

# A CASE OF SUDDEN PAINFUL BLINDNESS WITH SEVERE PROPTOSIS

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## INTRODUCTION

We report a case of sudden & painful blindness with severe proptosis due to traumatic Intraorbital segment ophthalmic artery aneurysm ,a rare condition, <sup>[1]</sup> caused by blunt injury on head.<sup>[2-3]</sup> Because traumatic aneurysms are fragile and prone to rupture causing fataity, early diagnosis with angiography is essential.

## CASE REPORT

A 22-year-old man suffered from blunt head injury after being assaulted, and was admitted Neurosurgery dept of our hospital. He reportedly fell down, and his face was kicked with shoes ,was conscious and complained of severe headache and vomiting. Examination revealed blindness and right eye total ophthalmoplegia. Brain (CT) scan revealed diffuse subarachnoid hemorrhage (SAH) [Figure 1]. The patient was managed conservatively. One day later, he developed severe and painful right proptosis and chemosis [Figure 2]. CT scan of the orbit revealed right-sided orbital fracture and orbital apex hematoma [Figure 3]. CT angiography (CTA) reveal an intraorbital aneurysm [Figure 4]confirmed by cerebral digital subtraction angiography (DSA), which demonstrated a traumatic aneurysm arising from the intraorbital segment of ophthalmic artery .He was referred to higher centre and underwent aneurysm clipping and resection through a right cranio orbital approach under general anesthesia. The fronto temporal approach followed by removal of the posterior part of the orbital roof to decompress superior orbital fissure and optic canal

Figure 1:Noncontrast axial CT scan reveals diffuse subarachnoid hemorrhage in the patient

in the study

**Figure 2: Preoperative photography shows severe and painful right proptosis and chemosis in the patient in the study**

**Figure 3: Admission axial orbital computed tomography scan reveals right orbital apex hematoma**

Figure 4: Contrasted computed tomography scan reveals right intraorbital aneurysm in the patient in the study

Orbital periosteum was incised, the clot in orbital apex was evacuated, temporary clipping of proximal intraorbital segment ophthalmic artery was performed to stop the bleeding, followed by resection of pseudo-aneurysm]. The ophthalmologists reposed the right eyeball during the surgery, and the suture of palpebral fissure was performed. The postoperative course was uneventful, and proptosis and pain of the right eyeball was relieved immediately. The patient was discharged on the 10<sup>th</sup> postoperative day. One-month clinical follow up demonstrated blindness in the right eye and total ophthalmoplegia but no other problem.

## DISCUSSION

The ophthalmic artery is the major blood supply of the orbit, arising from the internal carotid artery (ICA), enters the orbit through the optic canal and consists of intracranial, intracanalicular and intraorbital segments, and gives off the central retinal artery and other branches. We have here reported a rare case of a traumatic aneurysm of the with history of blunt head trauma.<sup>[1,4,8]</sup> Traumatic, blunt or penetrating head injuries represents fewer than 1% of all cerebral aneurysms.<sup>[2-3]</sup>

Traumatic aneurysms can result from a direct injury to the arterial wall or from

acceleration-induced shear. These aneurysms develop within hours after trauma, the majority being pseudoaneurysms (false aneurysm). Most traumatic pseudoaneurysms are found at the skull base or on the surface of the brain, with severe head injuries, are characterized by the presence of organizing hematoma and fibrosis without true vascular elements. In our patient, histopathology of resected aneurysm specimen confirmed the wall of aneurysm as a clot with no true vascular element. Mechanism of the aneurysm formation may be collision with the orbital walls or shear stress to the intraorbital segment of ophthalmic artery, causing the formation of a pseudoaneurysm from the hematoma in the cavity of the orbital apex. During intra orbital bleeding, there is little room to accommodate the increase volume. The globe and septum are displaced anteriorly causing proptosis, and an increased pressure with their resultant compression can be appreciated. This can cause acute loss in the vision by compressing the optic nerve and its vascular supply.

### CONCLUSION

We performed CTAngiography as a non-invasive screening examination in patient with head injury, skull base fractures and SAH. Furthermore, DSA was necessary to confirm the diagnosis of aneurysms. Endovascular therapy was an effective approach for traumatic intracranial aneurysm, and allowed early aneurysm removal with excellent results.<sup>31</sup> However for this patient, the cranio-orbital approach with orbital decompression was used, as it would solve the complication of severe exophthalmos simultaneously.<sup>19101</sup>The main

cause of blindness in this patient was injury to the intraorbital segment of ophthalmic artery, which was also confirmed during the surgery.

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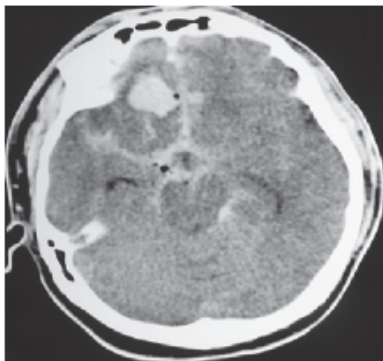


Figure 1: Noncontrast axial CT scan reveals diffuse subarachnoid hemorrhage in the patient in the study



Figure 2: Preoperative photography shows severe and painful right proptosis and chemosis in the patient in the study

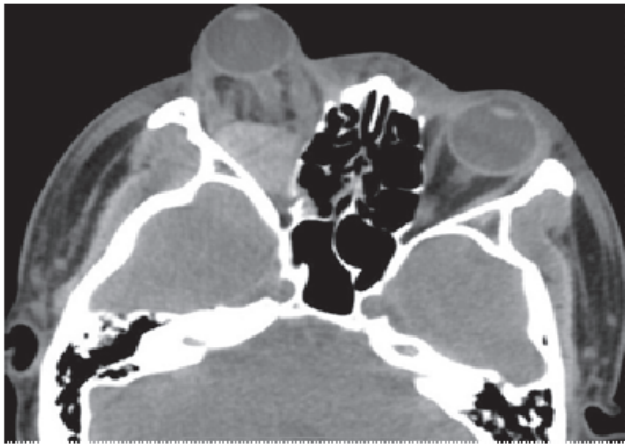


Figure 3: Admission axial orbital computed tomography scan reveals right orbital apex hematoma

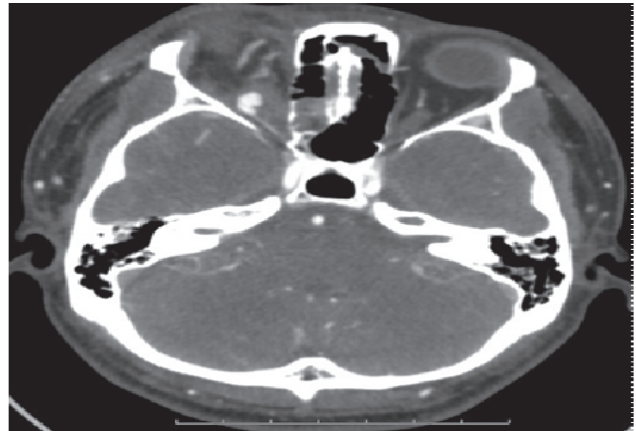
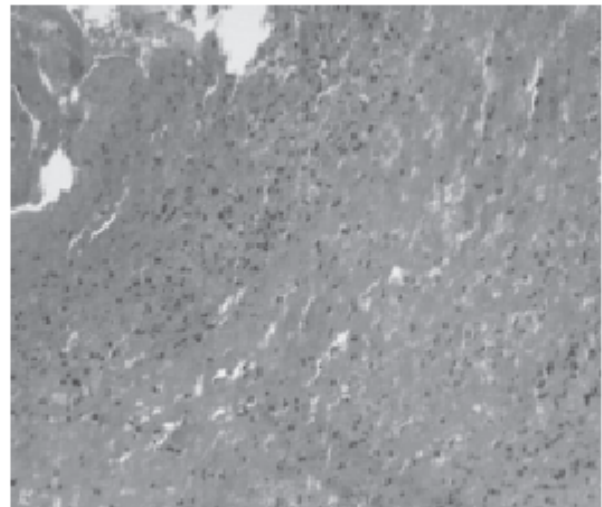
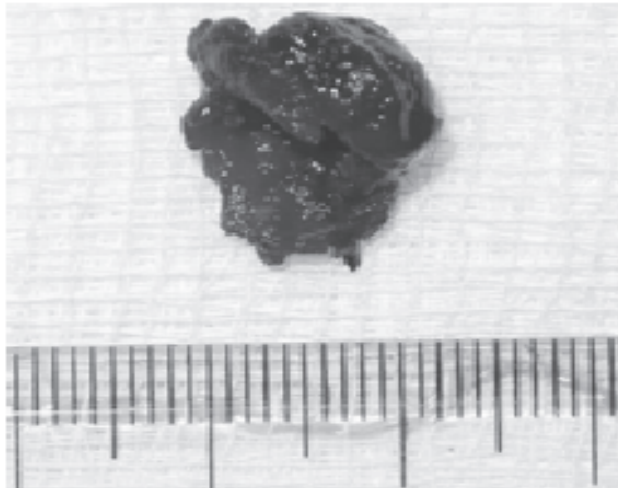


Figure 4: Contrast computed tomography scan reveals right intraorbital aneurysm in the patient in the study



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