

Short Report

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Pneumomediastinum associated with pneumorrhachis: air in the spinal canal

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Introduction

Pneumorrhachis (PR) is an uncommon phenomenon that is rarely evident on imaging. It is defined as air in the spinal canal and can be iatrogenic via spinal tap and epidural anesthesia, or via traumatic etiologies. We report a rare case of pneumomediastinum associated with PR in a patient with severe emphysema.

Case presentation

A 71-year-old man with past medical history of mycobacterium avium complex, on triple antibiotic therapy, severe emphysema presented with progressive worsening of shortness of breath for 4 days and atypical chest pain. Computed Tomography (CT) of chest showed extensive pneumomediastinum with widespread tracking of emphysema along thoracic fascial planes including bilateral chest wall and cervical subcutaneous tissue, and intraspinal air in the thoracic vertebral column without mass effect (Figure 1A&B and 2A&B). Both pneumomediastinum and PR improved with conservative management including high flow nasal cannula, without the need for endobronchial or neurosurgical intervention.

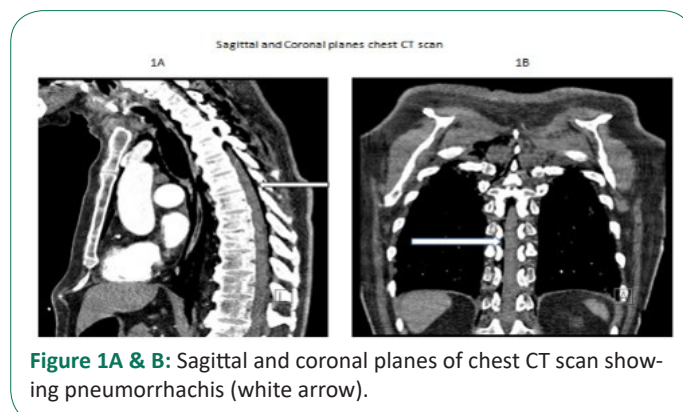


Figure 1A & B: Sagittal and coronal planes of chest CT scan showing pneumorrhachis (white arrow).

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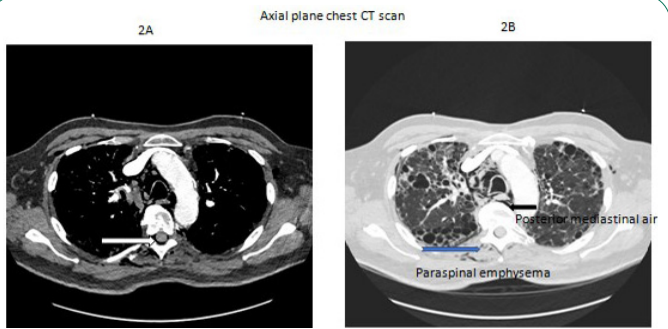


Figure 2A & B: Axial planes of chest CT scan showing posterior pneumomediastinum (black arrow), paraspinal air (blue arrow), and pneumorrhachis (white arrow).

Discussion

Air from the posterior mediastinum and retropharyngeal space can communicate with the epidural space through the neural foramina and along the neurovascular bundle. PR can be classified into two major types: intradural and extradural. While intradural PR is frequently associated with major trauma, extradural PR is usually non-traumatic and asymptomatic. In our patient, we suspect uncontrolled cough induced a spontaneous rupture of a pulmonary bleb, resulting in pneumomediastinum, as well as leakage of air along the broncho-vascular sheath to the cervical soft tissue and paraspinal tissue (Figure 1A, 2A&B). While our patient remained free of concerning neurological signs such as back pain and lower extremity weakness, there are a few case reports in the literature of this rare phenomenon. PR must be differentiated from free intraspinal gas collections; while extradural PR is managed conservatively, intradural PR from traumatic or iatrogenic causes requires a multidisciplinary team of neurosurgery, cardiothoracic surgery and pulmonology and individualized treatment.

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