

Spontaneous pneumomediastinum

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INTRODUCTION

Spontaneous pneumomediastinum is a rare occurrence commonly associated with inhalational drug abuse. It is likely to be seen with increasing frequency, and elevated awareness in the accident and emergency (A&E) department is recommended. The following case report illustrates the classical presentation of this self limiting condition.

Key words: inhalational drug abuse, spontaneous pneumomediastinum

CASE REPORT

A 25-year-old man was admitted from the A&E unit with an 8-h history of gradual onset of epigastric discomfort associated with mild shortness of breath. He did not describe a cough, haemoptysis or vomiting. His pain was initially centred on the lower sternum, with radiation to the back, and later it spread to the neck and was unrelieved by antacids. He denied inhalation and ingestion of foreign bodies or any neck or chest trauma. There was no previous

history of indigestion or respiratory disease and he was otherwise fit and well. He did admit to smoking marijuana and cigarettes.

On examination, he was in pain, with mild dyspnoea, but was cardiovascularly stable. The venous pressure was normal, and auscultation of the heart and chest was unremarkable. Palpation of the neck revealed surgical emphysema. He had mild epigastric tenderness on examination of the abdomen which was soft with active bowel sounds. Routine haematological and biochemical tests, including amylase levels, were within the normal range. Chest radiography (Fig. 1) demonstrated a pneumomediastinum and confirmed the presence of surgical emphysema in the neck. No pneumothorax was present and no free intra-abdominal gas was seen. Barium swallow was performed which proved to be normal and excluded gastrointestinal tract perforation.

The patient was treated conservatively with nasogastric intubation and intravenous fluids. His pain resolved, as did the surgical emphysema. Serial chest radiography revealed resolving pneumo-

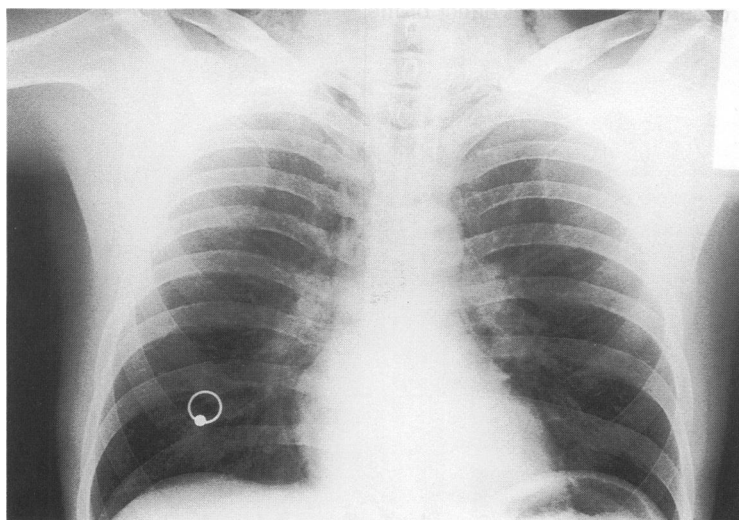


Fig. 1. Admission chest radiograph showing pneumomediastinum and surgical emphysema. The patient has a ring through his right nipple.

mediastinum, and no evidence of a developing pneumothorax. He was discharged 3 days after admission.

DISCUSSION

Pneumomediastinum is an important radiological finding, and is a recognized manifestation of oesophageal or tracheobronchial disruption. Spontaneous pneumomediastinum is rare but is a well-described entity which occurs mainly in the young adult age group. The mean age at presentation in a recently reported series was 25 years.¹ This condition presents most commonly with dyspnoea or retrosternal chest pain, and most (88%) will have subcutaneous emphysema and/or a 'Hamman crunch' on examination. A recent review of 17 cases revealed that a Valsalva type manoeuvre preceded the onset of symptoms in 70% of cases, and 76% were associated with inhalational drug abuse.² No patients developed airway compromise or subsequent pneumothorax, and all resolved with conservative management alone: recurrence is rare.

The cause of pneumomediastinum following inhalational drug abuse is not fully understood but is thought to be secondary to barotrauma as a result of the inhalation technique employed. Deep inspiration may be followed by a Valsalva manoeuvre and often coughing.^{3,4} In 1939 Macklin⁵ described the events that could lead to pneumomediastinum. Pressure differentials between a marginal alveolus and the interstitium lead to rupture of the alveolus. The Valsalva manoeuvre, coughing and positive pressure ventilation all increase intraalveolar pressure and have been associated with pneumomediastinum.^{4,6} Vigorous inhalation lowers interstitial pressure as does vasoconstriction of vessels adjacent to alveoli occurring as a direct effect of the

drug. Toxic effects of inhaled irritants may also contribute to weakening of the alveolar wall.⁴ Following alveolar rupture air can track along perivascular tissue planes to the mediastinum and may rupture through the parietal pleura to create a pneumothorax.^{3,4} Occasionally retroperitoneal tracking may occur.^{4,6}

With the rising incidence of inhalational drug abuse in the young adult age group, spontaneous pneumomediastinum is likely to be seen with increasing frequency in the A&E department. In patients found with radiological evidence of mediastinal gas, a history of inhalational drug abuse should be specifically sought. It is reassuring that this condition will resolve rapidly with only conservative measures, assuming serious underlying pathology has been excluded.

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