Case Report

Spontaneous Retrobulbar Haemorrhage Secondary to Orbital Varices of Inferior Ophthalmic Vein-A Case Report

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Abstract

A 50-year-old Chinese man presented with sudden onset of painful right eye, diplopia, and redness associated with headache and deteriorating vision. Examination revealed obvious proptosis with elevated intraocular pressure. Computed tomography (CT) scan showed presence of retrobulbar haemmorhage. Emergency lateral canthotomy and cantholysis was performed followed by medical orbital decompression, resulting in improvements in visual acuity, and other ocular symptoms. The diagnosis of thrombosed orbital varices involving inferior ophthalmic vein was confirmed on radiological- angiographic study. To date, he is symptoms-free with good visual acuity. Immediate surgical decompression with lateral cantholysis for retrobulbar haemorrhage was effective in the treatment of retrobulbar haemorrhage.

Keywords: Retrobulbar haemorhage, diplopia, decompression, varix, proptosis

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Introduction

Orbital varices are uncommon vascular malformations, characterized by rapid protrusion of eyeball induced by elevated orbital venous pressure. The advancement of neuro- radiology studies allow for precise diagnosis, hence better selection of treatment options.

Orbital varices may manifest with variable degree of proptosis and venous dilatation of the eyelids. Rarely, it presents with acute thrombophlebitis with spontaneous retrobulbar haemorrhage.

Case Report

A 50 year old Chinese gentleman presented with one hour history of sudden onset of right eye proptosis associated with pain, deteriorating vision and diplopia. He is a known case of hypertension and dyslipidaemia on treatment. There was no history of head injury in the past.

Visual acuity at presentation was hand motion and 6/9 and N14 for the right and the left eyes respectively. There was presence of relative afferent pupillary defect on the right eye with proptosis, tense globe and limited extraocular muscle movements. The proptosis was non-pulsatile and no bruit was noted, but there was subconjunctival haemorrhage. The intraocular pressure was 20 mmHg on the right eye and 14 mmHg on the left eye. Funduscopic examination showed slightly pale optic disc on the right eye compared to the left eye.

Urgent computed tomography scan showed hyperdense collection occupying intraconal and extraconal space of the right eye consistent with retrobulbar haemorrhage.

Emergency orbital decompression with lateral canthotomy was done under local anaesthesia followed by medical decompression with intravenous

methylprednisolone, and additional antiglaucoma medications.

Marked improvement in visual acuity from hand motions to 6/24 and lessening of proptosis was noted within an hour after treatment, with reduction in the intraocular pressure. He was eventually transitioned to oral steroid with excellent response and no evidence of recurrence.

Discussion

Orbital varices are rare vascular hamartoma which usually manifest in the 2nd and 3rd decades of life (1) and affecting both genders equally (2). It is characterized by thin- walled, distensible post- venous capillary vessels with low flow and intravenous pressure (3).

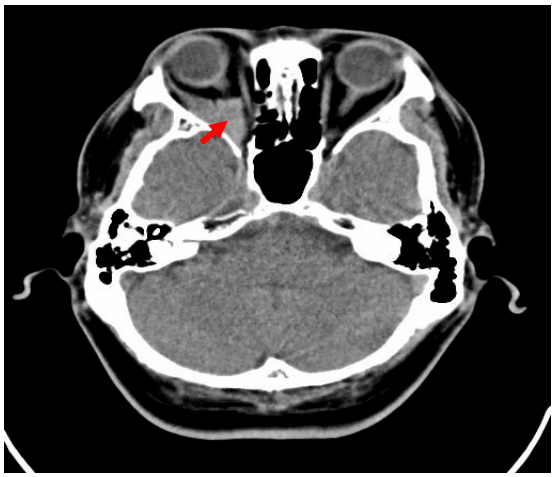

Figure 1: Plain CT scan brain and orbit showing right hyperdense collection located in the intraconal and extraconal space of posterolateral aspect of right orbit.

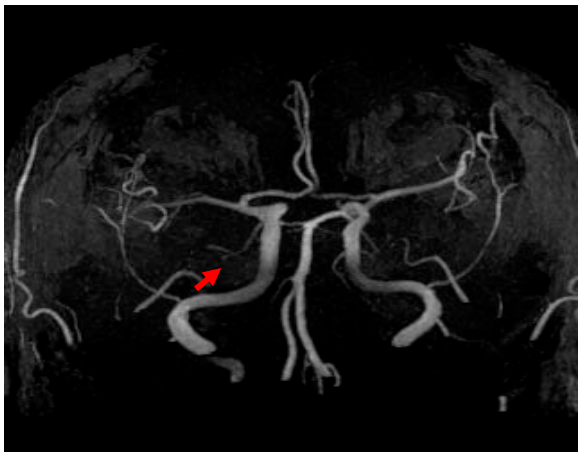

Figure 2: MRV brain and orbit showing filling defect of right inferior ophthalmic vein.

The patho-mechanism of retrobulbar haemorrhage is thought to arise from vascular wall abnormality coupled with abnormal venous flow resulting in formation of thrombosis. This thrombosis occludes the venous channel, further enlarging the varices which eventuated into venous rupture (4).

The classification of vascular malformations of the orbit is broadly based on radiological or clinical findings. There is a wide range of clinical manifestations of orbital varices. The clinical classifications described the findings of orbital varices in stages, ranging from variable proptosis in stage 1 to acute thrombophlebitis in stage 5 (5). Acute orbital haemorrhage such as in this case is considered as stage 4, based on this classification.

Based on radiological findings, orbital vascular malformation is divided into lymphangioma, arterial and venous malformation. This case most probably falls under the orbital varices of the venous malformation category. Furthermore, the rapid onset of painful intermittent proptosis coupled with spontaneous orbital haemorrhage points the diagnosis towards the non- distensible type (6). This particular subtype of orbital varices has minimal communications with surrounding venous system.

Prompt recognition and management of acute retrobulbar haemorrhage is crucial to prevent visual loss and restore good visual function. Early diagnosis is best done using computed tomography utilizing the coronal and axial cut (5), and three-dimensional reconstruction is not a necessity (6). Orbital compartment syndrome results from relatively narrow space of the intraconal and extraconal regions which only allows limited anterior globe displacement (7). Irreversible retinal ischaemia and optic neuropathy was prevented in this case with surgical orbital decompression and rapid institution of medical therapy. Lateral canthotomy is a relatively simple procedure to perform at bedside. In addition the wounds heal very well without suturing or significant scarring (8). The most common complication from excessive cantholysis is ectropion, and scarring which may limit extraocular muscle movements later.

The management of orbital varices largely depends on the severity of the vascular malformations, and tailored towards clinical symptoms. Most of the orbital varices are treated conservatively with osmotic agents and antiglaucoma medications to relieve the compressive effects of retrobulbar haemorrhage (9). Surgical intervention is reserved for recurrent cases or in patients with intractable orbital pain, not responding to medical treatment. The choice of surgical intervention is

different for distensible and non-distensible type. Percutaneous alcohol sclerotherapy injection under fluoroscopy guidance followed by surgical excision of varices is the preferred method for well- circumscribed superficial distensible type (9). For deep lesion, surgical excision and additional use of clips, or CO_2 laser ablation has been described (10). With the advancement of modern microsurgery, less invasive endovascular intervention utilizing coils has been developed for orbital varices (11). However, this method is more surgically challenging and technically difficult.

Non-distensible varices, which commonly present with thrombosis and retrobulbar haemorrhage is treated conservatively in most cases. Optic nerve compromise, profound proptosis or recurrent episodes of thrombosis followed by acute haemorrhage may require surgical management eventually. This particular case is an excellent example of successful conservative management following initial lateral canthotomy and cantholysis, with reversal of visual loss and clinical symptoms.

Conclusion

Orbital vascular malformation, particularly orbital varices may be asymptomatic, and present with sudden visual loss, headache and ocular pain resulting from thrombosis formation and eventual retrobulbar haemorrhage. Rapid recognition of warning signs and early diagnosis with radiological imaging allows for prompt management. Computed tomography remains an important tool in diagnosing the presence of retrorbital fluid collection. Lateral canthotomy and cantholysis proves to be an effective measure in the acute management of retrobulbar haemorrhage.

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