

Orbital Emphysema due to Nose Blowing

Mustafa SEVER
Tunç BÜYÜKYILMAZ

Abstract: Orbital emphysema is a rare ocular emergency in the absence of trauma, sinusitis and/or surgical intervention. We report a case of orbital emphysema in a 29-year-old male caused by forceful blowing of the nose. The patient presented with sudden and painful onset of right periorbital swelling and nose-bleed following forceful blowing of the nose. There was no history of sinusitis, facial trauma or previous surgery. Examination of the patient disclosed crepitant eyelid swelling, ptosis, and mild unilateral exophthalmos and inferomedial strabismus in the neutral position. Otorhinolaryngologic and ophthalmic examinations were accompanied by computerized tomography, which demonstrated areas of emphysema in the orbit. We present this article because orbital emphysema is a rare ocular emergency diagnosis in the absence of trauma. The purpose of this presentation is to stress the recognition of ocular emphysema and its simple and effective emergency treatment.

Key Words: Orbital, subcutaneous emphysema, emergency service, Turkey

Hınkırmaya Bağlı Bir Orbital Amfizem Olgusu

Department of Emergency Medicine,
Faculty of Medicine,
Ege University,
İzmir - TURKEY

Özet: Orbital amfizem, travma, sinüzit ve/veya cerrahi girişim yokluğunda nadir görülen bir oküler acildir. Bu yazımızda, burun temizliğinin hemen sonrasında sağ göz çevresine şişlik ve ağrı ile beraber, burnundan kanlı akıntı gelmesi şikayeti ile acil servise başvuran, orbital amfizem tanısı almış, 29 yaşında bir erkek hastayı sunduk. Öyküsünde travma, sinüzit veya daha önce geçirilmiş bir operasyon öyküsü olmayan hastanın fizik muayenesinde, sağ göz çevresinde şişme, palpasyonla krepitasyon, tek taraflı ekzoftalmus, pitozis ve ılımlı aşağı-ıçe şaşılığı vardı. Otolaringolojik ve oftalmik muayeneler orbital Bilgisayarlı Tomografi ile desteklendi. Bilgisayarlı Tomografi orbitadaki amfizemi gösterdi. Olgu, nadir görülen bir oküler acil tanısı alması nedeni ve acil orbital amfizem tanısını ve basit ve etkili tedavisini hatırlatmak amaçları ile rapor edilmiştir.

Anahtar Sözcükler: Orbita, Ciltaltı amfizem, Acil servis, Türkiye

Introduction

Orbital emphysema is the abnormal presence of air in the loose subcutaneous tissue around the orbit (1). This is an uncommon condition in the absence of trauma (1,2). It is usually a benign, self-limited phenomenon (3). It rarely can result in irreversible ischemic visual loss (3). In this presented case report, we describe a patient with no history of trauma who developed orbital emphysema following forceful nose blowing. The purpose of this presentation is to stress the recognition of ocular emphysema and its simple and effective emergency treatment in order to prevent potential visual loss.

Received: November 12, 2007
Accepted: September 03, 2008

Case Report

The patient was a 29-year-old male. He presented with sudden and painful onset of right periorbital swelling and abundant nose bleeding with mucoid secretion, following forceful blowing of the nose. He had blown his nose vigorously several times. There was no history of sinusitis, facial trauma or previous surgery.

On physical examination, vital signs were normal. There was non-tender periorbital swelling, ptosis, and ecchymosis around the right eye. On lid retraction, there was mild proptosis with minimal conjunctival congestion. Mild unilateral exophthalmos and mild inferomedial strabismus were also noted (Figure 1). Ocular movements, pupillary light reactions and dilated fundus examination were normal. Fundus examination was

Correspondence

Mustafa SEVER
Department of Emergency
Medicine,
Faculty of Medicine,
Ege University,
İzmir - TURKEY

adanasever@yahoo.com



Figure 1. Periorbital swelling, ptosis, mild inferomedial strabismus, and ecchymosis around the right eye.

performed in the ophthalmology clinic due to absence of biomicroscope in the emergency room. Visual acuity was 10/10. Left eye examination was normal. His physical examination was otherwise normal. Otorhinolaryngologic and ophthalmic examinations were accompanied by computerized tomography (CT), which revealed sub-massive subcutaneous emphysema: extraconal air in the superior orbit without extension to the optic foramen, proptosis, and a blowout fracture of the medial wall of the right orbit (Figure 2).

No significant ocular damage was observed. We decided not to perform needle aspiration, so outpatient treatment was provided. Ice-pack application, lay-down rest to the pathologic side, and avoidance of nose blowing and sneezing were advised. Empiric antibiotic, nasal decongestant and non-steroidal antiinflammatory drug treatment were prescribed. Twenty-four hours later, on follow-up, the swelling had almost disappeared, nasal bleeding had stopped and the ocular assessment was normal. Fourteen days later, orbital emphysema had completely resolved.

Discussion

Orbital emphysema with indirect trauma or in the absence of trauma (2,4) has been reported rarely. The medial orbital wall (lamina papyracea), which is known theoretically to be the weakest point of the orbital wall, has been reported as the most common site of pure orbital fractures and passage of air from paranasal sinuses (5). In most reports, trauma is the most common underlying etiology in orbital emphysema (5,6) and reported injuries were usually unilateral, rarely bilateral (2). Other causes include forceful nose blowing (2,3), infection (2), post-surgical, sneezing (7), pressure changes during air travel (4), extreme accidents (8), and sports (6).

Similar to the literature, in this presented case report, the patient presented the usual type of blowout fracture in the medial orbital wall without any direct trauma history. We believe that orbital emphysema in our patient occurred because of increased intranasal pressure due to closing the nares with his fingers during forceful nose blowing.

In most patients, orbital emphysema resolves spontaneously in two to three weeks without compromising ocular function (2,6), such as in the case presented herein. There is no universally accepted algorithm for the management of orbital emphysema (1). Only Hunts et al. proposed in their study a staging protocol for the recognition and management of orbital emphysema, named *orbital emphysema, staging and acute management*, in 1994 (7). Careful observation and recommendation to avoid nose blowing are the only treatments necessary for orbital emphysema (8). Nasal decongestants, antibiotics, and steroids have also been used in orbital emphysema treatment (9).

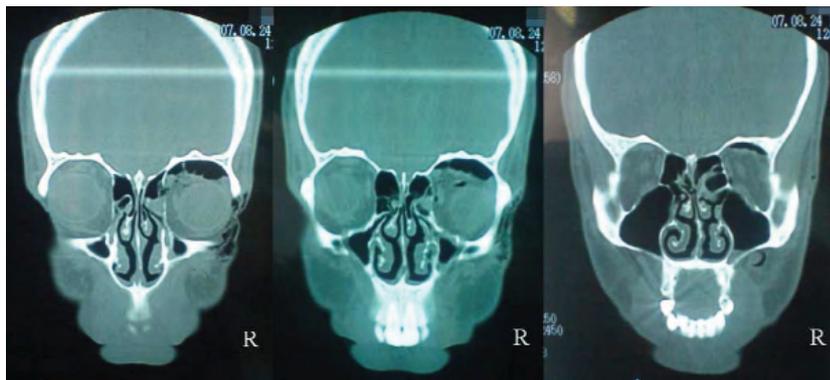


Figure 2. Extraconal air in the superior orbit without extension to the optic foramen, mild proptosis and a blowout fracture of the medial wall of the right orbit.

Nevertheless, orbital emphysema can cause ischemic optic neuritis and central retinal artery occlusion and may lead to visual loss according to the severity of the condition (10). When orbital emphysema shows signs of pressure effect like restricted ocular motility, sluggish pupillary reaction, disc edema or decreased visual acuity, air drainage and/or direct decompression should be considered (11). It can be done effectively by simple underwater drainage of air by 24-gauge needle (8) or lateral canthotomy and cantholysis (Figure 3). No invasive air drainage and/or direct decompression technique was performed in our patient.

In conclusion, orbital emphysema, severe or not, may occur spontaneously after unexpected events in the absence of trauma. Management of the case presented herein showed that close follow-up, ice-pack administration, nasal decongestant, and suitable lay-down position may provide effective cure in mild orbital emphysema patients. If there is any suspicion of vascular compression, invasive interventions should be considered. Immediate recognition and treatment may prevent permanent visual loss.

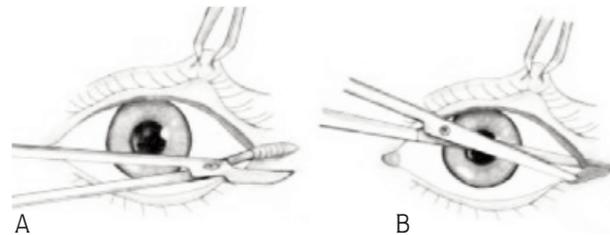


Figure 3. Lateral canthotomy (A) and cantholysis (B).

References

1. Singh M, Phua VM, Sundar G. Sight-threatening orbital emphysema treated with needle decompression. *Clin Experiment Ophthalmol* 2007 May-Jun; 35(4): 386-7.
2. Mohan B, Singh KP. Bilateral sub-cutaneous orbital emphysema of orbit following nose blowing. *J Laryngol Otol* 2001; 115: 319-20.
3. García-Medina JJ, García-Medina M, Pinazo-Durán MD. Severe orbitopalpebral emphysema after nose blowing requiring emergency decompression. *Eur J Ophthalmol* 2006 Mar-Apr; 16(2): 339-42.
4. Monaghan AM, Millar BG. Orbital emphysema during air travel: a case report. *J Craniomaxillofac Surg* 2002; 30: 367-8.
5. Burm JS, Chung CH, Oh SJ. Pure orbital blowout fracture: new concepts and importance of medial orbital blowout fracture. *Plast Reconstr Surg* 1999; 103: 1839-49.
6. Taguchi Y, Sakakibara Y, Uchida K, Kishi H. Orbital emphysema following nose blowing as a sequel of a snowboard related head injury. *Br J Sports Med* 2004; 38(5): e28.
7. Hunts JH, Patrinely JR, Holds JB, Anderson RL. Orbital emphysema. Staging and acute management. *Ophthalmology* 1994 May;101(5):960-6.
8. Benharbit M, Karim A, Lazreq M, Mohcine Z. Emergency treatment of post-traumatic orbital emphysema: a case report. *J Fr Ophthalmol* 2003; 26: 957-9.
9. Gonzalez F, Cal V, Elhendi W. Orbital emphysema after sneezing. *Ophthal Plast Reconstr Surg* 2005; 21(4): 309-11.
10. Zimmer-Galler IE, Bartley GB. Orbital emphysema: case reports and review of the literature. *Mayo Clin Proc* 1994 Feb; 69(2): 115-21.
11. Dobler AA, Nathenson AL, Cameron JD, Carpel ET, Janda AM, Pederson JE. A case of orbital emphysema as an ocular emergency. *Retina* 1993; 13(2): 166-8.