

# Premacular Hemorrhage in a Pregnant Woman Successfully Treated with Argon Laser

## Gebedeki Premaküler Hemorajinin Argon Lazer ile Başarılı Tedavisi

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### ABSTRACT

A case of Valsalva hemorrhagic retinopathy treated with the argon laser is described. A 27-year-old pregnant woman presented with a 3-day history of decreased vision in her left eye. She had a history of retching just before the vision loss. Her visual acuity was counting fingers at 50 cm in the left eye. The dilated fundus examination revealed a large preretinal hemorrhage in the inferior half of the macula. There was no history of systemic or ocular disease, or trauma. Valsalva retinopathy was diagnosed on the basis of the history and the fundus examination. The preretinal hemorrhage was punctuated at its lower margin with an argon laser. One week after treatment her visual acuity had improved to 10/10.

**Key Words:** Pregnant, Valsalva retinopathy, argon laser photocoagulation.

### ÖZ

Bu makalede, argon lazer fotokoagulasyon ile tedavi edilen Valsalva hemorajik retinopatisi olan bir olgu sunulmuştur. Yirmiyedi yaşında hamile hasta sol gözünde 3 gün önce oluşan görme azalması şikayeti ile başvurdu. Görme azalmasından hemen önce öğürme hikayesi mevcut idi. Görme keskinliği 50 cm'den parmak sayma seviyesinde idi. Fundus muayenesinde makula alt yarısını kaplayan geniş preretinal hemoraji görüldü. Sistemik ve oküler hastalık, travma hikayesi mevcut değildi. Anamnez ve fundus muayenesi ile Valsalva retinopatisi tanısı kondu. Preretinal hemorajinin alt sınırına argon lazer fotokoagulasyon uygulandı. Tedaviden 1 hafta sonra hastanın görme keskinliği 10/10 seviyesine yükseldi.

**Anahtar Kelimeler:** Hamile, valsalva retinopatisi, argon lazer fotokoagulasyon.

### INTRODUCTION

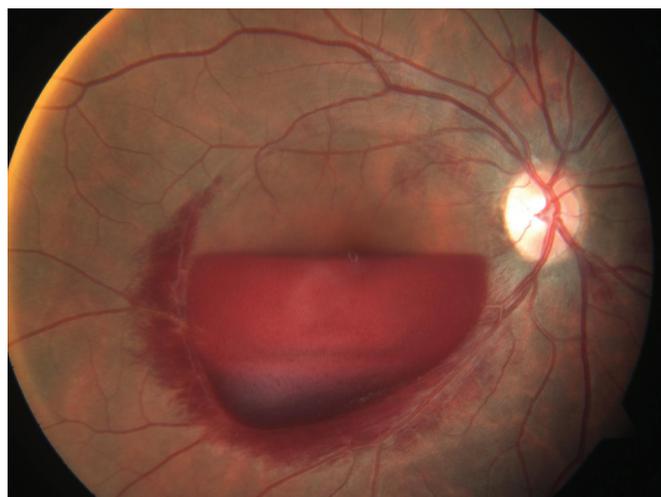
The Valsalva maneuver is defined as increased intrathoracic pressure due to forced exhalation against a closed glottis. The Valsalva maneuver may cause Valsalva retinopathy. Valsalva retinopathy presents as preretinal hemorrhage, associated with a history of heavy lifting, straining, coughing, or vomiting. Premacular hemorrhage causes sudden vision loss within seconds or minutes. The fundus examination usually reveals a dome-shaped dark red colored appearance of premacular hemorrhage. In this article we report a case with a premacular hemorrhage in a six month pregnant woman.

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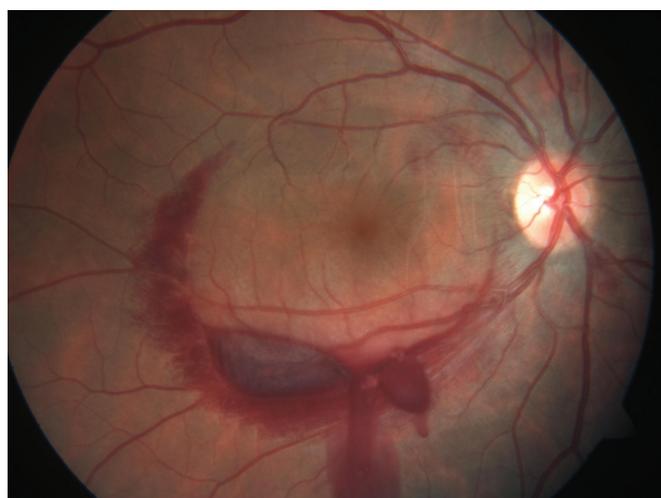


**Figure 1:** The fundus photography of the left eye revealed premacular hemorrhage.

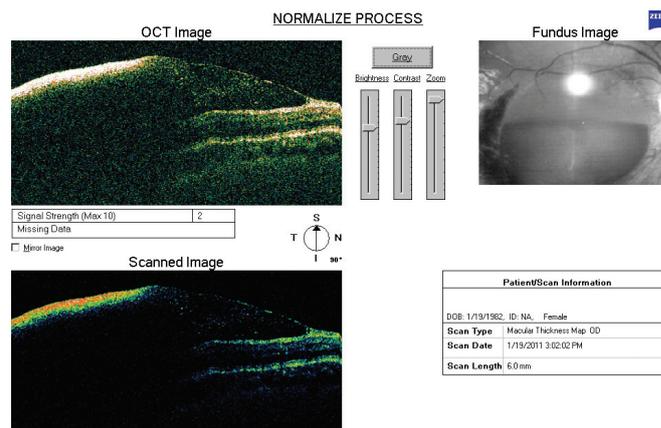
### CASE REPORT

A 27-year-old woman in her sixth month of pregnancy was admitted to hospital with a 3-day history of decreased vision in her left eye. Her previous medical history was unremarkable, but she had a history of retching just before the vision loss.

Best corrected visual acuity was 10/10 in the right eye, and counting fingers at 50 cm in the left. Her anterior segment examination was unremarkable, and intraocular pressure was 12 mmHg in both eyes. A dilated fundus examination revealed a normal fundus in the right eye, but a large preretinal hemorrhage was seen in the inferior half of the macula in the left eye (Figure 1). There was no peripheral retinal lesion. Optical coherence tomography (OCT) confirmed the premacular hemorrhage (Figure 2). Since the patient was pregnant, fluorescein angiography was not performed.



**Figure 3:** The fundus photography of the left eye just after argon laser hyaloidotomy shows the rapid recovery of the premacular hemorrhage. Note the leakage of blood into inferior vitreous cavity. Note the site of aimed argon laser beam on preretinal hemorrhage cavity.



**Figure 2:** Optical coherence tomography section of the left macula at the admission.

Her blood pressure was normal and fasting blood glucose, complete blood count, and coagulation tests were within normal limits. A clinical diagnosis of Valsalva retinopathy due to retching was made. After informed consent was obtained, argon laser (Zeiss visualas 532s, Jena, Germany) posterior hyaloidotomy was performed with three shots of 400 mW power, 100  $\mu$ m spot size, and 0.1 second duration at its lower margin. Just after hyaloidotomy, the preretinal hemorrhage was drained into the vitreous cavity (Figure 3).

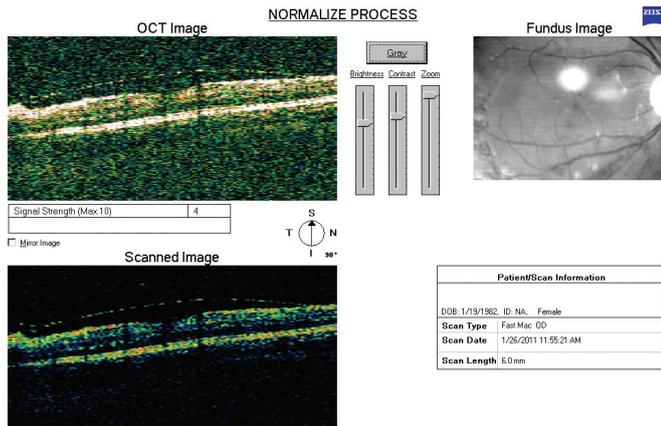
The visual acuity was 2/10 in the right eye just after the hyaloidotomy and improved to 10/10 in the first week postoperatively. The fundus examination was normal and her OCT findings were unremarkable (Figure 4 and Figure 5). The remainder of the pregnancy was uncomplicated and resulted in a normal full-term vaginal delivery.

### DISCUSSION

Valsalva retinopathy usually occurs after a sudden increase in the intrathoracic or intra-abdominal pressure.



**Figure 4:** The examination of fundus of her left eye revealed an almost complete resolution of premacular hemorrhage.



**Figure 5:** Optical coherence tomography shows normal macular structure one week after treatment.

As a result of increase, the central venous pressure raises and leads to rupture of the perifoveal retinal vessels and bleeding into the subhyaloid space. Valsalva retinopathy has a predilection for the macula because of a preexisting anatomical space, the premacular bursa. Sudden painless visual loss can be profound if hemorrhage occurs in the premacular region. Well-known risk factors for Valsalva retinopathy are vomiting, coughing, end stage labor, air-bag injury, and vigorous sexual activity.<sup>1</sup> Pregnancy is also a risk factor for Valsalva retinopathy.<sup>2</sup> Elevation of intra-abdominal pressure during pregnancy may lead to elevation in intravenous pressure, and reveal an increased risk for retinal hemorrhages following a Valsalva maneuver.

The management of premacular hemorrhage depends on the size, duration, and localization of the hemorrhage. Different treatment modalities have been advocated, including observation, laser puncture of the posterior hyaloid, and pars plana vitrectomy. Small and extrafoveal hemorrhages may be observed.<sup>3</sup> Although premacular hemorrhage has spontaneous resolution, one must consider the longer waiting period and the complications such as epiretinal membrane. It has been shown that the fibrinolytic activity is decreased during pregnancy.<sup>4</sup> Long-lasting hemorrhage may cause irreversible retinal damage due to contact of the retina with hemoglobin and iron. If diagnosed early, posterior hyaloidotomy is a reliable method for rapid recovery of impaired vision. Durukan et al<sup>4</sup> reported that premacular hemorrhage larger than 3 disk diameter with no longer than 3 weeks' duration may be considered suitable for laser treatment. Laser puncture of the posterior hyaloid causes the premacular hemorrhage to leak into the vitreous cavity, where the hemorrhage is more rapidly absorbed.<sup>5</sup> In long-standing cases, laser puncture of posterior hyaloid is not effective, since clotted blood is unlikely to drain into the vitreous cavity despite puncture of the posterior hyaloid.<sup>6</sup>

Pars plana vitrectomy is the remaining option, especially in refractory and longstanding cases. The Nd:YAG laser has been commonly used to treat premacular hemorrhage. The argon laser may represent a viable alternative when a Nd:YAG laser is not readily available. Sahu et al. reported that the argon laser focuses better on the retina, is absorbed less by ocular media, and avoids damage to the surrounding retina.<sup>6</sup> Nd:YAG laser membranotomy requires more spots with higher energy levels for the treatment of premacular haemorrhage.<sup>7,8</sup> No comparison exists between argon and Nd:YAG lasers in the treatment of preretinal hemorrhage in the literature.

The long term efficacy of the Nd:YAG laser has been found to be similar to that of the argon laser in the treatment of panretinal photocoagulation.<sup>9</sup> Complications of laser puncture of the premacular hemorrhage include retinal tears, retinal detachment, macular hole, and hemorrhaging into the choroidal and subretinal spaces.<sup>6</sup>

In conclusion, premacular hemorrhage may occur due to the Valsalva maneuver. One should consider the possibility of toxic effects of blood on the retina and slow recovery of premacular hemorrhage, especially in pregnant women. Laser puncture of the posterior hyaloid in premacular hemorrhage is a reliable and fast method to improve visual acuity.

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