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RESEARCH ARTICLE

UNCOMMON PRESENTATION OF BLOWOUT FRACTURE: PREDISPOSING FACTORS AND CLINICAL PRESENTATION

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ABSTRACT

Blowout fracture of orbital floor is a common presentation in maxillofacial trauma triage, usually blunt trauma with an object slightly larger than orbital rim is the classic mechanism. In this manuscript a new presentation is described where spontaneous peri-orbital edema and pain observed after aggressive nasal blowing. Computerized tomography reveals defect in the orbital floor with herniation of soft tissue to the sinus. Ipsilateral sinus is clear with thin uniform lining; however the enlarged inferior turbinate obstruct sinus osteoum where, nasal blowing creates sinus negative pressure that could explain fracture mechanism.

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INTRODUCTION

Acute peri-orbital emphysema is typically associated with history of trauma. Infection is the second most common etiology. Other rare causes include pulmonary barotrauma, damage from compressed-air hoses, and post-surgical complication. Few cases of blowout fracture after forceful nose blowing have been described in the literature1. However, there is little known about the mechanism clinical presentation and predisposing factors of such cases.

Case presentation: A sixty three years old male patient with history of recent common cold presented with sudden onset of periorbital swelling and pain after aggressive nasal blowing. Clinical examination reveals non tender soft swelling around the right eye figure (Jawaid, 2015). Palpation of the involved orbit shows intact orbital rim. There was no limitation in ocular mobility, intact reflexes with normal visual acuity as proved by ophthalmic assessment. Patient referred to diagnostic radiology department, where thin sections CT examination is done. Radiograph reveals right orbital floor blowout fracture with herniation of the orbital fat into maxillary sinus, clear ipsilateral maxillary sinus with thin uniform mucosal lining and enlarged inferior turbinate obstructing sinus osteoum figure (Sandhu, 2016). Case was managed conservatively where; analgesics anti-edematous prescribed, cold application was done.

Orbital floor is the most vulnerable boney part to be fractured especially in blunt trauma situations. It's very thin and weakened by infra-orbital groove and canal1, (Sandhu, 2016). Earlier case reports of similar fracture pattern claimed that chronic maxillary sinusitis is a risk factor where inflammatory process induces bone resorption3,4. Unlike this assumption our case presented with clear maxillary sinus with thin uniform mucosal lining however the enlarged inferior turbinate obstruct the sinus osteoum which facilitate creation of significant negative pressure inside the sinus on nasal blowing. This scenario could explain the mechanism of such uncommon pattern of orbital floor fracture. Few cases of orbital floor fracture resulting from forceful nose blowing have been reported in the literature consequently there is deficiency regarding predisposing factors and management guidelines (Jawaid, 2015; Hwang, 2014; Rosh, 2008). It is essential for the surgeon to consider all suspected orbital blowout fractures with imaging and detailed ophthalmological investigation irrespective of a trauma history. Most cases resolve spontaneously, however clinician must exclude compression of the central retinal artery which could be presented as acute blindness and/or ophthalmoplegia (Mohan, 2001). Positive forced duction, floor comminution and or limited ocular mobility are frank indications for surgical intervention (Khader, 2010). Patients should be educated to avoid nose blowing, coughing and Valsalva maneuver for at least two weeks after such type of non-traumatic fracture.

Figure 1. Clinical photograph showing periorbital edema in the right side.

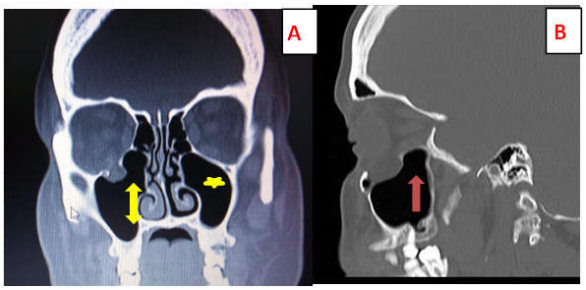

Figure 2. A, Coronal CT showing right blowout fracture with herniation of the orbital fat to sinus (arrow), clear sinus with thin uniform lining (star)and enlarged turbinate obstructing osteoum(double arrow). B, Parasagittal CT showing floor disruption with tissue herniation to sinus (red arrow)

Clinical follow-up for one month at least is mandatory. Moreover, Instruction to the patient to seek for medical care if any change in vision, painful eye or diplopia occurs (Shah, 2007). In conclusion, maxillofacial surgeon should be aware about non-traumatic orbital floor fracture in patients with acute orbital emphysema. History of aggressive nose blowing, acute onset and Computed Tomography are the keys of diagnosis.

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