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Valsalva Retinopathy After Sports Exercises: Case Report at Iota Teaching Hospital

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Abstract

Purpose: Report a case of Valsalva retinopathy that occurred during sport by analysing its clinical and therapeutic specificities.

Methodology: This is the report of a clinical case received in consultation on Monday 21st December 2020 at the ophthalmological investigation department of the IOTA-Teaching Hospital.

Results: He was a 35 year old man, without any notable pathological history, regularly practising martial arts (Karate), who consulted for a sudden loss of visual acuity after a series of push-ups. The clinical examination concluded that there was a retro-hyaloidal haemorrhage as a result of Valsalva's manoeuvre during the push-ups. He received physical treatment with the Yag laser and two days later the retro-hyaloidal haemorrhage was completely resolved. After two days of treatment, the patient has recovered all of his vision.

Conclusion: Intense physical effort during sports exercises can lead to Valsalva retinopathy. Valsalva retinopathy is caused by a sudden rise in intra-thoracic or intra-abdominal pressure against a closed glottis, leading to a rapid increase in intravenous pressure in the eye and spontaneous rupture of the retinal capillaries. Other factors such as heat, altitude and dehydration contribute to this condition in sportsmen and women.

Introduction

Regular physical activity is necessary for a healthy life, as it prevents the body from certain morbid conditions such as diabetes, hypertension, obesity, cancer, depression, anxiety, etc. Physical activity is not without complications affecting the somatic organs, especially the eyes when it is intense and/or violent. Thus, Valsalva retinopathy is one of the ophthalmological complications of sport [1]. It follows the rupture of the retinal capillaries due to the sudden rise in thoracoabdominal pressure following an expiratory manoeuvre with a closed glottis [1]. Several circumstances have been reported in the literature [2-3], including sports events. The frequency of Valsalva retinopathy in the world is not yet known.

Observation

The patient was a male, 29 years old, with no particular pathological antecedents, who had been practising a martial art (Karate) regularly for 2 years at a weekly frequency of 02 sessions of 2 hours per session. He was seen at our consultation on 21

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/12/2019 for a sudden drop in visual acuity in his left eye a few minutes after a series of push-ups. On clinical examination, the far visual acuity without correction was reduced to See Moving Hand and the left eye visual acuity is normal 10/10 measured on the Snellen E scale. Biomicroscopic examination of the adnexa and anterior segment was normal in both eyes. Eye tone was assessed with a flattening tonometer at 14 mmHg in both eyes. Examination of the fundus with the VOLK 90 D lens, after pupillary dilatation with tropicamide + neosynephin, observed a retrohyaloidal haemorrhagic sheet with a concave lower edge measuring 9 pupillary diameters of the long horizontal axis and masking the entire area of the macula (Figure 1). The hyaloidotomy performed with the Yag laser on the same day facilitated the evacuation of the blood collection in the vitreous cavity and cleared the macular area (Figure 2). Total resorption of the haemorrhage was achieved 02 days later (Figure 3). Recovery of visual function was 6/10, 8/10 and 10/10 respectively at one hour, one week and one month later. Cardiovascular and haematological etiological investigations performed were normal.

Figure 1: Premacular retrohyaloid haemorrhage of the left eye.

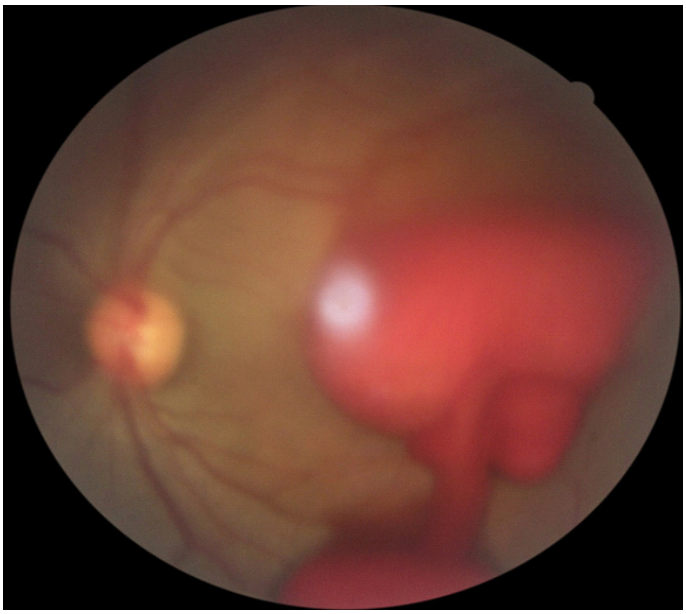

Figure 2: Evacuation of retrohyaloidal haemorrhage after Yag laser hyaloidectomy.

Figure 3: Total regression of the premacular retrohyaloidal haemorrhage of the left eye 48 hours later.

Valsalva retinopathy was described in 1972 by Thomas Duane as “a particular form of retinopathy, pre-retinal and hemorrhagic in nature, secondary to a sudden increase in intrathoracic pressure.” The premacular location of the hemorrhagic focus is responsible for the sudden drop in visual acuity, the severity of which depends on the size of the hemorrhagic focus.

Discussion

Valsalva's retinopathy occurs in a variety of circumstances, namely: Violent coughing, sneezing and vomiting, forced exhalation with the glottis closed, bursts of laughter, dancing, efforts during childbirth or defecation, during colonoscopy, at high altitudes by hypopressure and physical exercise [2-3].

The association of Valsalva retinopathy with certain sports or physical activities, such as weightlifting, weight training (push-ups and abdominal exercises) and aerobics, has been reported in the literature [5].

In our clinical case, Valsalva's retinopathy had occurred after the series of push-ups had been performed.

The mechanism of bleeding during sports exercises (excluding trauma) is the rupture of the vessels of the vitreoretinal-retinal interface as a result of increased pressure, first abdominal, then thoracic, and finally internal carotid pressure. This physiopathological mechanism is widely known in the literature as the Valsalva Maneuver.

Its main symptomatology is the sudden drop in visual acuity in the minutes following intense physical effort, in the absence of any traumatic context.

Its ophthalmoscopic aspect is very evocative and the contribution of ophthalmological imaging (B-mode ocular ultrasound, angiography, optical coherence tomography) to confirm the diagnosis is most often necessary.

Valsalva retinopathy naturally evolves towards spontaneous resorption of the haematoma within several months.

There are three (03) therapeutic modalities for Valsalva retinopathy [4]:

Therapeutic abstention, whose major retinal disadvantages (linked to the slow resorption of the haematoma) are the deposition of haemosiderin pigments and the formation of fibrovascular membranes,

Hyaloidotomy with Argon laser is the physical modality of treatment for Valsalva retinopathy. It is easy to carry out and leads to the rapid drainage of the blood collection and therefore a rapid functional visual recovery. Its main indications in Valsalva retinopathy are young age, large haematoma (about 5 papillary diameters), macular location of the haematoma and the desire for rapid recovery of visual acuity useful for professional activities. In our patient, the main reasons for performing laser hyaloidotomy were the young age (29 years), the large size of the haematoma (about 9 papillary diameters) and the macular localization of the blood collection.

Vitrectomy, the surgical option, is indicated when the haematoma persists despite therapeutic abstention or in case of failure of the laser treatment, is nevertheless exposed to serious and often disabling complications such as cataract and retinal detachment. In Africa south of the Sahara, the practice of vitrectomy is not common because of the limited human resources in posterior segment surgery.

Conclusion

Our work underlines the possibility of retro hyaloidal haemorrhage during intense sports activities notwithstanding their positive effects on improving ocular blood circulation, reducing the risk of retinal venous occlusion and neo-vessels during Age-related Macular Degeneration (AMD), etc. Valsalva retinopathy during sports is a noisy and disabling symptomatology due to its macular location. But its outcome is good after the hyaloidotomy with the Laser Yag, allowing a rapid recovery of visual function.

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