

Case Study**Orbital blowout fracture developing during nose blowing****ABSTRACT**

Aim: The aim of this study was to evaluate the clinical course and treatment of a case that developed right orbital medial wall fracture following the rare etiological factor of nose blowing.

Presentation of Case: A 20-year-old male patient presented with suddenly developing swelling of the right eye following strong nose blowing the same day. The examination revealed swelling of the right eye and mild pain with eye movements. The visual acuity was full with normal anterior and posterior segments in both eyes. Computed tomography revealed an ethmoid bone fracture and medial rectus muscle and orbital contents had prolapsed inside the sinus. The eyelid swelling had decreased and the pain with eye movements had disappeared at the 2-week follow-up. Complete recovery without any sequel was seen in the 3-month follow-up.

Discussion: Considering the complications that may develop after surgical treatment, the cases should be thoroughly evaluated at presentation with surgery only being considered in appropriate cases. Small fractures with no or minor herniation, or cases with diplopia recovering quickly can be monitored without treatment. Our patient was followed-up without treatment as the bone defect was small, and there was no enophthalmus, eye movement limitation or diplopia. Full recovery was seen without sequel at the end of the short-term follow-up of our patient.

Conclusion: Small fractures with no enophthalmus, eye movement limitation or diplopia can be followed-up without treatment, as in the presented case.

Key words: diplopia, enophthalmus, orbital blowout fracture, orbital surgery

27 INTRODUCTION

28 Orbital blowout fractures are usually the result of blunt orbital or maxillofacial trauma and
29 most commonly develop in the medial and inferior walls (1). Orbital floor fractures may less
30 commonly be accompanied by intracranial trauma such as epidural hematoma (2). Other
31 potential findings are subcutaneous emphysema in the periorbital region, ecchymosis,
32 enophthalmus, limited ocular movement, diplopia, hyphema, traumatic uveitis and corneal
33 perforation (1,3). The gold standard diagnostic method is computerized tomography (CT) (4).
34 CT enables evaluation of the fracture's location and size and the prolapse of the extraocular
35 muscles and orbital content into the fracture. Small fractures are monitored while large ones
36 require surgical treatment. The aim of surgical treatment is to repair to defect and preserve
37 ocular functions and the cosmetic structure.

38 The etiology of orbital blowout fractures includes accidents, assault and falls (1). The aim of
39 this study was to evaluate the clinical course and treatment of a case that developed right
40 orbital medial wall fracture following the rare etiological factor of nose blowing.

41 PRESENTATION OF CASE

42 A 20-year-old male patient presented with suddenly developing swelling of the right eye
43 following strong nose blowing the same day. The examination revealed swelling of the right
44 eye and mild pain with eye movements. Eye movements were full and there was no diplopia
45 or enophthalmus. The visual acuity was full with normal anterior and posterior segments in
46 both eyes. Computed tomography revealed an ethmoid bone fracture approximately 1x1.5 cm
47 in size that was depressed towards the sinus in the right medial orbital wall. The medial rectus
48 muscle and orbital contents had prolapsed inside the sinus with increased hemorrhagic density
49 secondary to the fracture together with air in the orbit and anterior periorbital region (Figure
50 1). The eyelid swelling had decreased and the pain with eye movements had disappeared at

51 the 2-week follow-up. Visual acuity and other eye findings were normal. Complete recovery
52 without any sequel was seen in the 3-month follow-up.

53 DISCUSSION

54 Orbital blowout fractures occur in the weakest part of the bone structure due to increased
55 intraorbital pressure after trauma. Çağatay et al reported that medial wall fracture (39 cases,
56 51.3%) was the most common isolated orbital wall fracture and all their cases were the result
57 of trauma (1). Isolated medial wall fractures can occur at the ethmoid bone when the patient
58 blows his nose. Most untreated orbital blowout fractures can heal by themselves. The patients
59 should avoid nose blowing due to the possibility of sending infected sinus content towards the
60 orbit in such cases. However, complications such as diplopia and enophtalmus can be seen in
61 some untreated cases. Bone defects can be surgically repaired with transconjunctival and
62 transnasal procedures, among others (3). Bone tissues are frequently divided into small pieces
63 during orbital blowout fractures and it is not possible to return them to their original anatomic
64 position. Grafts and implants are therefore used in defect repair (5-8). Autogenous grafts such
65 as bone and cartilage and allogeneic implants such as silicone or hydroxyapatite are used in
66 such surgical procedures. Early period complications such as infection, implant expulsion or
67 valve malposition and late period complications such as diplopia and proptosis can develop
68 due to the use of orbital implants (9). Autogenous grafts may cause volume reduction
69 followed by recurrence of the corrected enophtalmus (8).

70 Considering the complications that may develop after surgical treatment, the cases should be
71 thoroughly evaluated at presentation with surgery only being considered in appropriate cases.
72 Small fractures with no or minor herniation, or cases with diplopia recovering quickly can be
73 monitored without treatment. Our patient was followed-up without treatment as the bone
74 defect was small, and there was no enophtalmus, eye movement limitation or diplopia. Full
75 recovery was seen without sequel at the end of the short-term follow-up of our patient.

76 CONCLUSION

77 In conclusion, fractures can occur at the ethmoid bone with strong nose blowing as it is one of
78 the thinner bones of the orbit. Small fractures with no enopthalmus, eye movement limitation
79 or diplopia can be followed-up without treatment, as in the presented case.

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Figure 1: Fracture of the right orbital medial wall. The medial rectus muscle and orbital content have prolapsed inside the sinus.



