



## Case report

## A unique case of valsalva retinopathy in a conch blower



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## ABSTRACT

**Purpose:** Valsalva hemorrhagic retinopathy is a form of preretinal hemorrhage that develops after a valsalva maneuver, leading to rupture of the superficial retinal capillaries. Here, we report a case of valsalva retinopathy secondary to blowing a conch, the first case report of its kind. The patient blew conch, which was part of his daily ritual to pray to God as he was a Hindu priest.

**Observations:** A 58-year-old man developed an acute decrease in vision to 5/60 in his right eye after blowing the conch while performing “Puja,” which is the act of praying to God in Hindu culture. Ophthalmoscopy showed a fresh preretinal hemorrhage over the macula in his right eye. YAG laser membranotomy was performed, and his vision returned to 6/6.

**Conclusions and importance:** Conch “Shankha” is a religious instrument used routinely in Hindu culture. Its mechanism is very much similar to that of a wind instrument. This is the first case report of valsalva retinopathy caused by conch blowing.

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## 1. Introduction

Thomas Duane first described valsalva hemorrhagic retinopathy as a preretinal hemorrhage secondary to increased intrathoracic pressure.<sup>1</sup> Valsalva maneuver causes a sudden increase in intraocular pressure, causing the retinal capillaries to rupture spontaneously, most commonly at the perifoveal area. The patient usually presents with a sudden blurring of vision, floaters, or even total vision loss.<sup>2</sup> Herein, we describe a case of valsalva retinopathy, suspected to be caused by conch blowing. The conch “Shankha” (Fig. 1) is the shell of a sea snail popularly used as a musical instrument in Hindu traditions while praying; conch blowing involves expiration against a closed glottis, which leads to a rapid increase in intravenous pressure within the eye causing retinal capillaries to spontaneously rupture. This unique case of valsalva retinopathy is the first to be reported following conch blowing.

## 2. Case report

A 58-year-old Asian male presented with a history of sudden decrease in vision in his right eye for the past 24 hours. He was a Hindu priest (Pujari), and it was his routine to pray to God every morning. As part of his daily ritual, he had to blow a conch

“Shankha” after worshipping God. That day, he noticed sudden blurring of vision in his right eye after he finished blowing the conch. He reported no personal or family history of trauma, vascular diseases, or blood dyscrasias. His previous medical history was unremarkable. He visited our hospital the next day.

Upon examination, best corrected visual acuity in his right eye was 5/60 and in his left eye was 6/6. Anterior segment examination was within normal limits in both eyes. Fundus evaluation revealed sedimented bright red preretinal hemorrhage that was enclosed by a dome-shaped preretinal membrane (Fig. 2). The hemorrhage had a classical double-ring sign, the outer and inner ring representing the subhyaloid hemorrhage and subinternal limiting membrane bleed, respectively. Fundus examination of the left eye was normal. The intraocular pressure of both eyes, blood pressure, complete blood count, prothrombin time, activated partial-thromboplastin time, and blood glucose level were normal.

A week after presentation, the patient underwent Nd:YAG laser membranotomy (Fig. 3) aimed at the lower part of the collection with the Zeiss Visuals® YAG III machine using Goldmann's three mirror laser lens. A single laser shot was given, with a single energy burst setting of 8 mJ. After the membranotomy, blood was seen trickling inferiorly from the localized collection into the vitreous (Fig. 3). The resulting mild vitreous hemorrhage cleared up rapidly (Fig. 4). His visual acuity improved to 6/9 after 3 hours and subsequently to 6/6 after 1 week. He was cautioned not to blow the conch thereafter and to rest with his head elevated. He remains asymptomatic for the last month.

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**Fig. 1.** Conch: Conch is shell of sea snail, it is popularly used in hindu culture as a musical instrument.



**Fig. 3.** Fundus photo after yag membranotomy: blood trickling down from the site of membranotomy (black arrow).



**Fig. 4.** Clearing of haemorrhage within few hours.



**Fig. 2.** Fundus photo at time of presentation: the classical double ring sign, the outer ring (white arrow) represents the sub-hyaloid bleed and the inner ring (black arrow) represents the sub-internal limiting membrane bleed.

### 3. Discussion

Valsalva retinopathy occurs in young healthy adults following a valsalva maneuver.<sup>2–5</sup> During a valsalva maneuver, a rapid increase in thoracic venous pressure occurs, which can lead to rupture of the

superficial retinal capillaries, leading to hemorrhagic detachments of the internal limiting membrane. The blood is usually localized to the sub-internal limiting membrane (ILM) space and/or the sub-hyaloid space. If blood is trapped in both spaces, it presents a “double-ring sign.” The outer and inner rings represent subhyaloid and sub-ILM bleed, respectively.<sup>2</sup>

The prognosis for patients given a diagnosis of only valsalva retinopathy is generally good, and the condition requires only close observation. Smaller bleeds are more likely to resolve spontaneously over time. Though there are reports of larger bleeds resolving spontaneously over time, some may persist without resolution, leading to clotting and likely photoreceptor toxicity.<sup>6</sup> Laser membranotomy/hyaloidotomy expedites the process, resulting in a quicker visual recovery in a one-eyed patient or if there is need to resume work soon, especially in case of larger bleeds of fewer than 3-weeks duration.<sup>7</sup> This treatment modality can also avoid vitrectomy in case of the blood clots that do not resolve spontaneously. Another danger of prolonged observation is toxicity to photoreceptors, which can cause irreversible damage.<sup>6</sup> An Nd:YAG

photodisruptive laser was used in this case. After we placed a fundus contact laser lens, we aimed the laser beam at the lower dependent part of the collection, avoiding the fovea. Power as high as 50 mJ has been reported, but care should be taken to avoid damaging the retina, choroid, and lens while using higher power.<sup>8</sup> Rarely, retinal/choroidal hemorrhage and retinal perforation have been reported in the past during Nd:YAG laser hyaloidotomy using very high energy.

#### 4. Conclusion

In summary, we report the first case of valsalva retinopathy following conch blowing, treated by Nd:YAG laser membranotomy. Use of an Nd:YAG laser is a safe treatment modality treatment in large hemorrhages of recent onset, as it can lead to rapid improvement in vision, which is gratifying to the patient and the ophthalmologist.

#### Patient consent

Informed consent was obtained in writing from the patient for publication of personal information, including medical record details and photographs.

#### Conflict of interest

The author has no financial disclosures.

#### Authorship

The author attests that she meets the current ICMJE criteria for authorship.

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