Valsalva Retinopathy during Labour: A Case Report

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ABSTRACT

Rise of intra-abdominal pressure during labor may result in Valsalva retinopathy. This can cause visual loss in one or both eyes. Conservative treatment consisting of observation is offered in most cases. We report a case of a dense pre-macular sub-hyaloid hemorrhage in a pregnant woman. This complication arose during the early uterine contractions of labor at Prince Rashid Bin Al-Hassan military hospital. The management options available in such a case are discussed.

Key words: Pregnancy, Premacular sub-hyaloid hemorrhage, Valsalva retinopathy.

Introduction

Valsalva maneuver is performed by forceful attempted exhalation against a closed glottis. Valsalva retinopathy develops when a rise in intra-thoracic or intra-abdominal pressure is transmitted to the eye. This results in a sudden and large increase in the intra-ocular venous pressure and ruptures the superficial retinal capillaries in one or both eyes.

The patient often gives a history of a recent strenuous physical act such as coughing, straining or heavy lifting which is followed by sudden painless visual loss in one or both eyes. There are few reports on valsalva retinopathy that occurred over pregnancy or labor, though this clinical scenario is a rare presentation. We report the case of a healthy young pregnant woman who presented with a sub-hyaloid pre-macular hemorrhage induced by labour and which cleared spontaneously over 3 months. This is a summary of recent literature on Valsalva retinopathy and a discussion on the management options available to the clinician.

Case Report

A woman aged 24 year presented with sudden visual loss in the right eye. The loss of vision had persisted for 4 days after having occurred during the first stage of spontaneous labor that had led to normal vaginal delivery. The young patient was in good health with no previous medical history. Specifically there was no history of hypertension, diabetes mellitus, clotting disorder and haemoglobinopathy. There was no history of medication use and especially anticoagulant or antiplatelet usage. The patient did not receive epidural anaesthesia during labour. Blood pressure was normal.

Examination of the both eyes showed best corrected visual acuities of 6/60 (right) and 6/6 (left). Anterior segment assessment of each eye was normal. Intraocular pressures were normal. Dilated fundus examination at the slit-lamp showed a dense pre-retinal hemorrhage at the macular area of the right eye. The hemorrhage measured around 10 disc diameters; as shown in Fig. 1a. In each eye, there was no break in the retina or neovascularization in the posterior segment.

A complete blood count, random blood sugar, coagulation profile and hemoglobin profile were within normal range. A diagnosis of Valsalva retinopathy was made on history, clinical appearance and normal laboratory tests. In the first instance, a decision was made to observe the hemorrhage so as to examine the rate of spontaneous improvement. After one week, the hemorrhage began to subside and precipitate though the vision remained the same.

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Manuscript received February 9, 2012. Accepted April 5, 2012
Discussion

Changes in metabolic, hormonal, hematological and immunological profiles during pregnancy are risk factors for Valsalva retinopathy. Most notably, a rise of intra-abdominal pressure during pregnancy and further rise during labour lead to increased venous pressure. This haemodynamic shift increases the risk of retinal hemorrhages during a valsalva maneuver. The pre-retinal sub-hyaloid hemorrhage occurs most frequently in the macular area, and is usually unilateral and presents as a sudden painless loss of vision. There are few reports on valsalva retinopathy in healthy pregnant women. These events occurred after coughing or vomiting. Some rare cases have been associated with final stages of labour. Valsalva retinopathy can be serially reviewed to assess for spontaneous clearance. Typically, the hemorrhage clears over a few weeks or months depending on its density. There is a good prognosis since most cases return to normal vision. Where the option of observation is not deemed adequate owing to the severity of the haemorrhage there are three main options. The first one consists of laser treatment such as membranotomy using YAG, Krypton and argon green laser. The second consists of pneumatic intravitreal gas injection plus tissue plasminogen activator to displace the hemorrhage in cases with submacular haemorrhage. The third most invasive strategy is pars plana vitrectomy. Specific advice is given to the patient where conservative management is preferred in the first instance. Patients are advised to sleep relatively upright to drain the blood inferiorly away from the maculae, avoid strenuous activities to prevent a re-bleed and to avoid constipation by consuming a fibre-rich diet and stool softeners as appropriate.

Where it is suspected that clearance of Valsalva hemorrhage will take months or the haemorrhage will be toxic (by inducing epiretinal membrane or macular pigmentary changes) the option of treatment is considered. In the recent past, some ophthalmologists have used laser membranotomy as the first line of management. This has been favoured where sub-hyaloid macular haemorrhage has been greater than 3 disc diameter in size and of less than 3 weeks duration. This strategy can be appropriate where a patient has poor vision in the other eye or needs quick recovery due to occupational demands. The pre-retinal blood might provoke an epiretinal membrane formation and an irreversible toxic effect of the long standing dissolving hemoglobin and iron on the retina. Nd:YAG laser releases haemorrhage into the vitreous cavity and thereby accelerates absorption. However there are the risks of retinal break and retinal detachment along with macular pigmentary changes and epiretinal membrane formation. Vitrectomy meanwhile can be indicated for complex scenarios such as diabetic eye disease or where the second eye has severe visual impairment. Pars plan vitrectomy has advantage of immediate visual improvement but carries the risk of surgical complications.

Whether the haemorrhage is treated or allowed to clear naturally, there is no relation with risk of recurrence. Accordingly, the occurrence of Valsalva retinopathy should not contraindicate further pregnancies or spontaneous vaginal delivery.

Conclusion

Pregnancy is a known risk factor for Valsalva retinopathy but the diagnosis should be made after excluding other causes of retinal hemorrhages. Valsalva retinopathy is usually a self-resolving hemorrhage which carries a good prognosis. There is no consensus on treatment due to a lack of systematic studies. The options are to allow natural history or undertake treatment with laser or surgery. The eventual choice of management is governed by factors such as expected speed of natural clearance, lifestyle demands, and status of the other eye.
References