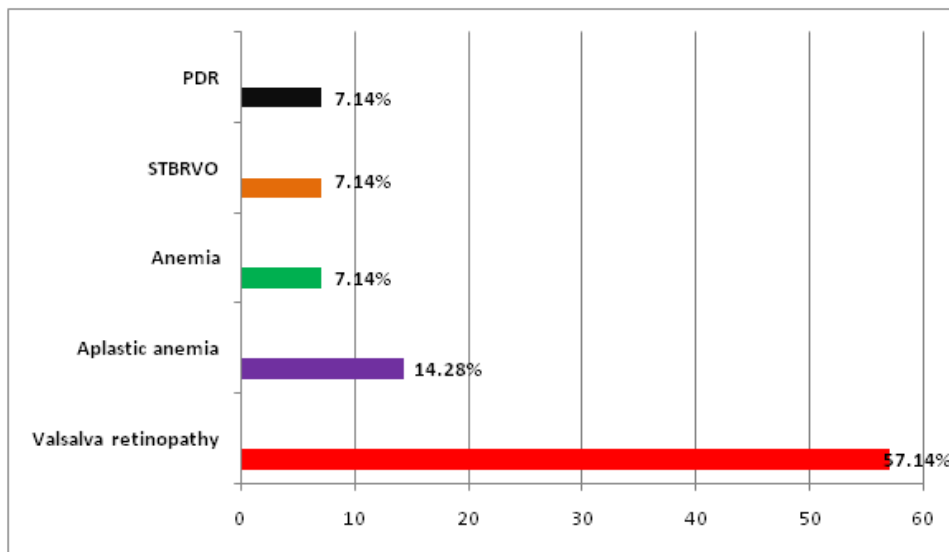


Figure 3

DISCUSSIONS

Hyaloidotmy procedure for premacular hemorrhage was introduced in 1973 by Heydeureich. The various modalities of treatment in subhyaloid hemorrhage are vitrectomy, injection of tPA with pneumatic displacement of hemorrhage, Posterior hyaloidotomy/photo-disruption of ILM using Nd YAG / Argon green laser and conservative approach for small haemorrhages. In 1999 Goebel and co-workers treated 3 eyes with sub ilm haemorrhage and one eye of witch needed vitrectomy due to recurrent haemorrhage. In Michel et als study of 21 patients 7 eyes required an additional vitrectomy because of vitreous haemorrhage. One patient developed macular hole and one with peripheral retinal degeneration with myopia developed retinal detachment. In our study Posterior hyaloidotomy was 100% successful in draining sub-hyaloid haemorrhage into vitreous cavity although 3 patients required repeat hyaloidotomy. Pre-macular

haemorrhage is located at the vitreo-retinal interface. The presence of glistening light reflex, fine striae over surface of haemorrhage indicates sub ILM haemorrhage. Also 3 of our patients with sub ILM hemorrhage demonstrated loculation of hemorrhage inferiorly following hyaloidotomy suggestive of subILM hemorrhage. Nd-YAG laser was able to release the trapped blood from sub-hyaloid space to vitreous cavity. Duration of symptoms at the time of presentation ranged from 3 days to 3 weeks. Best visual acuity was 6/12 or better in 92.86% of patients compared to 56.66% in Faisal Murtaza et al study and 66.67% in Rennie CA et al study. NO complications like macular hole, retinal detachment, choroidal haemorrhage reported in our study.

CONCLUSIONS

Considering the results of this study Nd-YAG laser hyaloidotomy is a simple, safe and inexpensive out-patient procedure in the treatment of subhyaloid hemorrhage. Hyaloidotomy results in rapid visual recovery and prevents long term entrapment of blood and the resultant permanent loss of vision due to secondary changes at macula. Further long term follow-up of laser treated cases to evaluate for long term complications is necessary. There is a need for prospective study and comparative study to evaluate and compare various treatment options for subhyaloid hemorrhage

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