

Argon laser for subhyaloid retinal haemorrhage: a case report

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ABSTRACT

To present a case of severe pre-retinal haemorrhage that was treated with Argon laser posterior hyaloidotomy. A 30-year-old female, non-diabetic and non-hypertensive patient presented with sudden painless loss of vision in the left eye and no history of trauma. Her vision was counting fingers in that eye. Retinal imaging showed severe pre-retinal haemorrhage over the macular area. Argon laser posterior hyaloidotomy was immediately performed. Blood drained inferiorly into the vitreous cavity with clearance of the premacular area. Her vision improved to 6/9 within 30 minutes. Neglect of early intervention for preretinal haemorrhage with the Argon laser leads to complications such as vision loss and prolonged time for visual recovery. Argon laser hyaloidotomy is a viable option for prompt vision recovery.

Key words: Argon laser, Subhyaloid haemorrhage, Pre-retinal haemorrhage, Hyaloidotomy

CASE REPORT

Day 0: A 30-year-old female patient presented to Mbarara University and Referral Hospital Eye Centre (MURHEC) with a one-day history of sudden painless loss of vision in her left eye. The patient did not have any complaints of headache, with no history of diabetes mellitus, hypertension, trauma, no medical history of hormonal contraceptives, anticoagulants or anti-platelets use. The rest of her medical history was unremarkable. General exam was largely normal, BP 110/65 mmHg; PR 78 beats per minute, Temperature 36.5°C, BMI 28,—On ocular examination, presenting visual acuity was 6/5 OD and counting fingers in OS with no improvement on pinhole and refraction. Slit lamp examination of the anterior segment was normal in both eyes. Fundus photography with a Fundus Camera (Appasamy Non Mydriatic) revealed an extensive fresh pre-retinal haemorrhage in the left eye covering the macular area with normal optic disc, retinal vessels (Figure 1). The attending vitreoretinal surgeon advised immediate Argon laser hyaloidotomy having made a diagnosis of spontaneous sub-hyaloid retinal haemorrhage. On funduscopy of the right eye optic disc, retinal vessels and the macula were normal in appearance.

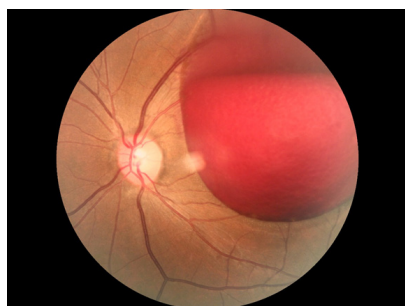


Figure 1: A colour fundus photograph of the patient's left eye upon presentation. A preretinal haemorrhage covering the macula vision loss

Procedure: After patient counselling, her left pupil was dilated using Gutt-Tropicamide followed by an anaesthetic (Gutt- Amethocaine) applied a few minutes later. Using Argon laser (Appasamy Green Laser, Model: AMOGH PLUS 532nm), Ocular mainster (standard) focal/grid OMRA-S argon/diode laser lens, a posterior hyaloidotomy performed using laser pulse energy (3 shots of 500µ spot size, pulse durations of 100 milliseconds, 3.1 mW of power) to perforate the posterior hyaloid face, allowing the blood to drain inferiorly (Figure 2).



Figure 2: Colour fundus photograph of the patient's left eye immediately after the perforation of the posterior hyaloid face with the Argon laser (posterior hyaloidotomy), (blue arrows)

Following the procedure, fundoscopy was repeated and there was clearing of the macular area free of haemorrhage which led to a rapid improvement in central vision. The visual acuity improved within hours to 6/9 OS.

Day 30: The patient was called in for a follow up visit, where all basic routine investigations were done including, vitals, which were in the similar range as her initial visit, slit lamp examination was done, fundoscopy of the left eye revealed a floater in the vitreous, optic

disc, retinal vessels and central macula was normal with a laser spot scar seen on the inferiorly and fundus photography done whose picture is shown in Figure 3.

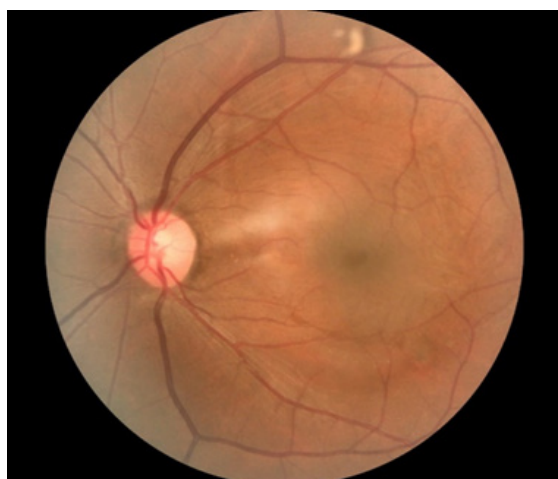


Figure 3: Colour fundus photograph of the patient's left eye 30 days after the performance of Argon laser of the posterior sub-hyaloid membranotomy (posterior hyaloidotomy)

DISCUSSION

Preretinal haemorrhage is a condition of blood accumulation between the posterior vitreous face and the retina¹. It can be caused by several conditions, which include; proliferative diabetic retinopathy (31-54%), retinal vein occlusion (4-16%), sickle cell retinopathy (0.2-6%), valsalva retinopathy, retinal artery macroaneurysm (0.6-7%), age related macular degeneration (0.6-4%) and trauma (12-19%), Other causes include shaken baby syndrome, blood disorders, hypertension².

The mechanisms of preretinal haemorrhage fall into three main categories: abnormal vessels that are prone to bleeding, normal vessels that rupture under stress, or extension of blood from an adjacent source¹. Typically preretinal haemorrhage is caused by bleeding of the new vessels due to traction from the posterior hyaloid².

Patients present with unilateral painless loss of vision due to the blood accumulation in the premacular area between the retina and posterior hyaloid face³.

Upon presentation of a patient with a preretinal haemorrhage, it is very important to identify the underlying cause in order to proceed to effective treatment. If left untreated, preretinal haemorrhage may take several months to be absorbed, and consequently, if haemorrhage involves the premacular area, it is essential to treat as soon as possible depending on the visual needs and availability of equipment's³.

Argon laser hyaloidotomy is an effective treatment for fresh premacular subhyaloid haemorrhage and a safe alternative to pars plana vitrectomy. However, this may not be a feasible option where the media is not clear⁴.

Blood is drained into the vitreous cavity, where it is left to be absorbed within the next few weeks to months without causing any other complications. Although it is safe and effective, the procedure has some limitations. It is of great importance to be accurate and be performed in the lower part of the haemorrhage and as far as possible from the fovea to avoid any damage in this particular area, and also away from major blood vessels. Additionally, drainage should be attempted from a location where there is significant haemorrhagic elevation⁵.

Complications of Argon laser membranotomy, have been described in the literature such as epiretinal membrane, retinal breaks, retinal detachment and macular hole formation, but complications have been related to the underlying cause of the haemorrhage, probably because of growth factors that are supposed to stimulate proliferation of entrapped cells along the ILM and retinal surface⁶.

Pars plana vitrectomy can be used in the management after a successful laser hyaloidotomy. Indications include; non resolving haemorrhage, failed laser hyaloidotomy etc. The efficacy of the procedure and the improvement of visual acuity largely depends on the underlying cause of the haemorrhage⁷.

In our case scenario, Argon laser hyaloidotomy due to early patient presentation and intervention lead to prompt management and enhanced outcome.

CONCLUSION

In our case, the presence of subhyaloid haemorrhage between the vitreous cavity and the retina overlying the macula managed with Argon laser hyaloidotomy accomplished a better outcome. Consequently, as demonstrated in the current case, it is essential to admit the patient for bedrest and follow-up post procedure.

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