

## Valsalva Retinopathy After An Episode Of Vomiting - Pars Plana Vitrectomy To The Rescue

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**Abstract:** Valsalva Retinopathy is a rare clinical entity presenting as sudden, painless diminution of vision resulting from raised venous pressure causing rupture of retinal capillaries mainly affecting young male population who are otherwise healthy. This report describes a case of a 21 year old young male who presented to our hospital with sudden and painless loss of vision in his right eye, 2 days after an episode of vomiting with no significant past family or medication history. Dilated fundus examination revealed a large subhyaloid hemorrhage for which the patient was treated conservatively and followed up after 3 weeks. Surgical intervention was considered by performing a 25 gauge pars plana vitrectomy after an unsuccessful attempt of Nd Yag hyaloidotomy. TPPV was then performed which revealed a sub-ILM hemorrhage for which ILM peeling was done with subsequent drainage of the hemorrhage. Patient had significant resolution of the hemorrhage and improvement of visual acuity to 6/9 postoperatively at the end of 4 weeks.

**Key Word:** valsalva retinopathy, pars plana vitrectomy, subhyaloid hemorrhage, sub-ILM hemorrhage

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### I. Introduction

Duane was the first to describe the term Hemorrhagic Valsalva Retinopathy in 1972, which can present as a preretinal hemorrhage resulting from rupture of superficial capillaries when there is a sudden rise in central venous pressure.<sup>[1]</sup> This leads to a sudden, painless, diminution of vision in an otherwise healthy eye. Many involuntary movements mimic the valsalva maneuver in day to day life such as vomiting, physical exercise, sexual activity, pregnancy (labor), balloon blowing, etc. This condition could be treated either by conservative methods, Nd Yag Hyaloidotomy or PPV. With the recent advancement of microincision vitreous surgery, considering the young age of the patient and to ensure faster visual rehabilitation, Pars Plana Vitrectomy was done. In cases with very dense and large hemorrhages, it is imperative to perform vitrectomy, resulting in excellent visual outcome, as these hemorrhages are most unlikely to resolve spontaneously.

The main aim of this report is to illustrate a case of Valsalva Retinopathy clinically presented as a large subhyaloid hemorrhage along with a sub-ILM hemorrhage after a self limiting episode of vomiting, effectively treated with TPPV.

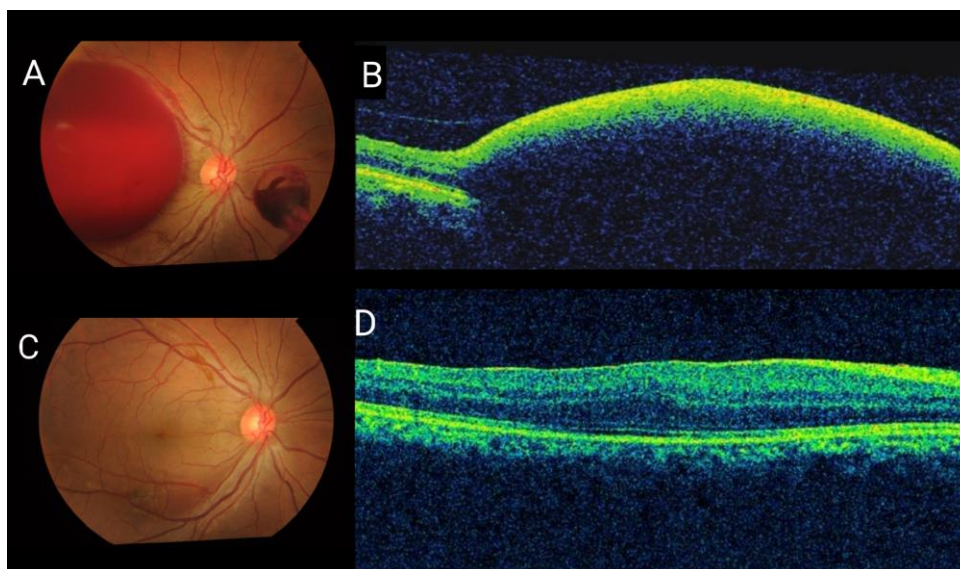
### II. Case Report

A 21 year old young male reported with diminished vision which was sudden and painless in his Right eye following an episode of bout of vomiting 2 days ago. The patient did not give any significant past medical, family or ophthalmological history. He presented with a BCVA of CF-CF in the right eye and 6/6 in his left eye, Anterior segment evaluation on Slit lamp biomicroscopy was unremarkable with no RAPD in the affected eye.

Dilated fundus examination in left eye was within normal limits and in the right eye, revealed a large well circumscribed preretinal hemorrhage of about 9-10 DD in size and located between inferior and superior temporal arcades involving the macula and about 1 DD temporal to the optic disc. Another smaller hemorrhage was noted just inferonasal to the optic disc. (Fig. 1). There were no other retinal holes or tears, microaneurysms, exudates or NVD/NVE. Amsler's grid test was performed and a relative central scotoma was noted with significant metamorphopsia. Bscan ultrasound confirmed a dense premacular hemorrhage with posterior vitreous detachment. FFA was performed with no evidence of any leakage. To confirm the clinical diagnosis and to quantify the level of involvement, Spectral domain OCT was done in the right eye to confirm the diagnosis which revealed a dome-shaped extensive hyporeflective area in the macula (Fig. 1). Intraocular pressure measured by iCare rebound tonometer in RE was 14 mmHg and in LE 16 mm Hg. Baseline fundus photographs were taken. Other

systemic investigations such as CBP,ESR,clotting profile,Serum Urea, Creatinine were within normal limits.Systemic examination revealed no abnormality.The diagnosis of Valsalva Retinopathy was then made.

The patient was treated conservatively for spontaneous resolution and visual improvement and followed up after 3 weeks.Considering the young age of the patient,So as to initiate quick resolution of this hemorrhage with consequent restoration of visual acuity and structural retinal anatomy, Nd Yag hyaloidotomy was attempted but did not result in significant resolution of the hemorrhage. The reason for the failure could be attributed to the large size and more density of the hemorrhage. The patient was then taken up for TPPV after briefing about the possible surgical risk involved. A sub-ILM hemorrhage was confirmed intraoperatively for which ILM peeling was done using a 25 gauge ILM peeling forceps thereby aspirating the hemorrhage with the help of aspiration flute. 2 weeks postoperatively,fundoscopy revealed a clear delimitation of the former hemorrhage with a faint resolving hemorrhage along superotemporal arcade, without any traces of blood in the macular area (Fig. 2) with an attached retina. Macular spectral domain-OCT revealed a fairly achieved foveal contour, with rare intraretinal hyper-reflective spots. Patient thereby showed significant reduction in size of the hemorrhage and a very good visual recovery.



**Figure 1: Fundus Photograph at presentation, Multi color 55 degrees ART(A) and Macula SD Oct at presentation(B).Two weeks after procedure, Fundus photographs,Multi color 55 degrees ART[HR] (C) and Macula SD-OCT (D).**

### III. Discussion

Valsalva Retinopathy which can be presented as a sub-retinal, intraretinal, preretinal, subhyaloid or sub-ILM hemorrhage that can cause a sudden painless decrease in visual acuity. [2] This occurs due to a sudden increase in venous pressure as seen in valsalva maneuver resulting from increase in intrathoracic or intra-abdominal pressure against closed glottis. [3],[5] This increase in central venous pressure is then transmitted to the perifoveal capillaries causing them to rupture leading to preretinal hemorrhage as the venous system rostral to heart is valveless.[2],[3] The valsalva maneuver can be associated with various forms of activities such as physical exertion, childbirth(labor), weight lifting,vigorous cough,vomiting,etc. [1],[4]

This case report discusses a patient who developed Valsalva Retinopathy following an episode of vomiting. This condition is more commonly observed in the young male population.On Ophthalmological examination, a well circumscribed circular/bilobed/boat shaped hemorrhage can be seen, the location of which can be either subhyaloid or sub-ILM.[5] Although a large preretinal hemorrhage occurs, this clinical condition is often self limiting and the prognosis remains good with a near total visual recovery within weeks to months.Reports in the literature suggest that conservative treatment should be always considered as the first choice of treatment in cases of small hemorrhages of <1DD that usually resolve spontaneously.[6] Even though Nd Yag Hyaloidotomy serves as a good non-invasive procedure, it is useful in cases of non-dense and non-coagulated premacular hemorrhages,when the location of hemorrhage is subhyaloid and not when it is under the ILM.[4]In such conditions where it is not amenable or fails to resolve, Vitrectomy is a good alternative offering favorable results in terms of visual recovery.

The present case of Valsalva Retinopathy after an episode of bout of vomiting was conservatively treated for 3 weeks then a vitrectomy was done due to the large size of the hemorrhage and the location being sub-ILM. Although PPV is associated with adverse effects of early development of cataract and retinal breaks, it still holds

good as an effective technique for relatively dense hemorrhages which are unlikely to resolve spontaneously.<sup>[4],[9]</sup> Sub/intra retinal hemorrhage is said to cause adverse effects from prolonged contact with iron in hemoglobin causing toxicity. The consequence of this can be formation of epiretinal membrane, leading to long-term visual compromise which can be avoided by early intervention.<sup>[10]</sup>

The patient needs to be counseled about the chances of recurrences that can take place in future. A careful history is always the key to diagnosis in cases of Valsalva Retinopathy. In a similar study by Joao Leite et al, a young patient developed Hemorrhagic Valsalva retinopathy after a bout of vomiting and presented with a subhyaloid hemorrhage. The patient was managed conservatively followed by Nd Yag Hyaloidotomy with good visual improvement over a period of 6 weeks.<sup>[8]</sup>In another study,S Waiker et al reported a case of Valsalva Retinopathy after an episode of vomiting effectively treated conservatively and resulted in spontaneous resolution after 6 weeks.<sup>[2]</sup>However, the size of the hemorrhage was much larger in our case compared to both the studies stated above and also the hemorrhage was located sub-ILM which warranted a vitrectomy procedure to restore the visual acuity.

#### **IV. Conclusion**

Early diagnosis of Valsalva Retinopathy should be made from a detailed history and thorough examination and thereby treated promptly in order to gain faster visual recovery. Although conservative management is often considered as the first line of management<sup>[8]</sup>, early intervention in the form of Nd Yag hyaloidotomy or Vitrectomy, depending on the size, volume and location of hemorrhage, can aid in rapid recovery and marked visual improvement.

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