Adenocarcinoma of the lung presenting with massive subcutaneous emphysema

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DESCRIPTION

A 47-year-old woman presented to the emergency department (ED) with severe shortness of breath with a choking sensation for the past 4 h. In the early morning, she had called her primary care physician with mild shortness of breath and was advised to take an albuterol inhaler for her chronic obstructive pulmonary disease (COPD). Despite following the general practitioner's advice, her condition worsened with development of facial and neck swelling. She did not have any history of bee sting or consumption or contact with any allergic substance. On arrival at the ED, she displayed significant swelling (figure 1A), prompting epinephrine administration for suspected angio-oedema; with no improvement. A careful examination revealed subcutaneous crepitations, reduced breath sound on the right side with hyperresonant percussion note. A CT scan of the head, neck and chest showed right-sided pneumothorax (figure 2, yellow arrow), pneumomediastinum and subcutaneous emphysema (figure 2, green arrow) involving the neck, and the face, up to the eyelids. No mass lesion was seen in the CT scan. Two chest tubes were immediately inserted. However, the right lung remained collapsed for the next 2 days. Bronchoscopy was performed, which showed an endobronchial obstructing mass. Endobronchial ablation of the tumour using a Nd:Yag laser allowed identification of a distal bronchopleural fistula. The fistula was successfully treated by placement of a one-way endobronchial valve. The biopsy obtained during the procedure revealed endobronchial adenocarcinoma. After resolution of the emphysema (figure 1B), the patient was referred to the oncologist for further management.

Spontaneous pneumothorax (SP) can be primary or secondary. The primary type occurs, without any apparent cause, in healthy individuals. The secondary type develops mostly due to malignancy, COPD, cystic fibrosis, pulmonary infection and diffuse lung disease.[1] Only 2% of all SP may be due to malignant lung diseases; either primary or metastatic.[1] The main cause of SP is the rupture of a necrotic tumour nodule or necrosis of subpleural metastases resulting in communication between the bronchus and pleural cavity, producing a bronchopleural fistula that results in pneumothorax.[1] Subcutaneous emphysema associated with secondary SP due to lung cancer is exceedingly rare. A brief review of seven cases was published by Barquero-Romero and Redondo-Moralo.[2] Overall prognosis is poor for this group of patients. Four out of seven patients died within 30 days of presentation.[2]

Figure 1 Subcutaneous emphysema extending up to the eyelids (A, yellow arrow), and resolution of emphysema after chest tube and endobronchial valve placement (B, yellow arrow).

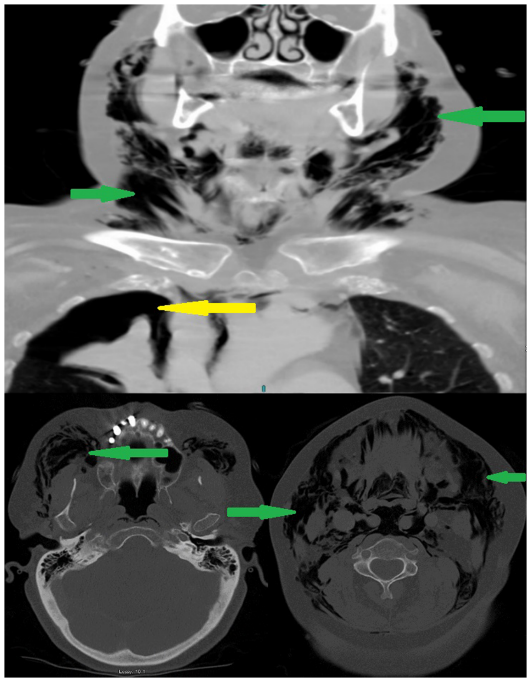

Figure 2 CT scan of the head, neck and chest showing right-sided pneumothorax (yellow arrow) and extensive subcutaneous emphysema (green arrow).

Learning points

- Primary lung cancer may present with spontaneous pneumothorax and subcutaneous emphysema.
- Previous chemotherapy and radiotherapy increase the risk of such presentation.
- Overall prognosis is very poor with more than 50% mortality reported within 30 days.

Competing interests None declared.

Patient consent Obtained.

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