CASE REPORT

Pneumomediastinum: A rare presentation in Emergency Department following blunt trauma to neck during a football match

Dhananjay Kumar a,*, B.J. Finlayson b

a A&E, Norfolk & Norwich University Hospital, Norwich, UK
b A&E, Norfolk & Norwich University Hospital, Norwich, UK

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Introduction

Pneumomediastinum following blunt trauma to the neck during sporting activities is uncommon. Patients presenting to A&E with discomfort in neck after such injuries are usually considered as soft tissue contusion. At early stage patient may have minimal symptoms suggesting of pneumomediastinum. High index of suspicion and awareness of the possibility of pneumomediastinum is essential to avoid discharging such patients with possible serious consequences.

Patient

A 19-year-old football player was accidentally elbowed over front of his neck by one of the fellow players during a match. He did not take much notice of it, and he continued playing after the injury. He remained asymptomatic before he went to bed. During the night he started feeling swelling in the neck, and noticed pain on speaking and swallowing. He was able to eat and drink. Later, he developed chest pain that became progressively worse.

On examination, he was breathing comfortably, and had clear speech. Apart from tenderness over the sternomastoid muscles bilaterally, and over the tracheal rings, all other examinations were unremarkable. During palpation of left supraclavicular fossa, crepitus was noted only once, which could not be reproduced by repeated examinations.

Chest X-ray on the patient revealed a thin radiolucency outlining the heart border and upper mediastinal structures consistent with pneumomediastinum. Later, soft tissue lateral view X-ray of neck showed subcutaneous emphysema. ECG was normal (Figs. 1 and 2).

The patient was admitted for analgesia, observation and further management. Next day he had naso-endoscopy that showed a normal larynx. No haematoma was noted. Barium swallow studies did not reveal any evidence of oesophageal perforation. His symptoms started improving on the second day, so CT scan was cancelled. The patient was discharged home on third day with advice to consult General Practitioner for follow up. By telephonic follow up, the patient informed that he resumed his normal activities by the end of second week.
Discussion

An extensive literature search in Medline (1951-to-date) and Pubmed showed that pneumomediastinum is a rare complication following athletic injuries, and it usually develops spontaneously without any history of trauma.\textsuperscript{4,8} Trauma is a rare cause of sports related pneumomediastinum, where blunt chest trauma is the commonest precipitating injury.\textsuperscript{6} Pneumomediastinum is very rare following blunt injury to the neck. Search revealed only five cases of pneumomediastinum following blunt trauma to the neck in a sports setting. Four of them were children, and one was a young adult, who became symptomatic within 10 min after the injury.\textsuperscript{5,9}

In pneumomediastinum air can come from alveolar, bronchial or oesophageal rupture. This leakage can occur spontaneously without any history of obvious trauma or positive pressure ventilation.\textsuperscript{7}

Spontaneous pneumomediastinum may occur when there is a rise in intra-thoracic and intra-alveolar pressure, as during any form of exercise in which the valsalva manoeuvre is performed.\textsuperscript{6} This results in rupture of alveoli, or a pleural bleb, leading to an air leak in pulmonary interstitium, that passes to the mediastinum, and soft tissues of neck.

Traumatic pneumomediastinum during athletic activities has been reported usually after chest injury. A blow or fall against the neck or upper chest may cause direct injury to upper airway or oesophagus, or it may seal off the upper airway. With sudden expiratory effort, the pressure inside the airway may exceed the bursting pressure of the pharyngoesophageal junction, an anatomically weak area, resulting in perforation in pharynx forcing the air through it into the facial planes of the neck.\textsuperscript{3}

Patients may present with minimal signs and symptoms, with a potential for rapid deterioration.\textsuperscript{7} Common presentations are pericarditis type chest pain, dyspnoea, throat discomfort, subcutaneous emphysema and Hamman’s crunch, a crunching sound heard over the precordium that is synchronous with the heart beat.\textsuperscript{1,2} Chest X-ray AP and lateral views are essential for diagnosis.\textsuperscript{1,2} To define the cause and extent of the injury, CT scan of chest and neck, contrast swallow, direct laryngoscopy and bronchoscopy should be considered.\textsuperscript{7}

Pneumomediastinum usually has a self-limiting course.\textsuperscript{1} Other diagnoses such as pneumothorax, tracheo-bronchial tree disruption, oesophageal rupture, or intestinal rupture should be considered if the patient is compromised initially, or deteriorates further. Pneumomediastinum can be managed with rest, analgesia and observation.\textsuperscript{1,2} Surgical intervention and catheter drainage is indicated only when the patient is haemodynamically compromised.\textsuperscript{2} Recurrence is very rare.\textsuperscript{2,8} Most literatures describe resolution of pneumomediastinum in 4—10 days. Asymptomatic athletes can resume full activity in 7—10 days,\textsuperscript{2} but no evidence-based guideline was found.

Conclusion

Pneumomediastinum is an uncommon presentation following blunt trauma to neck during sporting...
activities. Patient may be asymptomatic initially and present late, or patient may present with minimal sign and symptom. A high index of suspicion is necessary to diagnose the condition.

References