

# Sore throat after dumbbell exercises

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## CASE REPORT

A 26-year-old man presented to our emergency department (ED) with a progressively sore throat and dysphagia. At bedtime the day before arrival to the ED, he had performed dumbbell exercises. He did not experience abdominal pain, nausea, or vomiting. In addition, the patient denied a history of trauma or systemic disease, nor did he have a habit of smoking. The vital signs revealed a body temperature of 36.7 °C, blood pressure of 137/72 mm/Hg, heart rate of 64 beats/min and a respiratory rate 18 breaths/

min. On physical examination, the neck showed swelling and crepitus on palpitation. Chest examination revealed clear and symmetrical breathing sounds. Laboratory examination was within normal limits.

## WHAT IS YOUR DIAGNOSIS?

See page 131 for the answer to this photo quiz.

ANSWER TO PHOTO QUIZ (PAGE 128)  
SORE THROAT AFTER DUMBBELL EXERCISES

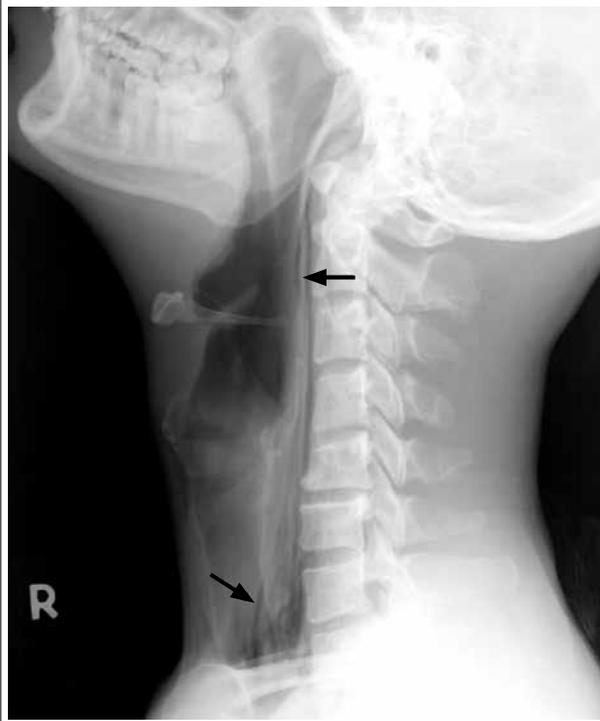
DIAGNOSIS

Conventional radiological imaging revealed retropharyngeal free air (*figure 1*). Coronal computerised tomography (CT) of the chest illustrated subcutaneous emphysema of the neck and pneumomediastinum. Axial CT of the chest illustrated free air acuminated along with the vessel of bronchioles (*figure 2*). He was treated with oxygen via nasal cannula with rate 3 l/min and analgesics. After treatment for two days, his symptoms improved and after one week the subcutaneous emphysema had disappeared on plain radiograph and the patient had made an uneventful recovery.

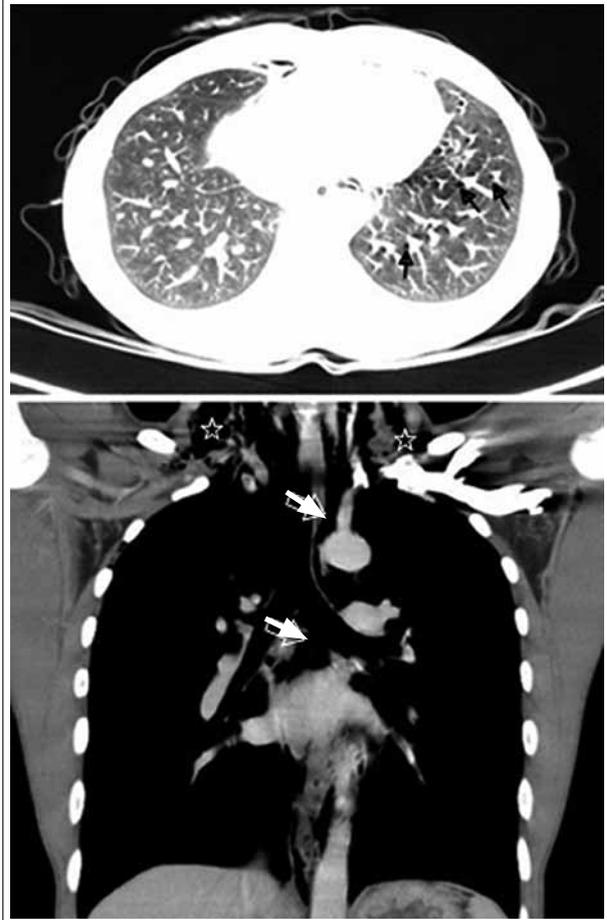
Spontaneous pneumomediastinum (SPM) is an uncommon entity, characterised by the presence of free air in the mediastinum, developing in the absence of traumatic or iatrogenic causes or preceding pulmonary pathology such as emphysema, chronic bronchitis or lung cancer.<sup>1</sup> It generally affects young adults, especially tall thin males. Young patients with SPM typically present with a history of asthma or recent inhalation of cocaine,

methamphetamine, ecstasy, marijuana or hydrocarbons.<sup>2</sup> Other causes include rapid ascent in scuba divers, Valsalva manoeuvres, vomiting, infections, and extreme effort when the glottis is kept closed. The rise in pressure inside distal alveoli, usually up to values greater than 40 mmHg, produces a pressure gradient between them and the adjacent vessels; this results in alveoli rupture.<sup>3</sup> In our case, the patient held his breath inappropriately during dumbbell exercises resulting in elevated pressure inside distal alveoli causing their rupture. The most common presentation of SPM is nonspecific pleuritic chest pain with dyspnoea. Potential life-threatening consequences

**Figure 1.** Conventional radiological imaging shows retropharyngeal free air (horizontal arrow) and subcutaneous emphysema (oblique arrow)



**Figure 2.** Axial CT of the chest illustrates free air acuminated along with the vessel of bronchioles (black arrows). Coronal CT of the chest illustrates subcutaneous emphysema (asterisks) of the neck and pneumomediastinum (white arrows)



include oesophageal rupture and tension pneumothorax, mediastinitis, deep neck infection and pneumothorax, which may require urgent treatment. Neck or chest radiology and CT are the basic diagnostic tools for the diagnosis of SPM. However, an extensive workup might be necessary in potentially life-threatening conditions. Treatment is generally limited to observation with the air typically reabsorbing over a period of one to two weeks without intervention and only rare recurrence.<sup>4</sup>

## REFERENCES

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4. Lee CC, Chen TJ, Wu YH, Tsai KC, Yuan A. Spontaneous retropharyngeal emphysema and pneumomediastinum presented with signs of acute upper airway obstruction. *Am J Emerg Med.* 2005;23:402-4.