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Facial, Cervical, and Mediastinal Emphysema of the Clarinet Player: Case Report

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Background: Cervicofacial emphysema may arise due to the leakage of air from a defect in the aerodigestive tract to the fascial layers of neck and face. Rarely, it may be caused by insufflation of air through the Stensen's duct.

Case Report: We present a case with diffuse facial, cervical and mediastinal emphysema due to playing a wind instrument immediately after a facial trauma. There was no mucosal defect or laceration noticed by examination which could explain the origin of the emphysema. Despite the widespread cervicofacial emphysema with mediastinal involvement, the patient significantly improved within 48 hours without any intervention.

Conclusion: Even though cervicofacial emphysema ameliorates spontaneously, increased care must be taken, especially when there is pneumomediastinum and/or pneumothorax.

Key Words: Cervicofacial, emphysema, mediastinal, Stensen's duct, wind instrument

Cervicofacial emphysema may be encountered in clinical practice after dental procedures, maxillofacial trauma, endotracheal intubation or tonsillectomy (1-4). Usually, there is a defect or laceration identified in the mucosa where the air leaks into potential spaces between the fascial layers.

Cervicofacial emphysema does not usually cause life-threatening conditions. However, it may occasionally result in mediastinal emphysema; thereafter, pneumothorax or pericardial emphysema may even be encountered (5, 6).

Here, we present a patient who had cervicofacial and mediastinal emphysema after overlapping events: trauma and playing a wind instrument, the clarinet.

CASE PRESENTATION

A thirty four year-old man was admitted to our department with the complaint of facial and cervical swelling; he was pounding on the left side of his face and had pain and mild oedema on that side. Neglecting his pain, he had begun to play the clarinet just two hours after the trauma and felt incremental swelling on his face and neck within a few minutes of playing the instrument. He did not experience dyspnoea. On physical examination, there was subcutaneous emphysema noticed by palpation as crepitation all over the face, neck, and presternal region; however, it was more intense on the left side. Movements of eyes and visual acuity were normal. We particularly examined all mucosal surfaces of the nose, oral cavity, pharynx, and larynx, but we did not observe any mucosal defect or laceration. Computed tomography revealed emphysema from the temporal region to the neck and presternal region. There was air in the parapharyngeal, masseter, submandibular, retropharyngeal spaces (Figure 1) and mediastinum (Figure 2). The air within the left masseter muscle was remarkable on computed tomography (Figure 1b). There was no sign of fracture on computed tomography. We hospitalised the patient and observed them following treatment with oral antibiotics for 48 hours. Cervicofacial emphysema and pneumomediastinum decreased significantly after two days. Written informed consent of the participant patient was obtained for the publication of this case report and any accompanying images.

This case was presented at the 35th Turkish National Congress of Otolaryngology and Head & Neck Surgery, 2-6 November 2013, Antalya, Turkey.

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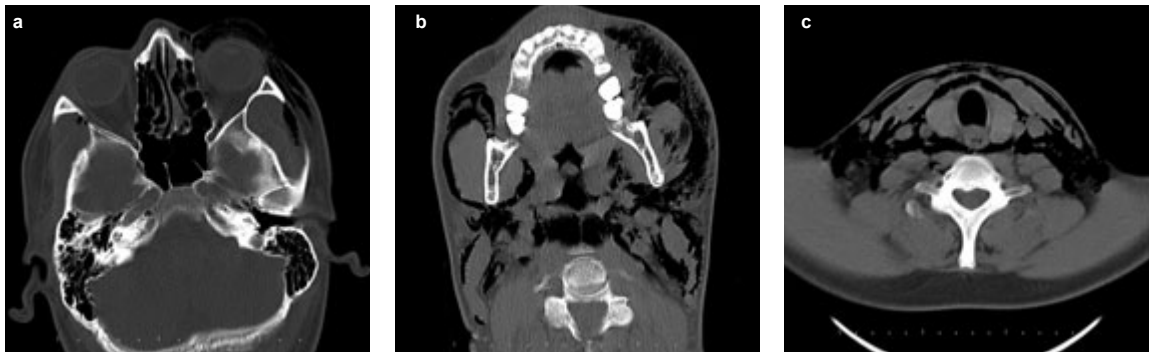

FIG. 1. a-c. Computed tomography revealed diffuse cervicofacial emphysema. There are air bubbles in the left orbital cavity (a). The presence of air density in the left masseter muscle (b); Emphysema within the fascial layers of the neck (c)

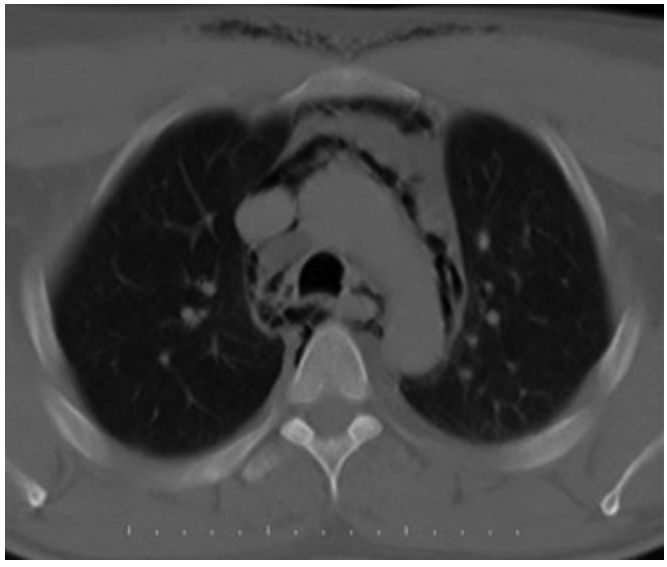

FIG. 2. Mediastinal emphysema is shown in computed tomography. Presternal subcutaneous emphysema may also be seen

DISCUSSION

Cervicofacial subcutaneous emphysema and mediastinal emphysema have been reported in the literature after dental procedures, head and neck surgery or maxillofacial trauma (1-3, 5, 6). There must be pressure forcing air to flow from a defect into the fascial potential spaces. This may be a high-speed air-turbine dental drill, mask ventilation during anaesthesia, or nose blowing. In some rare cases, the source of air pressure may be a musical instrument, as in this case (7).

It would certainly be considered that the point of entrance for air was the lamina papricea or another small fracture that could not be noticed on computed tomography. However, the nasal pressure would not be increased by blowing an instrument in the mouth. Nostrils must be occluded in order to increase intranasal pressure. The patient confidently insisted on declaring that he did not experience nose blowing and that the swelling came upon playing the instrument. Also, we learnt that clarinet players do not perform deep inspiration through their nose; instead, they use their mouth when collecting air in their lungs. Therefore, we do not consider lamina papricea or any other paranasal mucosa to be the entrance for emphysema. In contrast to this, we observed air in the orbital cavity (Figure 1a); however, it was so scant that it could not have come through the lamina papricea considering the relatively huge amount of air found in the face, neck, and mediastinum. We thought that these few air bubbles in the orbital cavity seen on computed tomography might have come from the inferior orbital fissure.

The point that air passed through would be in the oral cavity, oropharynx, hypopharynx or larynx. However, we could not address any point of air entrance in any of these regions. Pneumoparotitis, the presence of air in the parotid gland, may be seen in cases of increased intraoral pressure (8). However, we do not always encounter pneumoparotitis in wind instrument players or glass blowers who frequently experience increased intraoral pressure. When there are abnormalities that affect Stensen's duct, such as inflammation, hypotonia or insufficiency of the buccinator muscle, hypertrophy of the masseter muscle or abnormal dilatation of the duct orifice, the reflux preventing mechanism may be disturbed (9). Air may inflate the parotid gland through the Stensen's duct, and the rupture of the aciner epithelium may cause air to leak into neighbouring potential spaces, leading to facial, cervical, or mediastinal emphysema (10). The integrity of the left masseter muscle was damaged, which may indicate probable damage or trauma to the Stensen's duct as well (Figure 1b). We suggest that the traumatised Stensen's duct became deficient for reflux prevention. Thereafter, the increased intraoral pressure due to playing wind instruments may cause air to leak through a damaged Stensen's duct to potential spaces of the neck and to the mediastinum.

To the best of our knowledge, there are no fatal cases presented due to cervicofacial emphysema itself; on the other hand, emphysema could proceed to the mediastinum and may cause pneumothorax (5). Therefore, it is important to investigate pneumomediastinum and pneumothorax in patients with cervical emphysema.

Cervicofacial emphysema is a benign condition. However, it may transform into a serious clinical situation extending to the mediastinum, causing the problem of pneumothorax. Otolaryngologists are responsible for warning patients who have had surgery of the airway mucosa or suffered trauma, especially if they are wind instrument players.

Ethics Committee Approval: N/A.

Informed Consent: Written informed consent was obtained from the patients for the publication of this case report and any accompanying images.

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