Valsalva Retinopathy in Pregnancy: A Case Report from the Emergency Department

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Abstract

Introduction: Rapid increases in intraocular pressure can result in sudden-onset vision loss in a self-limiting condition known as Valsalva Retinopathy. Pregnancy is a known risk factor.

Case Presentation: A pregnant woman presents to the Emergency Department with complaints of unilateral central vision loss after an episode of vomiting. Fundus exam of the left eye identified haemorrhages consistent with Valsalva Retinopathy.

Conclusion: Superficial retinal capillaries can hemorrhage as a result of Valsalva maneuvers. Natural pregnancy changes with other stressors like vomiting can leave a woman at higher risk for Valsalva retinopathy. Valsalva Retinopathy patients can be discharged with close follow-up.

Introduction

The Valsalva maneuver is a forceful expiration against a closed glottis that causes increased intra-thoracic or intra-abdominal pressures [1,2] It is associated with events such as coughing, sneezing, vomiting, strain with stooling, weightlifting, and pushing during delivery [1,4]. These pressures can be transmitted through the valve-less orbital vessels, rapidly increasing intraocular pressure and causing rupture of superficial retinal capillaries [3-5]. The haemorrhage that ensues can cause sudden-onset vision loss in a self-limiting, and well-described condition known as Valsalva Retinopathy (VR) [1,3-5]. Pregnancy, due to common physiologic mechanisms, is a known risk factor for VR [6-14]. We present a case of VR in a young woman in her 36th week of pregnancy.

Case Presentation

A 19-year old woman in her 36th week of pregnancy presented to the Emergency Department from an outside hospital with complaints of unilateral central vision loss. The night before presentation, she had an episode of vomiting that was immediately followed by painless vision loss in the left eye. Her central vision loss remained constant throughout the following day.

The patient was otherwise healthy and she denied any other vision changes. She denied wearing glasses or contact lenses, using steroids, history of trauma, autoimmune conditions, bleeding diatheses, vascular disease, or diabetes. The patient had not experienced similar episodes prior to this one. The patient had hyperemesis gravidarum earlier in her pregnancy. Her past medical history was only remarkable for post-concussion syndrome, goitre, smoking one half pack of cigarettes per day and a remote childhood history of strabismus that self-corrected.

On exam in the ED, the patient's blood pressure was transiently elevated to 151/87 and then decreased to 134/64 four and half hours later. Her pulse was first documented at 98 and after 4.5 hours, she was tachycardic to 102 bpm. Her vitals were otherwise unremarkable. The patient noted that in her left eye, central vision was lost but her peripheral vision was intact. There was neither visible foreign body nor fluorescein uptake.

Figure 1: Pathognomonic hemorrhages of Valsalva Retinopathy on first day after vision loss. Fundus exam identified (A) perifoveal hemorrhages, (B) 7-10 intra-retinal hemorrhages without exudate or thickening in the macula, intra-retinal and sub-retinal hemorrhages outside of the macula in the posterior pole.

Ophthalmology was consulted, and their exam demonstrated 20/20 visual acuity in her right eye and around the central scotoma in her left eye. Tonometry was 13 mmHg on the right and 14 mmHg on the left. Pupillary exam, eye movement, and slit lamp evaluations were unremarkable. Fundus exam of the left eye identified a superonasal and inferonasal haemorrhages around a pink disc with sharp borders and a

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The pregnant state includes multiple anatomic, hormonal, hematologic, metabolic, immunologic changes, making it a risk factor for VR. Physiologic thrombocytopenia during pregnancy can increase potential for haemorrhage. Increased uterine size during pregnancy can elevate intra-abdominal pressures [9]. The additional and sudden increases in intra-abdominal pressures of vomiting as in Hyperemesis Gravidarum, can be enough compressive force to rupture superficial retinal capillaries [7]. Alternatively, spontaneous vaginal delivery can be associated with enough sustained pressures against a closed glottis to rupture retinal capillaries. Enah presents a case of VR with only mild visual disturbance, that occurs one day after vaginal delivery [6]. While labor can be a theoretical risk factor for exacerbation or cause of pre-retinal haemorrhage, so can general and epidural anesthesia [2]. The hypoxia and hypercarbia associated with general anaesthesia can result in vasodilation and concomitant increases in retinal venous pressures; the additional increase in intra-thoracic pressures from extubation can cause enough of an increase in retinal capillaries to result in a VR [2,6,7,11,12]. Epidural anaesthesia can cause an increase in Cerebral spinal fluid pressure secondary to mass effect in the epidural space also resulting in VR [6,7]. Accordingly, there is no reason to opt for cesarean section as an alternative to spontaneous vaginal delivery, as it is not yet known to positively affect prognosis of VR, and it contains risks of exacerbation itself. Options, risks, and benefits should be discussed between the ophthalmologist and the obstetrician [8,12]. Ultimately, it is best practice to present all risks to the patient and let her input guide the final decision [7].

Perhaps in pregnant patients, psychiatric history should be observed closely by all professionals involved, as there have been documented cases of post-partum depression attributed to the conservative management of VR. Postpartum depression can be linked with decreased interest and consequently decreased care of infants [16].

Conclusion

The case presented demonstrates the classic features of VR. VR is a self-limiting condition with a good prognosis, and it can be managed conservatively by the Emergency Department, when diagnosis is confirmed by ophthalmic exam. Pregnancy is a known risk factor, however there is no evidence supporting alternative antenatal course, nor alternative mode of delivery. Long-term management includes a team approach with clear follow up instructions by the Emergency team, and clear communication between obstetrician, ophthalmologist, and patient.

References


