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Case Report

Nontraumatic orbital floor fracture after nose blowing

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ABSTRACT

A 40-year-old woman with no history of trauma or prior surgery presented to the emergency department with headache and left eye pain after nose blowing. Noncontrast maxillofacial computed tomography examination revealed an orbital floor fracture that ultimately required surgical repair. There are nontraumatic causes of orbital blowout fractures, and imaging should be obtained irrespective of trauma history.

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Introduction

Orbital blowout fractures seen in the emergency setting commonly occur after trauma. However, rare cases of nontraumatic orbital blowout fractures have been reported secondary to sneezing or nose blowing [1–5]. We describe a case of a nontraumatic orbital floor fracture that was diagnosed on imaging and affected patient management.

Case report

A 40-year-old woman with a history of migraine headaches presented to the emergency department with left eye pain, left periorbital edema, left blurred vision, and 10/10 headache after

blowing her left nostril whereas holding her right nostril closed 1 hour before presentation. This maneuver is known as the Bushman's hanky maneuver [3]. At that time, she developed left epistaxis, left eye pain with movement (particularly affecting lateral gaze), left eye swelling, and left blurred vision. The patient denied any diplopia, history of trauma, or any similar prior incident. The medical history included migraine headaches and gastritis. There was no surgical history. Medication history included only iron replacement therapy. On physical examination, the patient had left periorbital swelling and infraorbital crepitus. Intermittent left inferior rectus muscle entrapment was identified on physical examination during upward gaze and visual acuity was 20/70 OS and 20/30 OD during examination by the ED physician. However, subsequent ophthalmology consultation revealed no clinical evidence of

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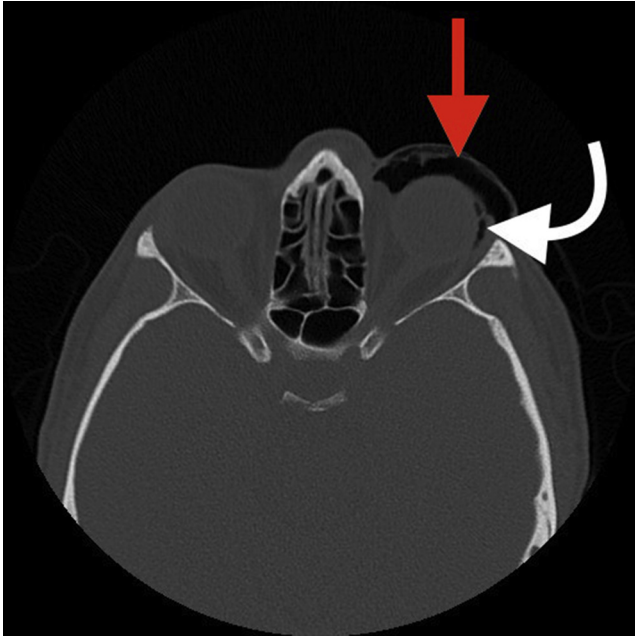


Fig. 1 – Noncontrast maxillofacial computed tomography axial view with bone windowing reveals preseptal (straight red arrow) and extraconal (curved white arrow) orbital emphysema.

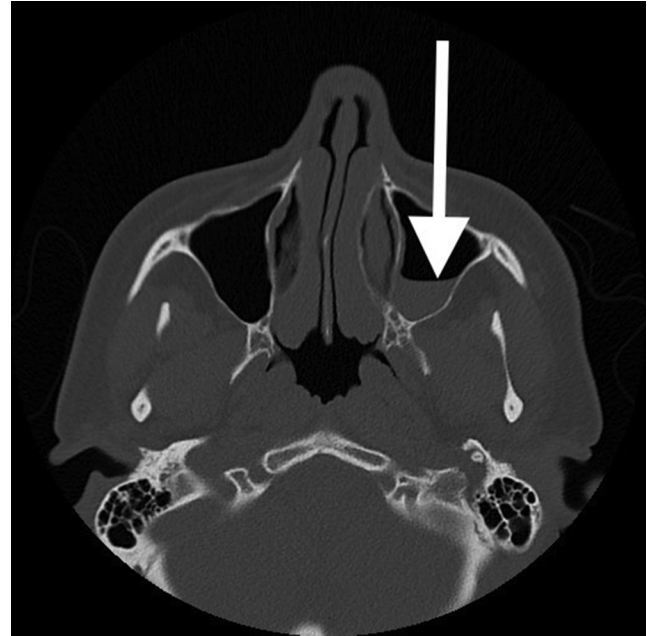


Fig. 2 – Noncontrast maxillofacial computed tomography axial view with bone windowing reveals an air-fluid level in the left maxillary sinus (straight white arrow).

muscle entrapment, and visual acuity was 20/20 OU at that time. Given clinical concern for an orbital blowout fracture, maxillofacial computed tomography examination without contrast was performed. This examination revealed a comminuted left orbital floor fracture with herniation of orbital fat, fracture fragments, and blood within the left maxillary sinus, and preseptal and extraconal orbital emphysema (Figs. 1-3). The inferior rectus muscle demonstrated mild inflammatory changes but was contained within the orbit. Otolaryngology

was consulted and determined that there was a significant risk for hypophthalmos. Subsequently, the patient underwent successful left orbital floor reconstruction 6 days later.

Discussion

Orbital floor fractures are typically seen in the emergency department setting after trauma. In these situations,

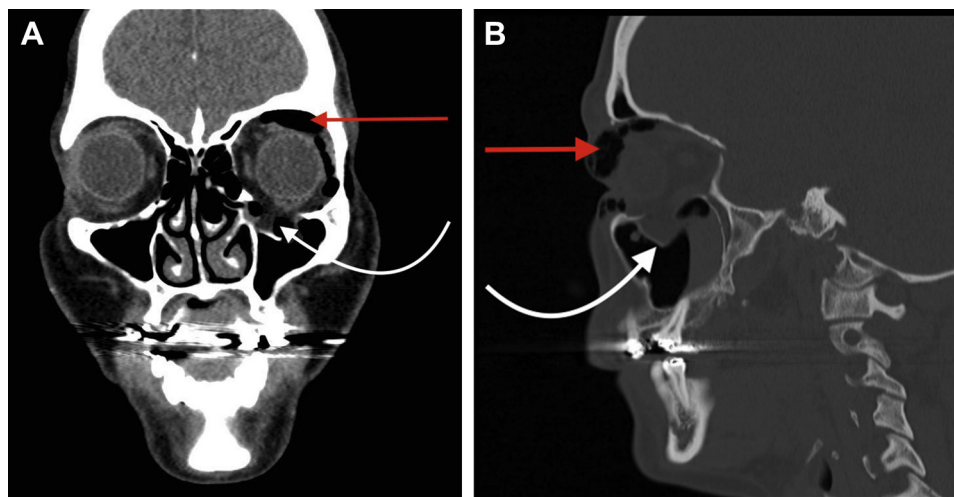


Fig. 3 – (A) Noncontrast maxillofacial computed tomography coronal view with soft tissue windowing reveals an orbital floor fracture with herniation of orbital fat (curved white arrow) and orbital emphysema (straight red arrow). (B) Noncontrast maxillofacial computed tomography sagittal view with bone windowing reveals an orbital floor fracture with herniation of orbital fat (curved white arrow) and orbital emphysema (straight red arrow).

increased intraorbital pressure decompresses via a wall blowout fracture. The orbital floor is usually the path of least resistance followed by the medial wall [6]. We report a case of an orbital floor fracture without inciting trauma that ultimately required surgical repair. Only a few cases of non-traumatic orbital blowout fractures secondary to sneezing or nose blowing have been previously described [1–5]. The proposed mechanism for these nontraumatic cases involves a weakened orbital floor, possibly secondary to chronic maxillary sinusitis, which fractures because of increased intrasinus pressure created by the Bushman's hanky maneuver described above [3,7]. Nose blowing may occasionally contribute to epistaxis [8]. Rarely, nose blowing can cause orbital emphysema via lamina papyracea injury secondary to increased intrasinus pressure, which did not occur in this case [9–12]. This case report reinforces the concept that there are nontraumatic causes of orbital blowout fractures. If this type of fracture is suspected clinically, imaging of the bony orbits should be performed irrespective of trauma history.

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