

Original Article

Pre Macular Subhyaloid Haemorrhage- A Prospective Clinical Study

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Abstract

Aim: Subhyaloid hemorrhage is usually a benign condition which does not cause much vision loss and usually will resolve spontaneously. Long standing premacular subhyaloid hemorrhage cause permanent loss of visual acuity as it involves the fovea. The aim of this study is to investigate the effects of drainage of premacular subhyaloid hemorrhage into the vitreous with Argon Green laser treatment. **Materials and Methods:** This study was conducted between February 2014 and March 2015. Six patients with premacular hemorrhage in one eye subjected to Argon Green laser to drain the blood into the vitreous cavity. The causes for hemorrhage was Anaemic retinopathy (1case), proliferative diabetic retinopathy (1 case), Terson syndrome (1 case), pancytopenia (1case) and blunt ocular trauma (2 cases). **Results:** The mean size of pretreatment hemorrhage was 4.5 disc diameters (range 3.5-8.0). Visual acuity in all cases before laser treatment was hand movement to 6/60 . There was rapid improvement of vision after laser treatment. Drainage was complete within one week and visual acuity improved dramatically. The mean follow-up was 12 months .No retinal damage or rebleeding except ILM folds (not significant) occurred due to the laser. **Conclusion:** Argon green laser posterior hyaloidotomy may be useful for draining a premacular hemorrhage into the vitreous cavity in selected cases as it is a non-surgical procedure. To establish this as a routine procedure, a randomized prospective study is needed to compare observation, primary vitrectomy, and Argon green laser treatment.

Key Words: Sub Hyaloids Hemorrhage , Argon Green Laser

Introduction

Subhyaloid hemorrhage is defined as a localized detachment of vitreous from the retina caused by the accumulation of blood, which can lead to sudden and severe loss of vision, when it takes place in the macular area¹. The various causes for Subhyaloid hemorrhage include retinal vascular disorders such as proliferative diabetic retinopathy, branch retinal vein occlusion, macro aneurysm, and age related macular degeneration; it may occur in hematological disorders also such as leukemia and chemotherapy induced pancytopenia or after retinal vascular rupture associated with physical exertion (Valsalva retinopathy)². Valsalva retinopathy often occurs in healthy young adults due to lifting heavy things, straining in toilet, vomiting, coughing. Usually there will be spontaneous resorption of the blood entrapped in subhyaloid space. But sometimes it may take months and can cause permanent visual impairment due to pigmentary macular changes or formation of epiretinal membranes and toxic damage to the retina due to prolonged contact with hemoglobin and Iron. There are various methods available to treat premacular hemorrhage³. These include conservative treatment, Argon Green laser hyaloidectomy, pars plana deep vitrectomy and pneumatic displacement of hemorrhage by intravitreal injection of gas and tissue plasminogen activator. Puncturing the posterior hyaloid face with argon green or Nd YAG laser is a safe

and easy alternative for releasing the entrapped subhyaloid blood into the vitreous⁴. Consequently, the obscured macular area is cleared and resorption of blood cells is facilitated. In this study we evaluated 6 patients with subhyaloid hemorrhage treated with argon green laser hyaloidotomy.

Materials and methods

This is an interventional case-series in which 7 eyes of 6 patients with premacular subhyaloid hemorrhage were included between the period of one year (2014 to 2015) in Chettinad Hospital and Research Institute. Patients who gave their consent were included in the study and patients with other retinal hemorrhages were excluded. The patients were subjected to complete evaluation with detailed history taking. Pretreatment and post treatment examination included best corrected visual acuity, slit lamp microscope examination, intraocular pressure, and funduscopy. Fundus photographs were taken to measure the size of the subhyaloid hemorrhage by comparing with optic disc dimensions. After a written consent Tropicamide eye drop was applied to dilate the pupil and paracaine was used for topical anesthesia. ARGON GREEN laser was applied through a slit lamp and a Goldman three-mirror (Volk) lens with an average total energy of 500 mj (range: 200 to 600 mj). Laser was applied to the lower-most dependent part of the blood-containing

subhyaloid pocket in order to enhance the blood release process and better protection of the underlying retina. Patients were periodically followed up on 2nd day, 1st week, 2nd week, and at the end of the study. The main outcome measured in this study were postoperative improvement in visual acuity and postoperative complications. The success rate in performing hyaloidotomy, releasing the entrapped blood into the vitreous cavity and its resorption also were recorded and analyzed.

Results

Totally seven eyes of 6 patients were included out of which 4 were males (60%) and 2 females (40%), with an average age of 33 ± 10.33 years (range: 31 to 67 years). One (66.7%) had diabetic retinopathy, two had blunt trauma, one (8.3%) had a pancytopenia due to chemotherapy, one had Terson syndrome and 1 (25%)

was diagnosed with Anemic retinopathy as the main cause of their premacular hemorrhage. The mean pretreatment hemorrhage measured 4.5 ± 1.7 disc diameters. Argon green laser hyaloidotomy was successful in all cases and the trapped blood was released into the vitreous cavity and resorbed after a mean period of 10 (6 to 16) days. Preoperative visual acuity in the affected eyes of these patients ranged from hand movement to 6/60, which was improved from 20/40 to 20/20 postoperatively. Patients with the diagnosis of blunt trauma retinopathy achieved normal vision after treatment and the improvement was better when compared with others. Table 1 summarizes patients' characteristics and postoperative results. In our study there were no special complications like rise in intraocular pressure, retinal and choroidal hemorrhage, macular hole, or retinal break noted in follow up period of 12 months.

PATIENT	AGE	OD/OS	DIAGNOSIS	DURATION OF HAEMMORRHAGE	VA BEFORE TREATMENT	VA AFTER TREATMENT
1	19/M	OS	BLUNT TRAUMA	1 DAY	3/60	6/6
2	47/F	OS	BLUNT TRAUMA	10 HRS	HM	6/6
3	22/F	OD	ANAEMIC RETINOPATHY	1 DAY	1/60	6/6
4	23/M	OD	TERSON SYNDROME	2 DAY	HM	6/6
5	55/M	OS	NPDR	1 DAY	2/60	6/9
6	24/M	OU	PANCYTOPENIA	16 HRS	2/60 , 1/60	6/12

Table 1: Summary of patients' characteristics and postoperative results



Fig 1: Showing Right Eye Subhyaloid Hemorrhage Due to Blunt Trauma Before Treatment

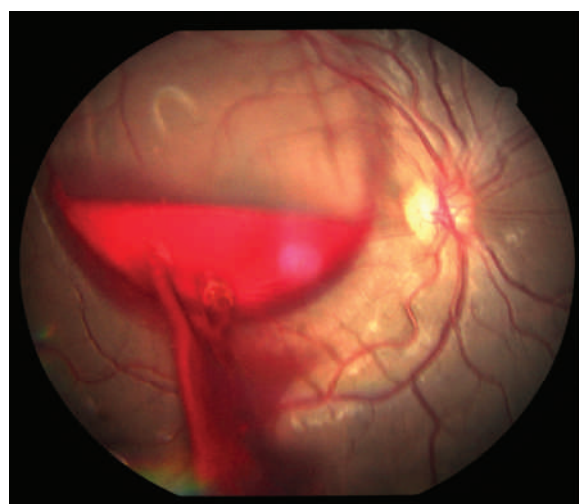


Fig 2: Showing Laser Mark and Draining of Hemorrhage after 1 Hour of Treatment

Discussion

A subhyaloid hemorrhage is an intraocular collection of blood that remains contained in a self-created, previously nonexistent space, usually between the posterior limiting layer of the vitreous and the retina⁵.

Posterior hyaloidotomy was done using Argon Green laser in 6 patients who had premacular subhyaloid

hemorrhage. The trapped blood was released into the vitreous and resorbed within 6 to 16 (average: 9) days in all of them. There was at least 4 lines (Snellen chart) improvement in their visual acuity within 16 days of the laser in all of the cases⁶. In our study the visual improvement seen in trauma cases was better than other cases.

The best corrected visual acuity (BCVA) improved to

20/20 following laser in 4 out of 6 cases (66%). This can be explained by lack of retinal vascular lesions⁷ or any retinal pathology in the cases except for diabetic retinopathy.

In study by Ulbig et al, which included 21 patients with premacular subhyaloid hemorrhage laser hyaloidotomy was successful in 16 (76.2%) and visual improvement in all of them. This was similar to our study. Final visual acuity was better in patients with Valsalva retinopathy compared with other etiologies⁸.

Similarly Rennie et al., also studied 10 patients with premacular subhyaloid and did Nd-YAG laser hyaloidotomy in 6 patients while he conservatively managed the other 4 patients⁹. There was rapid improvement of hemorrhage in all the patients and there was no complication similar to ours.

In the study by Gabel et al, 3 patients were managed successfully with Nd-YAG laser hyaloidotomy and one patient with Valsalva retinopathy after military operation gained full vision postoperatively¹⁰.



Fig 5: Showing Laser Marks and Drainage of Hemorrhage after Laser Treatment

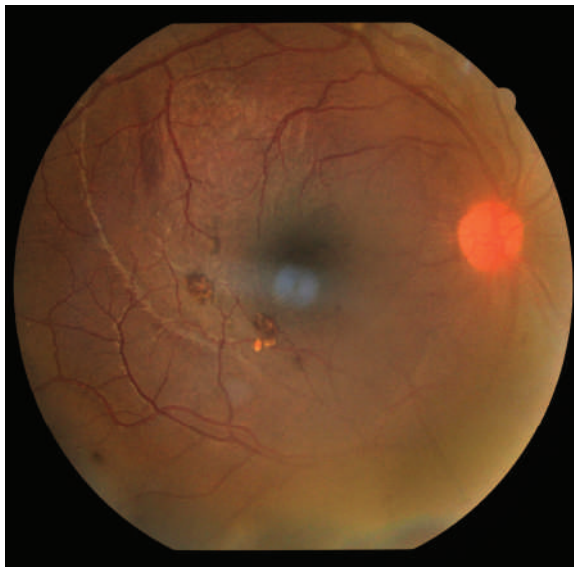


Fig 3: Showing Normal Fundus with Laser Mark after 1 Month of Treatment

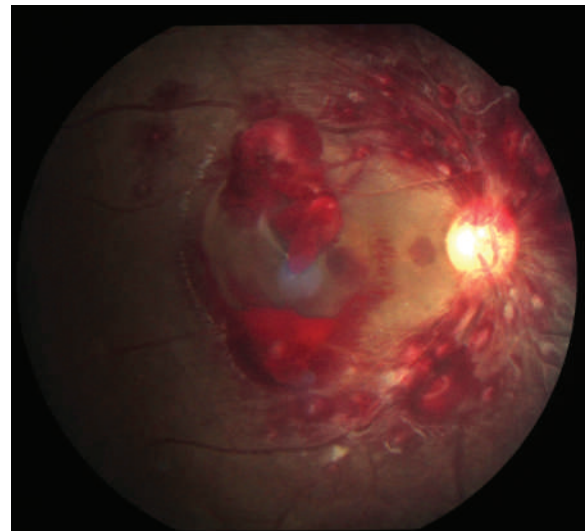


Fig 6: Showing Pancyclopic Retinopathy in Right Eye

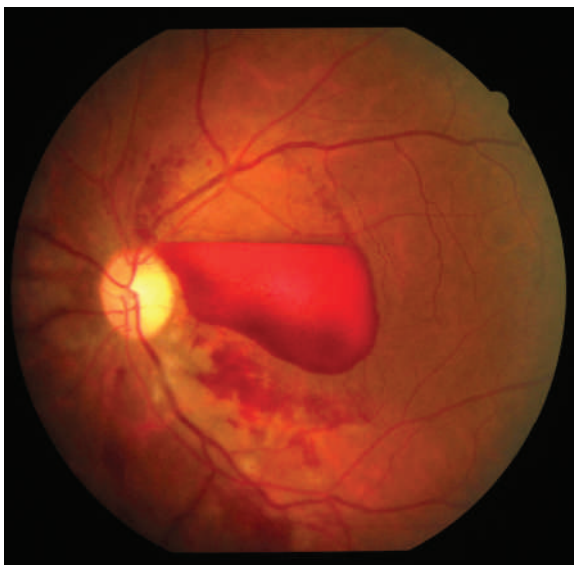


Fig 4: Showing Subhyaloid Hemorrhage Due to Terson Syndrome Before Treatment

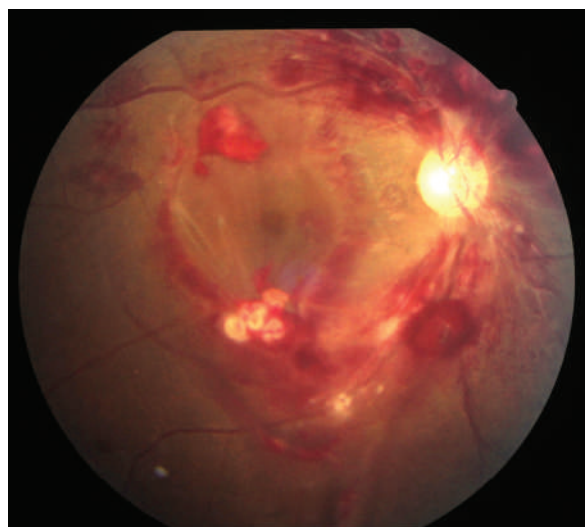


Fig 7: Showing Laser Marks and Drainage of Hemorrhage after Laser Treatment

Conclusion

As observed by our study and several previous studies we can conclude that Argon green laser hyaloidotomy is a simple, inexpensive outpatient procedure which is relatively safe compared with other more complex operations such as deep vitrectomy and its potentially serious complications.

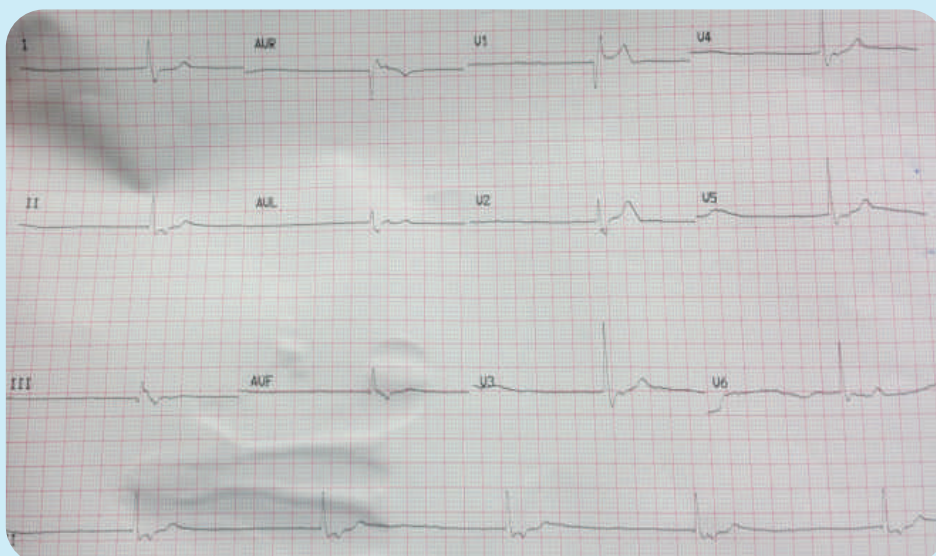
There is a rapid visual recovery in majority of the patients and it can prevent long-term entrapment of blood and its adverse effects on macula including potential permanent loss of vision. However, the drawback of this study is lack of comparison between other methods. So further large centre clinical trials is necessary to compare the visual and functional outcomes between observation, laser and vitrectomy in subhyaloid hemorrhage.

References

- 1) Murtaza F, Rizvi SF, Bokhari SA, Kamil Z. Management of Macular Pre-Retinal Subhyaloid hemorrhage by Nd:Yag laser hyaloidotomy. Pakistan Journal of Medical Sciences. 2014;30(2):339-342.
- 2) García Fernández M, Navarro JC, Castaño CG. Long-term evolution of Valsalva retinopathy: a case series. Journal of Medical Case Reports. 2012;6:346. doi:10.1186/1752-1947-6-346.
- 3) Gabel VP, Birngruber R, Puliafito CA. Nd: YAG laser photodisruption of Hemorrhagic Detachment of internal limiting Membrane. Am J Ophthalmol. 1989;107:33-37.
- 4) Ghayoor I, Haider SI, Hashmani S, Shah S. Yag laser for macular subhyaloid hemorrhage. Pak J Ophthalmol. 2012;28:57-63.
- 5) Duane TD Valsalva hemorrhagic retinopathy. Trans Am Ophthalmol SOC. 1972;70:298.
- 6) Little HR, Jack RL. Q-Sustched Nd:YAG laser Surgery of the vitreous Graefes Arch. Clin Exp Ophthalmol. 1968;224:240.
- 7) Relman ND. Treatment of Macular Sublyaloid or Sub Internal Limiting Membrane Hemorrhage Nd: YAG Laser. Pak J Ophthalmol. 2009;17:63-64.
- 8) Ulbig MW, Mangouritsas G, Rothbacher HH. Long-term results after drainage of premacular subhyaloid heamorrhage into the vitreous with a pulsed Nd:YAG laser. Arch Ophthalmol. 1998;116(11):1465-1659.
- 9) Rennie CA, Newman DK, Snead MP, Flanagan DW. Nd-YAG laser treatment for premacular subhyaloid hemorrhage. Eye. 2001; 15: 519 – 524.
- 10) Gabel VP, Birngruber R, Gunther-Koszka H, Puliafito CA. Nd-YAG laser photodisruption of hemorrhagic detachment of the internal limiting membrane. Am J Ophthalmol. 1989; 107: 33 – 37.

Diagnose the condition

A middle aged male presented to our ER with complaints of giddiness for the past 1 hour after taking a dose of T.atenolol 50mg. His ECG is given below



Dr. M.Chokkalingam, Consultant Cardiology, CSSH.

Answer in page : 47