Facial Trauma with Pneumomediastinum: A Case Report

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Abstract

Introduction: Pneumomediastinum with facial trauma is rare and only intermittently described through case reports. Usually it is a complication related to thoracoabdominal trauma as air travels upwards within the fascial planes – see Figure 1 [1,2,3]. When this occurs in the reverse direction, it is often in patients with facial subcutaneous oedema blowing their nose or having pressure ventilation, as this dissects the fascial plane downwards [4]. Most are self-limiting [5].

Case: A 53 year-old man presented with facial trauma of a large open fracture to the right mandible (Figure 2). Routine trauma CXR found pneumomediastinum (Figure 3). The patient was promptly transferred to a tertiary centre. He was monitored in ICU and after cardiothoracic consultation, treated with intravenous antibiotics for potential mediastinitis (cephazolin/metronidazole). The following day he underwent surgical repair of his facial injuries. Due to contraindication of bag-mask ventilation in pneumomediastinum, it was decided awake fibreoptic intubation would be utilized. Intra-operatively he was found to have full thickness soft palate laceration, tongue laceration, and a deep injury to the posterior pharyngeal wall to pre-vertebral fascia. Simple closure was performed. This deep wound is the most likely source of pneumomediastinum. Non-viable bone and tissue was debrided from the jaw and reconstructed with plates and screws (Figure 4). The patient was monitored in ICU a further 24 hours. CXR on Day 4 showed resolution of pneumomediastinum (Figure 5) and the patient was discharged. He was followed up with Maxillofacial Surgery however has not required further Cardiothoracic input.

Conclusion: This case highlights the importance of assessing thoracic injuy in patients with significant orofacial trauma. While reverse pneumomediastinum aetiology is occasionally related to trauma patients blowing their nose, there is also the consideration of direct trauma at a higher level to be considered. All aetiologies must therefore be explored.

Images

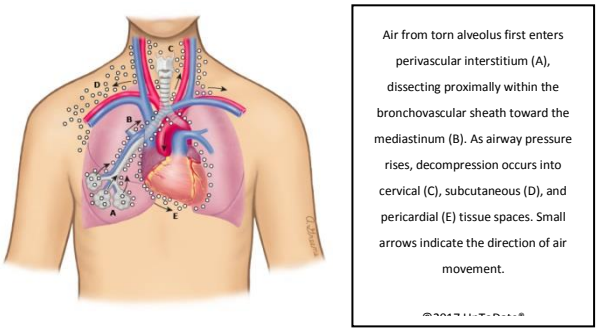


Figure 1. Air tracking patterns in pneumomediastinum

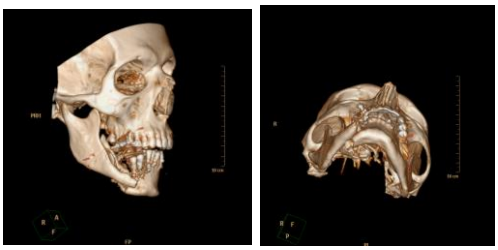


Figure 2. CT facial bones 3D reconstruction

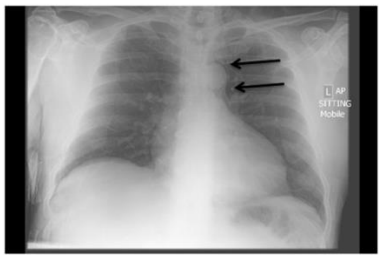


Figure 3. Initial CXR showing pneumomediastinum



Figure 4. Post-operative OPG



Figure 5. Serial CXR showing resolution of pneumomediastinum

Recent Publications (minimum 5)

1. Zylak, CM, Standen, JR, Barnes, GR, Zylac, CJ. (2000). Pneumomediastinum revisited. *Radiographics*, 20, 1043-1057
2. De Luca, G, Petteruti, F, Tanga, M, Luciano, A, Lerro, A. (2011). Pneumomediastinum and subcutaneous emphysema: unusual complications of blunt facial trauma. *Indian Journal of Surgery*, 73 [5], 380-381
3. Uptodate. Air tracking in pneumomediastinum. https://www-uptodate-com.smhslibresources.health.wa.gov.au/contents/image?imageKey=PEDS%2F111129&topicKey=PEDS%2F6352&source=outline_link&search=pneumomediastinum%20picture&selectedTitle=1~150; Graphic 111129 Version 1.0.
4. Hong, B, Hunt, P. (2017). Pneumomediastinum secondary to facial trauma. *American Journal of Emergency Medicine*, 35, 192.e3-192.e5
5. Raoul, G, Vanlergerghe, BF. (2010). Massive pneumomediastinum and subcutaneous emphysema secondary to isolated zygomaticomaxillary complex fracture. Journal of Craniofacial Surgery, 21 [1], 266-268

Biography (72 words)

Dr Theadora Forster-Anderson is a surgical registrar practicing in a service role at Fiona Stanley Hospital in Perth, WA. She is interested in the field of general surgery including the evaluation and management of trauma cases. With a background of unaccredited time spent in otolaryngology she has a particular familiarity with facial trauma. Dr Tamalee Henson is a junior medical officer practicing at the same hospital with an interest in orthopaedic surgery.

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