Diffuse thickening of the tracheal wall, with calcifications

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Male patient, 58 years old, complaining of dyspnea on exertion accompanied by irritative cough. He received a diagnosis of bronchial asthma 14 years before, denied any symptoms during childhood, and was using bronchodilators and inhaled corticosteroids, with little improvement. A chest computed tomography (CT) showed diffuse thickening of the tracheal wall with small foci of parietal calcification (Figure 1).

Diffuse thickening of the tracheal wall can be determined by several diseases (amyloidosis; relapsing polychondritis; tracheobronchopathia osteochondroplastica (TO); infections such as tuberculosis, paracoccidioidomycosis, and rhinoscleroma; granulomatosis with polyangiitis; sarcoidosis, and lymphomas, among others). Some imaging features can help narrow the differential diagnosis, such as the presence of calcifications in the tracheal wall, and define whether the entire circumference of the trachea is affected or if the lesion preserves the posterior membranous wall, affecting only the cartilaginous portion. In the case presented herein, the CT scan shows that the parietal thickening involves the entire tracheal circumference, with small foci of calcification.

Tracheal wall calcifications can be seen under normal conditions, being related to senility. However, calcifications associated with parietal thickening can be found in amyloidosis, TO, and relapsing polychondritis. TO is a disease of unknown etiology characterized by the formation of small submucosal nodules, which are usually calcified, protruding into the tracheal lumen. This disease is restricted to the tracheobronchial tree. Affected individuals may be asymptomatic or present with cough, dyspnea, wheezing, or, eventually, hemoptysis. Relapsing polychondritis is characterized by recurrent episodes of inflammation in cartilaginous tissue, including the cartilage of the ears, nose, peripheral joints, and the cartilage of the tracheobronchial tree. In amyloidosis, the involvement of the tracheal wall is circumferential and also includes the posterior membranous wall, as observed in the patient analyzed herein.[1,2]

Amyloidosis is characterized by the deposition, either local or systemic, of abnormal amyloid material in extracellular tissue, which may involve multiple organs, including the heart, kidneys, and gastrointestinal tract, among others. Primary respiratory amyloidosis has three characteristic forms: nodular, diffuse parenchymal, and tracheobronchial, the latter being the most common. Tracheobronchial involvement by amyloidosis can determine parietal thickening, luminal narrowing, and consequent airway obstruction, in addition to consolidations, atelectasis, air trapping, and bronchiectasis. Patients are generally asymptomatic but may present with hemoptysis, stridor, cough, hoarseness, dyspnea or wheezing, and recurrent pneumonia.[1,2] Based on these tomographic findings, the diagnosis of amyloidosis was suspected and was confirmed by anatomopathological analysis.

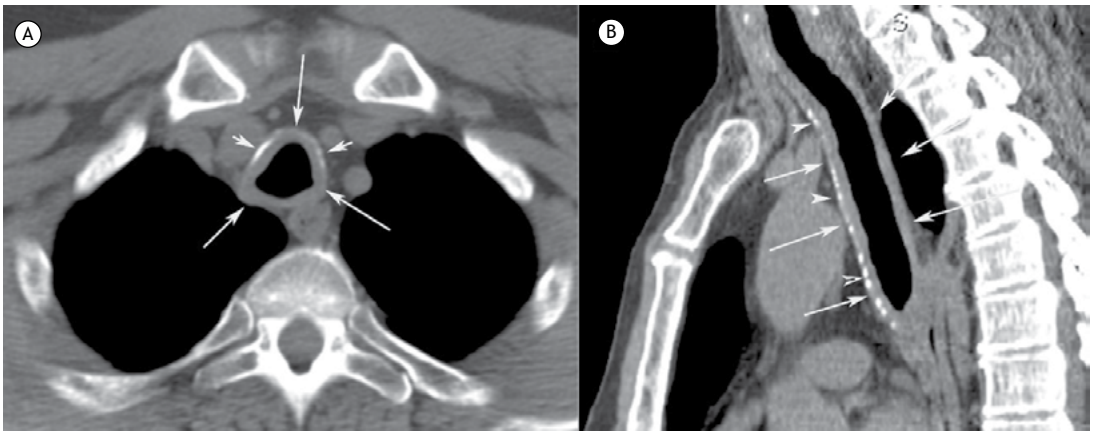

Figure 1. Axial CT (A) and sagittal reconstruction (B) showing concentric thickening of the trachea wall (arrows), with small foci of calcification (arrowheads). Note that the posterior wall (membranous) is also thickened.

REFERENCES

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