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CASE REPORT

Think Twice Before You Blow—Case Report And Review Of Literature

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Abstract

We present here, an interesting case of a patient who came with swelling of the left eye. This was secondary to the forceful blowing of the nose. Orbital emphysema is the abnormal presence of air in the loose subcutaneous tissues of the orbit. The medial orbital wall (lamina papyracea) which is known theoretically to be the weakest point of the orbital wall, has been reported to be the most common site of pure orbital fractures.

Key words: orbital emphysema, lamina papyracea

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Introduction

Orbital emphysema is the abnormal presence of air in the loose subcutaneous tissues of the orbit [1]. It is a benign condition which is caused due to trauma in the lamina papyracea or the orbital floor. Lyoid reported that 50% of the orbital fractures have radiological evidence of air, especially those involving the medial wall [2]. The incidence of isolated medial wall fractures ranges between 0-10 %. 3. Orbital emphysema results from a forceful expiratory effort which creates a pressure gradient, forcing air across a disruption of the orbital bone and the paranasal sinus mucosa into the orbital tissues.[1]

Intranasal pressures greater than 190mmHg have been measured during maximal expiratory effort, thus providing evidence that air can be introduced into the orbit under substantialpressure. Emphysema is harmless unless there is a check valve which prevents the air from leaving the orbit[1]. If large amount of air enters the orbit, the intraorbital pressure may increase, may constrain blood flow and cause the orbital compartment syndrome.[4]

Case report-

A 25year old male patient presented to thus with swelling of the left eye following the forceful blowing of the nose. There was minimal bleeding from the nose following the forcefull blowing, which stopped on its own. There was no facial trauma or any previous surgery.

On physical examination, vital signs were found to be normal. The patient was unable to open his eyes. There was a non tender periorbital swelling and crepitus and ecchymosis around the left eye .There was no proptosis . His visual acuity was normal. The ocular movementsand the dilated fundus examination was within normal limits. CT scan of the paranasal sinuses showed features which were suggestive of a breech in the lamina papyracea, at the level of the anterior ethmoids and the orbital emphysema.

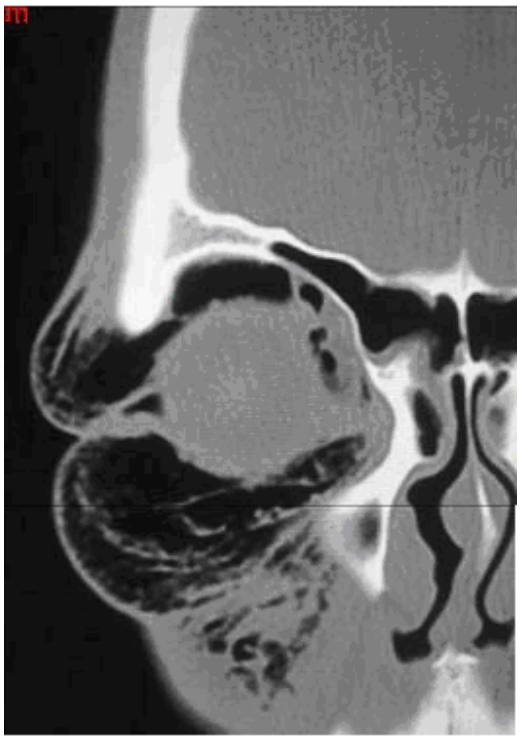
The patient was treated symptomatically. He was asked to lie down, rest to the pathological side, and avoid nose blowing and sneezing. Empirical antibiotics, nasal decongestants and non-steroidal anti inflammatory drug treatment were prescribed. The swelling reduced by 50%

in twenty-four hours. The orbital emphysema completely resolved within two weeks.

Discussion

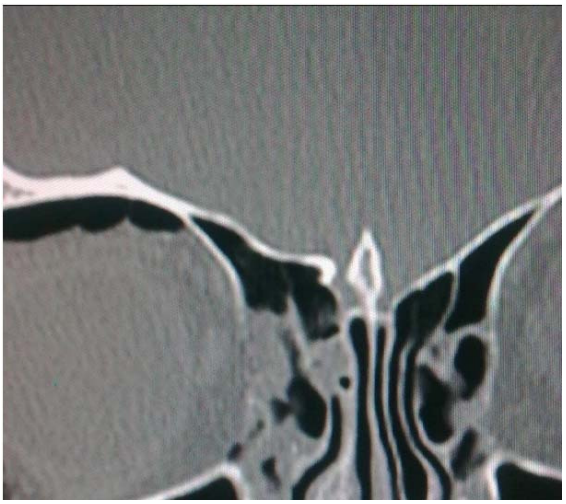
The medial orbital wall (lamina papyracea) which is known theoretically to be the weakest pointof the orbital wall, has been reported as the most common site of pure orbital fractures. In most reports, trauma has been found to be the most common underlying aetiology in orbital emphysema and the reported injuries were usually unilateral and rarely bilateral. Other causes of orbital emphysema include forceful nose blowing, infections, post-surgical, sneezing, pressure changes during air travel, extreme accidents and sports.[5] In this case, the patient presented with orbital emphysema following forceful blowing. We believe that orbital emphysema occurred in our patient because of increased intranasal pressure due to closing the nacres with his fingers during the forceful nose blowing. Heerfordt has described three types of ocular emphysema. Palpebral or preseptal emphysema (type 1) is characterized by intact orbital septu and subcutaneous air which is confined solely to the eyelids. It is a rare entity and does not cause orbital compression.

It may result from a fracture of the lacrimal bone and the secondary rupture of the lacrimal sac which is anterior to the septum. Air can enter the eyelid and create dramatic emphysema in the lax tissue overlying the tarsal plate. Palpebral emphysema may also occur simply as a result of facial subcutaneous emphysema. In contrast, true orbital emphysema (type 2), occurs with a fracture of the bony orbital wall and the laceration of the sinusmucosa, with accumulation of air behind the intact septum.



There is a possibility of high intraorbital pressure and visual complication. In orbitopalpebral emphysema (type 3), as air accumulates within the orbit, the intraorbital pressure increases, the orbital septum may rupture and air is allowed to traverse from the orbit into the eyelid. There is usually less orbital tension and proptosis.[4]. In most patients, orbital emphysema resolves spontaneously in two to three weeks without compromising the ocular functions 6 such as in the present case. There is no universally accepted algorithm for the management of orbital emphysema. Careful observation and a recommendation to avoid nose blowing are the only treatments which are

necessary for orbital emphysema. Nasal decongestants, antibiotics and steroids have also been used in the treatment of orbital emphysema. [5]



Orbital emphysema can cause ischaemic optic neuritis and central retinal artery occlusion and may lead to visual loss according to the severity of the condition.[7] When orbital emphysema shows signs of pressure effect like restricted ocular motility, sluggish pupillary reaction, disc oedema or decreased visual acuity, air drainage and/or direct decompression should be considered. [8] It can be done effectively by a simple underwater drainage of air by using a 24-gauge needle or lateral canthotomy and cantholysis. [5] No invasive air drainage and/or the direct decompression technique were performed in our patient.

Summary

Although orbital emphysema is usually self-limited and resolves spontaneously, it assumes greater importance because of the possibility of visual complications due to the compartment syndrome and related orbital infection. If orbital emphysema is noted, the patient should be told to avoid blowing, sneezing, coughing or any valsalva maneouver. Prophylactic antibiotics should be used to prevent infection. The clinical signs of orbital emphysema, accompanied by vision impairment require emergency CT scan to determine the cause and to assess the extent of the intraorbital air. If visual dysfunction develops, lateral canthotomy and cantholysis are the choices for decompression therapy. These methods can be performed under local anaesthesia, and they carry minimal risk and complication for the patient.

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