IMAGE OF THE ISSUE

When the Trachea Hardens: "Rock Garden Trachea"

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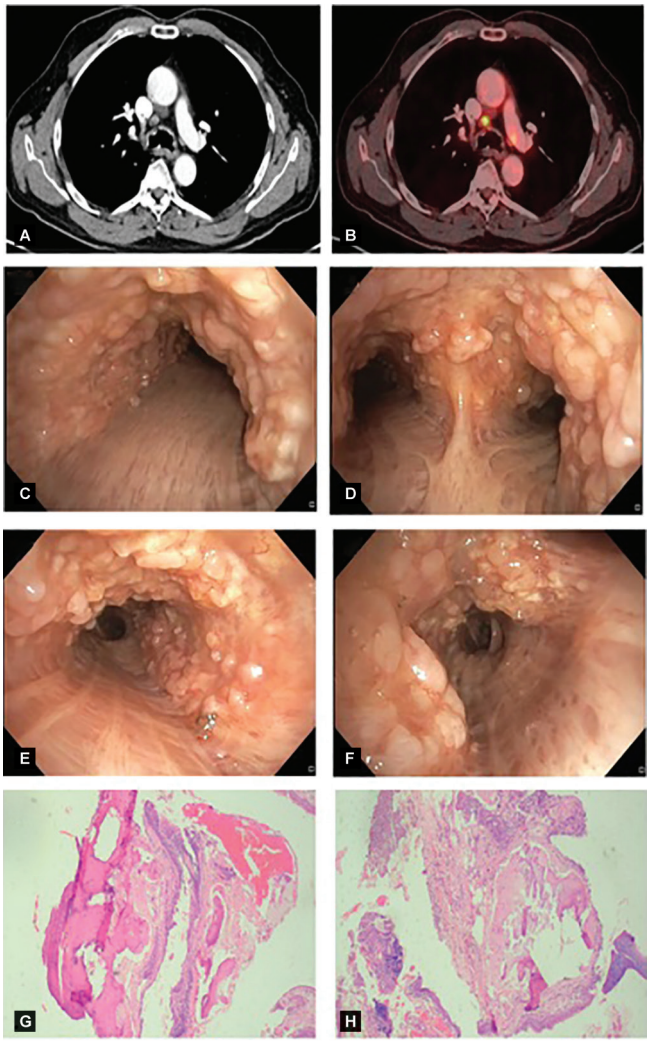

Figs 1A to H: (A and B) Contrast-enhanced computed tomography of chest (CECT chest) and PET-CT images demonstrating mild diffuse nodular thickening with intermittent calcific densities noticed at the level of carina respectively. Lesions show no demonstrable FDG uptake. Bronchoscopic findings; (C to F) Multiple submucosal nodular lesions protruding from anterolateral wall into tracheobronchial lumen at different levels: (C) Subglottic region; (D) Carina; (E) Left main bronchus, (F) Right main bronchus; Histopathological examination from tracheal nodule biopsy shows: (G) Tracheal mucosa with submucosal nodules composed of cartilage and bone; (H) Submucosal cartilage nodule

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Tracheobronchopathia osteochondroplastica (TO) is a rare benign disorder of unknown etiology, characterized by multiple, submucosal osseocartilaginous nodules protruding from the anterolateral wall into the tracheobronchial lumen, sparing the posterior wall.[1] The exact prevalence of TO is underestimated due to subtle or absent symptoms. The clinical manifestations are nonspecific respiratory tract symptoms such as cough, hemoptysis, dyspnea on exertion, and wheezing.[2] The disease generally has an indolent course, but in rare cases, it may progress rapidly, resulting in clinically significant airway stenosis or life-threatening airway obstruction.[3] Histopathological examination remains the gold standard for establishing the diagnosis. Management is predominantly conservative, with bronchoscopic intervention reserved for symptomatic or progressive disease.[3,4]

We present a case of a male patient in his early seventies with no known comorbidities or addictions. He presented to us with a 4-week history of cough associated with scanty expectoration and fever. He received treatment at multiple healthcare facilities, with antibiotics and bronchodilators; despite this, his symptoms persisted. He was referred to our institution for further management. At presentation to our center, his vitals were stable, but he reported multiple episodes of hemoptysis (approximately 20 mL) over the last 5 days. Laboratory investigations, including complete blood count, inflammatory markers, renal and liver function tests, and coagulation parameters, were within normal limits. Respiratory examination revealed bilaterally diminished breath sounds on auscultation.

Contrast-enhanced computed tomography (CT) and positron emission tomography (PET)-CT demonstrated diffuse nodular thickening of the tracheal wall with scattered calcifications, without significant fluorodeoxyglucose (FDG) uptake. Additionally, imaging revealed a hypermetabolic cavitary lesion in the left lower lobe measuring 43 × 35 × 27 mm (SUV max 8.8), a subsolid lesion in

the right upper lobe with surrounding ground-glass opacities measuring 32 × 21 × 17 mm (SUV max 4.9), and FDG-avid right paratracheal and subcarinal mediastinal lymphadenopathy.

Flexible bronchoscopy was performed, which showed numerous hard, whitish nodules projecting from the anterolateral walls of the trachea and bilateral main bronchi, imparting a characteristic "rock garden" appearance. The posterior tracheal wall was relatively spared. Multiple endobronchial biopsies were obtained from the tracheal nodules, which demonstrated submucosal chondro-osseous nodules with mild chronic inflammatory infiltrates, establishing the diagnosis of TO (Fig. 1).

During the same procedure, radial endobronchial ultrasound (EBUS) biopsy of the left lower lobe lesion and linear EBUS sampling of the mediastinal lymph nodes were also performed, which confirmed lung adenocarcinoma with nodal metastases. A CT-guided biopsy from the right upper lobe lesion was later performed, which also confirmed it to be metastatic lung adenocarcinoma. Following a multidisciplinary team discussion, palliative treatment was recommended for the underlying malignancy, while the tracheal pathology was managed conservatively in view of its benign nature and the absence of significant airway compromise.

The coexistence of TO with primary lung malignancy has only occasionally been reported in the literature.[5] Whether this association is incidental or reflects a shared pathogenic mechanism remains unclear. Although infrequently encountered, TO has a remarkably characteristic phenotype. Recognition of its pathognomonic bronchoscopic appearance and posterior wall sparing, in conjunction with supportive imaging and histopathology, enables accurate diagnosis and prevents it from being mistaken for diffuse tracheobronchial malignancy or other infiltrative airway disorders. Nevertheless, recognition of TO is important to avoid misdiagnosis.

Ethical Approval

Not applicable.

Data Availability

Not applicable as it is a case report.

AI Disclosure

No AI used in preperation of manuscript.

Patient Consent Statement

The author(s) have obtained written informed consent from the patient for publication of the related images.

Acknowledgments

None.

Authors' Contributions

Spurthi K: Drafted the manuscript and managed the patient.
Virender Pratibh Prasad: Performed the procedure.
Venkata Nagarjuna Maturu: Performed the procedure and revised the manuscript.

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