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Valsalva Retinopathy Induced by Straining Due to Constipation

Shinji Makino MD, PhD[1*]

[1]Inoda Eye Clinic, Nasushiobara, Tochigi 329-3156, Japan

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***Corresponding author:** Shinji Makino
Inoda Eye Clinic, Nasushiobara, Tochigi 329-3156, Japan

Abstract **Case Report**

Valsalva retinopathy is as the rupture of superficial capillaries secondary to an increase in retinal venous pressure, following a sudden change in intrathoracic or intra-abdominal pressure. The Valsalva maneuver is quite common in daily life and typical activities such as coughing hard, vomiting, straining, constipation, and sexual activity can all lead to it. We reported a rare case of multi-level hemorrhages by the Valsalva maneuver in an elderly female with hypertension after heavy straining due to constipation.

Keywords: Valsalva retinopathy, straining, constipation.

INTRODUCTION

The Valsalva maneuver is a forced expiration against a closed glottis causing transient systemic changes such as increased blood pressure and intrathoracic or intra-abdominal pressure [1]. It is quite common in daily life and typical activities such as coughing hard, vomiting, straining, constipation, and sexual activity can all lead to it [2-4]. The Valsalva maneuver can affect retinal arteries due to the sudden and violent fluctuation of blood pressure that occurs [5].

Here, we reported a rare case of multi-level hemorrhages by the Valsalva maneuver in an elderly female with hypertension after heavy straining due to constipation.

CASE PRESENTATION

An 86-year-old female presented to our clinic for sudden-onset painless vision loss, central scotoma, and an “earthworm-shaped” floater in her right eye. These symptoms were noticed in the morning after heavy straining due to constipation. Examination demonstrated the best-corrected visual acuity of 20/200 in her right eye and 20/20 in her left eye. Intraocular pressures were 16 mmHg and 14 mmHg in her right and left eye, respectively. A history of hypertension for 30 years was reported and she had been on oral antihypertensive medication. Her blood pressure at presentation was 160 over 110 mmHg. The patient also had a history of untreated constipation for more than 20 years. Dilated fundus examination of the right eye showed the presence of strand-shaped vitreous hemorrhage, as well as preretinal and subretinal hemorrhages (Figure 1A and B).

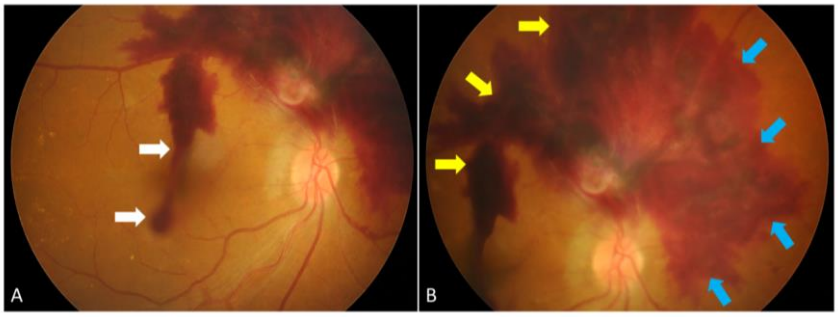

Figure 1: Fundus photographs of the right eye on the initial visit
Note: Multi-level hemorrhages, i.e., strand-shaped vitreous hemorrhage (white arrows), preretinal hemorrhage (yellow arrows) and subretinal hemorrhage (blue arrows).

Based on her clinical presentation and history, a diagnosis of Valsalva maneuver-related retinal and vitreous hemorrhages was made. We initially opted for conservative observation on her ocular condition because the blood had flowed into the vitreous cavity. At the same time, we advised patients to avoid straining. Six weeks after her initial visit, most of the retinal hemorrhages had been absorbed, and the patient's best-corrected visual acuity also improved to 20/20 for both eyes.

DISCUSSION

This present case highlighted the multi-level hemorrhages by the Valsalva maneuver in an elderly female with hypertension after heavy straining due to constipation. The hemorrhages resorbed spontaneously and visual disturbance completely resolved.

Differential diagnosis of retinal hemorrhage includes diabetic retinopathy, retinal vein occlusion, age-related macular degeneration, retinal artery macroaneurysm, Valsalva retinopathy and Terson's syndrome. Of these, it is typically Terson's syndrome and Valsalva retinopathy that cause preretinal hemorrhage in the absence of any other vascular pathology.

The Valsalva maneuver is a forced expiration against a closed glottis causing transient systemic changes such as increased blood pressure and intrathoracic or intra-abdominal pressure [1]. It is quite common in daily life and typical activities such as coughing hard, vomiting, straining, constipation, and sexual activity can all lead to it [2-4]. The Valsalva maneuver can affect retinal arteries due to the sudden and violent fluctuation of blood pressure that occurs [5]. The retinal vasculature is also subject to these effects and significant increases in intravascular pressure can cause spontaneous rupture of superficial retinal capillaries resulting in hemorrhagic retinopathy and sudden loss of vision in one or both eyes [2-4]. In this present case, we speculated that blood pressure fluctuations during the Valsalva maneuver increased when the patient was straining on the toilet. Retinal hemorrhages occurred when the huge fluctuations in blood pressure hit her already fragile vessel walls. We considered that the damage to the vessel wall may have resulted in a loss of functional continuity of the vessel wall, resulting in a pathology similar to aneurysm formation [6]. Generally, preretinal hemorrhages secondary to the Valsalva maneuver are self-limited and may last from a few weeks to months until complete resolution [2-4]. Patients should be advised to avoid straining and stool softeners can also be advocated.

Conflict of Interest Statement: All authors declare no conflict of interest.

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Ethics statement

Written informed consent was obtained from the patient for the publication of any potentially identifiable images or data included in this article.

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