Case report

“Don’t blow your nose” - the potentially disastrous effects of non compliance / not giving this simple advice

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Case History

A medically fit farmer in his mid-fifties was referred from the accident and emergency department following a blow to the left side of his face, having been kicked by a cow. The impact had been thought to be relatively minor. as clinically and radiographically he had sustained a minimally displaced fracture to the left zygomatocomaxillary (ZMC) complex and nose. The patient was referred to the on call maxillofacial team and a follow up appointment in the maxillofacial outpatients department arranged for the following week.

On arrival at the outpatients department, it was evident that the patient had developed considerable swelling around most of his face. More worrying, the swelling seemed to extend into the neck and into the anterior chest wall. Examination of the swelling demonstrated soft tissue crepitus - the typical features of surgical emphysema. On further questioning the patient explained that over the last few days he had been experiencing a blocked nose and had repeatedly tried to clear it by forcefully blowing. This had resulted in the progressive swelling. When asked, it became apparent he had not been informed to refrain from nose blowing (or he could not remember).
An Orthopantomogram and Facial Bone views were requested. These confirmed the clinical diagnosis of surgical emphysema (Fig 1). In view of the apparent chest involvement, a Chest X-Ray was taken, followed (based on the suspicion of intrathoracic emphysema) by an urgent CT chest. This confirmed that the emphysema had extended through the neck and into the mediastinum (Fig 2). The patient was therefore commenced on high dose Augmentin and advised to rest at home and not to blow his nose anymore. Decongestants and saline douches were also prescribed to help clear his nasal airway. The fracture of the zygoma and adjacent nasomaxillary fracture were minimally displaced. The patient declined repair as he was not concerned about the appearance.

A review appointment was made for the following week, by which time the swelling had reduced considerably. It took approximately two weeks to fully resolve clinically. The patient went on to make a good recovery, with no further concerns or complications reported at his final review three months later.

Discussion

The term surgical emphysema was first described by Turnbull in the early 1900s after a complication which arose from the extraction of an upper tooth. It is an acquired pathology as a result of air being forced into and then entrapped within the soft tissues. The typical features on presentation include sudden or progressive swelling and crepitus on palpation. Diagnosis of its presence is usually straightforward. Whilst most cases resolve over time, continued spread along facial planes can result in serious complications, notably infection from the accompanying nasal commensals. Mediastinitis is known to have a high mortality (1).

This case highlights the severity of which surgical emphysema can reach, even with seemingly minor injuries. Fortunately, in this case the air resorbed without any further complications. However it is widely recognised that subcutaneous air can become infected, even though it appears to be rarely reported (2). Whilst in this case the air appeared to track predominantly downwards into the neck and mediastinum, with fractures of the zygoma it is more common for the air to leak onto the cheek or behind the eye. The latter predisposes to orbital cellulitis- both a potential sight and life threatening condition. Blindness in the left eye as a result of surgical emphysema has been reported (3). Other complications although rare, include ventricular and respiratory failure, airway obstruction and even mortality (4). Mediastinal emphysema has also been reported following septoplasty (5).
Patients are usually advised not to blow their noses after mid face trauma. However, there appears to be no clear evidence base as to how long patients should refrain for. Three weeks appears to be an approximate time frame used in many units. On the basis of pressure differential being the cause of emphysema, these considerations also need to be applied to patients wanting to dive and fly, but again the evidence base is not strong.

Figures
Fig 1. Extensive surgical emphysema is seen on both the OM and OPG.
Fig 2. Sequential slices from CT show the full extent of the emphysema, which has tracked into the mediastinum

References


2 Demas N Peter, Braun W Thomas, Infection associated with orbital subcutaneous emphysema. Journal Oral and Maxillofacial Surgery 1991;49 (11), 1239-1242


6 AO Foundation (2003); Mid-Face Orbital Floor Fracture (Online) Available at www2.aofoundation.org/wps/portal, [Accessed on 28th March 2015]

Learning points

1 This case illustrates the importance of advising all patients with injuries to the mid face or forehead (ie. with potential or actual fractures passing through a sinus) not to blow their nose.

2 There does not appear to be any correlation between severity of fracture and the likelihood of developing surgical emphysema.

3 The best policy is therefore to simply advise all patients to refrain from blowing their nose, even if fractures are only suspected. The consequences of surgical emphysema are potentially very serious.

4 Failure to offer this advice may have medicolegal implications.

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