

Periorbital Air Following Sneeze

Yağmur Gökhan Semerci¹, Cesareddin Dikmetaş¹, Ayla Köksal¹, Dilek Atik², Serkan Doğan¹, Duygu Yaman¹, Başar Cander¹

¹Sağlık Bilimleri Üniversitesi Kanuni Sultan Süleyman Eğitim ve Araştırma Hastanesi, Acil Tıp Kliniği, İstanbul

²Yozgat Bozok Üniversitesi, Tıp Fakültesi, Acil Tıp Anabilim dalı, Yozgat

Keywords: Emphysema, Periorbital Air, Sneeze

Introduction

Presence of air in the orbit and periorbital tissues is called orbital emphysema¹. Frontal process of the maxillary bone, lacrimal bone and lateral wall of the ethmoid bone (lamina papyracea) form the medial wall of the orbit. Maxillary sinus and frontal sinus are located adjacent to orbit base and orbit floor, respectively. Any possible defect on these bones causes orbital emphysema². Orbital emphysema usually appears within first 24 hours in fractures of paranasal sinus involving the orbital walls³. Spontaneous absorption of orbital emphysema which is a transient phenomenon occurs within two weeks⁴. Orbital emphysema resolves without sequel by spontaneous resolution; however, it may cause severe visual loss. Treatment approach includes observation, systemic corticosteroids, nasal decongestants and surgery when required^{5,6}.

The aim of this report was to present a case who developed periorbital emphysema following sneezing after an impact onto the nose.

Case 1

A 46-year old female patient referred Emergency Room (ER) around 3:00 p.m. due to swelling on the left eye. Medical history of the patient revealed that she was hit onto the nose by her child accidentally around 10 a.m. on the same day. The patient then squeezed her nose and closed her nostrils during sneezing around 1 p.m. She felt a blood clot on her hand; her left eye was swollen and she had temporary vision loss. Physical examination revealed that vital signs were stable, her left eye was swollen and closed due to edema, crepitation is detected on the left upper eyelid; her vision was normal and light reflex was positive when the

eyelid is opened. According to the patient's maxillofacial computer tomography, free air densities on the left periorbital area and edematous appearance were detected; left nasolacrimal channel was prominent due to air (Figure 1). Consultation with otorhinolaryngology and ophthalmology was performed for the patient. Otorhinolaryngologist performed an endoscopic examination and identified hemorrhagic spotting on the left meatus of the orbit; however, no bleeding was detected and monitoring on outpatient basis was recommended. Treatment of the patient was planned in consultation with otorhinolaryngology and ophthalmology clinics; she was advised not to blow her nose fast and to sneeze with open mouth. The patient was discharged at a stable state.

Case 2

A 45-year old male patient referred Emergency Room (ER) around 9:00 p.m. due to swelling on the left eye. It was learned from medical history of the patient that he hit his nose on the wall in the same day; he closed his nostrils during sneezing and his eyes swell. In the physical examination, vital signs were stable, left eye was swollen and closed due to edema; crepitation was detected on the left lower eyelid; the patient had normal vision when his eyelid was opened with a positive light reflex (Figure 2). Maxiofacial-computer tomography scan was performed; free air densities were detected in the left periorbital area and left maxillary sinus roof was detected broken (Figure 3). A consultation was performed with otorhinolaryngology and ophthalmology clinics. Both consultants recommended medical treatment and outpatient follow-up.

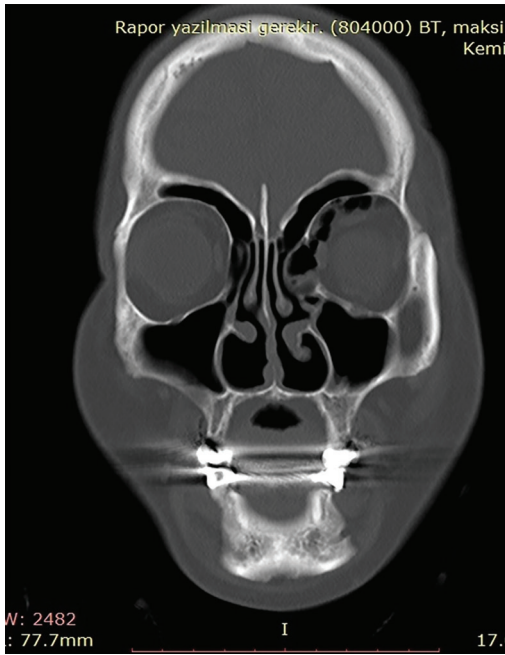


Figure 1. CT of Case 1

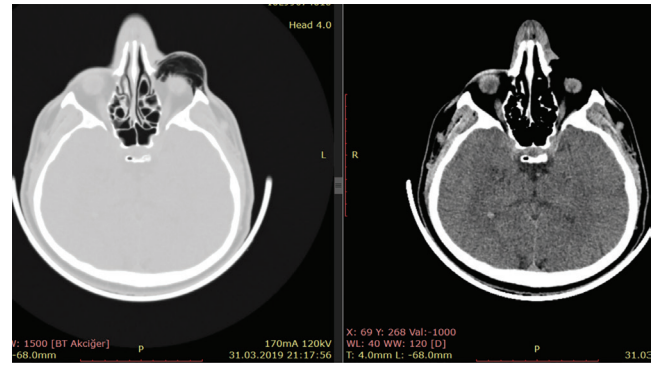


Figure 2. CT of Case 2



Figure 3. EYE of Case 2

Discussion

The studies showed that intranasal pressure increases when mouth and nose are closed during sneezing. High pressure facilitates appearance of fractures of the bone which is defective as a result of chronic sinusitis⁷. Furthermore, fracture due to trauma on the bone line leads to air leak into the orbit; however, the air does not leave the orbit⁸. Our cases developed the emphysema following sneezing after trauma to the nose. Jonathan et al.⁹ and Oba et al.¹⁰ presented traumatic periorbital cases similar to our cases. Levent Sahin¹ also presented a case with periorbital emphysema after nose blowing and the emphysema was drained in such case. Ophthalmology clinic did not recommend drainage and suggested antibiotic therapy and polyclinic control. Oba et al.¹⁰ also did not perform drainage and arranged the treatment by antibiotic therapy.

Conclusion

The eye has connections with many bones on the face including the connection with nose, nasal and lachrymal canals. Air may leak around the eye due to trauma after sneezing while the mouth is closed following any trauma onto the nose and other face regions. These patients may refer to the emergency room. Consequently, the emergency department physicians should be aware that such air has a benign progress and may be treated by antibiotics; they also should arrange consultations and follow-ups with ophthalmology clinics.

References

- 1 Şahin L. Hapşırırken Ağzın Kapatılması Sonrası Orbital Amfizem Olgusu. İnönü Üniversitesi Sağlık Hizmetleri Meslek Yüksekokulu Dergisi, 2019; 7(1): 122-124.
- 2 Ord RA, Le May M, Duncan JG, Moos KF. Computerized tomography and B-scan ultrasonography in the diagnosis of fractures of the medial orbital wall. *Plast Reconstr Surg* 1981; 67(3): 281-8.
- 3 Papadimitriou P, Ntomouchtsis A, Antoniadis K. Delayed traumatic ocular emphysema: a case report. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2006; 102: e18-20.
- 4 Mohan B, Singh KP. Bilateral subcutaneous emphysema of the orbits following nose blowing. *J Laryngol Otol* 2001; 115: 319-20.
- 5 Benharbit M, Karim A, Lazreq M, Mohcine Z. [Emergency treatment of post-traumatic orbital emphysema: a case report]. *J Fr Ophthalmol* 2003; 26(9): 957-9.

- 6 Silver HS, Fucci MJ, Flanagan JC, Lowry LD. Severe orbital infection as a complication of orbital fracture. *Arch Otolaryngol Head Neck Surg* 1992;118(8):845-8.
- 7 Gwaltney JM JR, Hendley JO, Phillips CD, Bass CR, Mygind N, Winther B. Noseblowing propels nasal fluid into the paranasal sinuses. *Clin Infect Dis*, 2000; 30(2): 387-91.
- 8 Dobler AA, Nathanson AL, Cameron JD, Carpel ET, Janda AM, Pederson JE. A case of orbital emphysema as an ocular emergency. *Retina* 1993; 13(2): 166-8.
- 9 Sheele, J., & Lang, J. (2016). A Rare Case of Traumatic Tension-Pneumo-orbitum. *Emerg Med*, 48(8), 357-361.
- 10 Oba E., Pamukcu C, Erdenöz S, Birol, travmatik orbital amfizemlere yaklaşım. *Ulus Travma Acil Cerrahi Derg* 2011;17 (6):570-572.

