Background

Beatboxing is a complex form of vocal percussion in which performers imitate drum sounds using their entire vocal tracts. We report the first known case of spontaneous pneumomediastinum and subcutaneous emphysema occurring as a complication of beatboxing.

Case

A 20-year-old male presented with sudden onset of low grade fever, neck tightness, sore throat and mild hoarseness of voice after beatboxing. He did not complain of chest pain or dyspnea. He denied vomiting, trauma, foreign body ingestion or instrumentation to his upper aerodigestive tract. He was a non-smoker and denied illicit drug use.

Examination

There was extensive subcutaneous emphysema over both sides of the neck extending to his chest. The oral cavity and nasoendoscopy was normal. On chest auscultation, breath sounds were equal bilaterally with no crepitus, wheeze or mediastinal crunch.

Discussion

• Spontaneous or atraumatic pneumomediastinum is a rare condition defined as free air around mediastinal structures.

• They usually occur in young males who present with chest pain and dyspnea.1,4 The inciting triggers are often associated with an increase in the intra-thoracic and intra-alveolar pressure causing alveolar rupture.

• Beatboxing uses the entire vocal tract, including the pharyngeal constrictors, to "unload the larynx", increase subglottic pressure and protect against glottic injury.1 However, this increases intra-alveolar pressure and eventually leads to alveolar rupture. Free air escapes intrapulmonary vascular sheaths causing pneumomediastinum, before tracking towards the skull base and dissecting along fascial planes into the subcutaneous tissue, causing subcutaneous emphysema.5

• We recommend a CT thorax with oral and intravenous contrast to confirm the diagnosis, delineate the extent and rule out other life threatening diagnoses, such as pulmonary embolism, aortic dissection, cardiac tamponade, pneumothorax and oesophageal rupture4,6.8 Oral contrast is important to diagnose early oesophageal perforations8.

Investigations

Plain radiographs of the chest and lateral neck demonstrated gas dissecting from the prevertebral soft tissue at the skull base, through the soft tissue of the neck bilaterally, extending into the right axilla and superior mediastinum caudally. There was no discernible pneumothorax.

CT neck and mediastinum confirmed pneumomediastinum and soft tissue emphysema extending from the skull base to the diaphragm, laterally into bilateral supraclavicular regions and the right axilla. There was no foreign body.

There was leucocytosis of 14.24 x10⁹/L with neutrophilia at 11.48 x10⁹/L. Blood cultures turned out negative.

Progress

He was kept nil per os and given intravenous fluids and antibiotics for empirical treatment of possible necrotising fasciitis.

Contrast swallow demonstrated smooth flow of contrast to the stomach without extra-luminal contrast leak. Upper gastrointestinal endoscopy was normal.

He was started on oral feeds and discharged on Day 3 of admission, in view of resolution of his symptoms and improving subcutaneous emphysema.

He was subsequently reviewed in outpatient clinic after a month. The subcutaneous emphysema had resolved and a repeat chest radiograph was normal.

The patient was advised against beatboxing or other activities which may generate high intra-thoracic pressures.

• We suggest inpatient management. Further research is necessary to validate criteria4-10 for risk stratification to determine the safety of outpatient treatment.

• Treatment is supportive and consists of bed rest and analgesia1,4,7,10. The use of supplemental oxygen6,7,10 and prophylactic antibiotics4,6,7,10 are controversial. We recommend "nil per os" until an oesophageal perforation has been definitively excluded.

• Patients can be safely discharged upon symptom resolution10 without follow up as recurrence is rare4,5,10.

References