Pneumomediastinum and Subcutaneous Emphysema Unusual Complications of Blunt Facial Trauma

Giuseppe De Luca · Francesco Petteruti ·
Michela Tanga · Antonella Luciano · Anna Lerro

Received: 25 April 2009 / Accepted: 20 February 2011 / Published online: 21 May 2011
© Association of Surgeons of India 2011

Abstract We described a rare case of pneumomediastinum following an isolated facial trauma. Traumatic pneumomediastinum is usually secondary to a blunt or penetrating neck, chest or abdominal trauma.

Keywords Pneumomediastinum · Facial trauma · Trauma · Subcutaneous emphysema

Case Report

A 82 year old female was admitted after an accidental blunt facial trauma. The patient complained of left facial pain, swelling and rhinolalia. She was hemodynamically stable, alert and fully oriented, denied any loss of consciousness, visual disturbances, chest pain or shortness of breath.

Physical examination revealed an extensive swelling with a palpable tactile crepitus extending to the left angle of the mandible, zygoma, around the left eye, preauricular

regions and down to both sides of the neck and chest, predominantly on the left hemithorax. Breath sounds were normal bilaterally. There was no evidence of thoracic or abdominal injury. Facial CT scan showed evidence of trauma to the sinus region, with depressed fracture of the anterior wall of the left maxillary sinus (Fig. 1a). It also showed a large subcutaneous emphysema of the left face (Fig. 1b) and neck with extension of air into the parapharyngeal, retropharyngeal (Fig. 1c) and pterygomandibular spaces. Chest and neck CT scan confirmed the presence of a cervical (Fig. 2a) and thoracic subcutaneous emphysema and evidenced an extensive pneumomediastinum, but there was no evidence of pneumothorax or fractured ribs or pneumopericardium (Fig. 2b).

Fiberoptic bronchoscopy and oesophagoscopy did not reveal any abnormalities. The facial fracture did not need surgical treatment. The patient was only treated with prophylactic antibiotics (ceftriaxone 1 g administered intravenously every 12 h). A chest CT scan performed 3 days later evidenced a quick improvement of the radiological pictures (Fig. 2c) and the patient was discharged. Pneumomediastinum usually is secondary to chest or abdominal trauma and consists of the presence of free air within the facial planes of the mediastinum. It may then ascend to produce cervical and facial emphysema. The reverse is very rare (only twenty one cases have been identified since 1990) and a high index of suspicion is necessary to diagnose the condition [1]. Management involves exclusion of the other injuries, clinical and radiological observation, fracture reduction, if necessary, and prophylactic therapy. In most cases the pneumomediastinum is self limiting and subsides with conservative treatment [2].

G. De Luca · F. Petteruti · A. Luciano · A. Lerro
Department ("Heart") of Cardiology and Cardiothoracic Surgery,
Presidio Ospedaliero "Pineta Grande",
Castel Volturno,
Caserta, Italy

M. Tanga
Department of Radiology, Presidio Ospedaliero "Pineta Grande",
Castel Volturno,
Caserta, Italy

G. De Luca (✉)
C/So Secondigliano 519,
80144 Naples, Italy
e-mail: giu.deluc@libero.it

Fig. 1 **a** Facial CT (volume rendering reconstruction) scan showing depressed fracture of the anterior wall of the left maxillary sinus (black arrow). **b** Axial facial CT scan showing a large subcutaneous emphysema of the left face (white arrow). **c** Facial CT scan (axial

view) revealing a large emphysema with extension of air into the parapharyngeal (white arrows) and retropharyngeal (black arrow) spaces

Fig. 2 **a** Neck CT scan showing the presence of a cervical subcutaneous emphysema (white arrow). **b** Chest CT scan evidencing subcutaneous emphysema (white arrow) and an extensive pneumomediastinum. **c** Chest CT scan showing the resolution of the pneumomediastinum

References

1. Deners G, Camp JL, Bennett D (2010) Pneumomediastinum caused by isolated oral-facial trauma. *Am J Emerg Med* 12: (in press)
2. Raoul G, Vanlergerghe B, Ferri (2010) Massive pneumomediastinum and subcutaneous emphysema secondary to isolated zygomaticomaxillary complex fracture. *J Craniofac Surg* 21 (1):266–268