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Radiology

Case Report of a Post-Traumatic Orbital Encephalocele in an Adult

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Abstract **Case Report**

Orbital encephalocele is a rare severe and sight-threatening complication of orbital roof fractures that can be challenging to diagnose, we present the case of a 56-year-old man suffering from post-traumatic orbital encephalocele.

Keywords: orbit fracture, encephalocele, traumatic, imaging.

INTRODUCTION

Orbital roof fractures after blunt injury are rare: 1 to 5% of orbital fractures. In fact, post-traumatic orbital encephaloceles are even extremely rare complications of orbital roof fractures. Diagnosis can be challenging initially due to peri-orbital oedema and ecchymosis. This complication has mainly been described in children, with fewer cases reported in adults. We present the case of a 56-year-old man suffering from post-traumatic orbital encephalocele.

OBSERVATION

A 56-year-old man was admitted to the ER after a traffic accident, he denied any loss of consciousness, headache, or vomiting. Clinical examination revealed that the patient was fully conscious and hemodynamically stable, noting marked swelling of the right orbit. Brain CT scan revealed a complex fracture of the right orbital roof with an intra-orbital bone fragment. A hypodense and heterogeneous lesion was observed, extending from the anterior cranial fossa to the right orbit, with a significative protrusion of the eyeball. This lesion was delimited by a thin hyperdense membrane structure, which was suspected to be the dura, in favor of a post-traumatic orbital encephalocele.

Figure 1: Frontal head CT, brain, and bone window: heterogeneous hypodense orbital mass protruding from anterior brain fossa through roof fracture

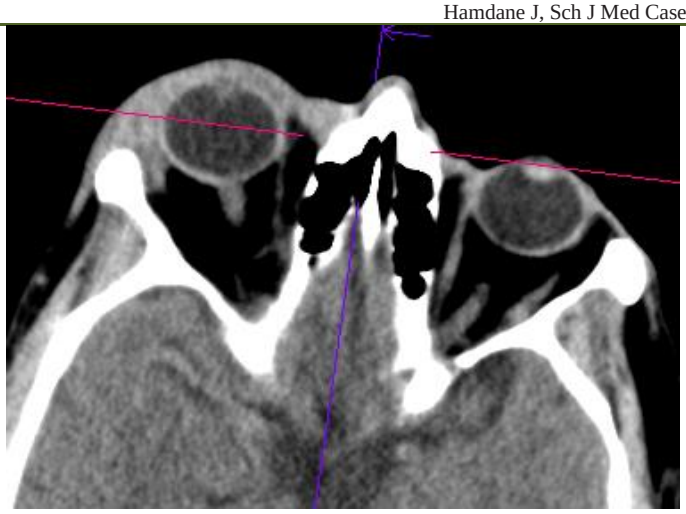

Figure 2: axial head CT: proptosis of right orbit

DISCUSSION

Orbital roof fractures after blunt injury are rare: 1 - 5% of orbital fractures [1]. In fact, post-traumatic brain hernias represent unusual complications, with only 25 cases been reported [2] they are caused by blunt trauma to the orbital column and are more common in children, especially before age 7, due to the lack of pneumatization of the frontal sinus [3]. Orbital roof fractures can widen over time. This is often seen in children because of progressive herniation of the arachnoid in the fracture, skull and brain growth, and CSF pulsatility. In adults, Bone fragment displacement increases during the edematous phase of cerebral contusion. Symptoms include periorbital edema, oculomotor disorders with or without diplopia, Proptosis, and pupillary abnormality. They are often associated with frontal contusions. Brain CT allows the diagnosis of the fracture of the roof of the orbit and the visualization of possible orbital fragments. Brain MRI is the best examination to visualize the orbital encephalocele.

CONCLUSION

Post-traumatic orbital encephalocele is a challenging diagnosis CT as patients with this condition often have associated orbital and intracranial hematoma, which can be difficult to distinguish from herniated brain tissue. Imaging signs that should raise suspicion for traumatic orbital encephalocele include an enlarging heterogeneous orbital mass in conjunction with a roof fracture and/or widening fracture segments.

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