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Left upper lobe atelectasis

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A 68-year-old man presented with complaints of persistent, severe cough and weight loss in the last six months. Chest X-rays showed opacity in the upper third of the left lung and volume loss (Figure 1).

The aforementioned chest X-ray findings are indicative of left upper lobe atelectasis. Atelectasis appears as parenchymal opacification and volume loss caused by loss of lung aeration. Atelectasis can be lobar, segmental, or subsegmental, or it can involve an entire lung, with varying imaging appearances. It can occur through different mechanisms, including passive retraction of the lung parenchyma, scar tissue formation, compression of lung tissue, surfactant deficiency, and bronchial obstruction. Obstructive atelectasis occurs when airway obstruction inhibits regional lung ventilation partially or completely. Perfusion to the area is maintained; however, gas uptake into the blood continues. Eventually, all of the gas in that segment will be absorbed and, without return of ventilation, the airway will collapse. The causes of bronchial obstruction are varied, the most common being bronchial tumors in adults and foreign bodies in children. Children are especially susceptible to resorption atelectasis in the presence of an aspirated foreign body because they have poorly developed collateral pathways for ventilation.[1-3]

The radiological signs of pulmonary atelectasis can be divided into direct signs and indirect signs. Displacement of fissures is the most important direct sign of pulmonary atelectasis. The indirect signs are basically related to the loss of lung volume and include increased lung opacity, elevation of the diaphragm, mediastinal shift, and compensatory hyperinflation of the remaining lung parenchyma. Total atelectasis caused by bronchial obstruction appears as an opaque hemithorax, with displacement of the mediastinum toward the affected side. Left upper lobe atelectasis appears as a superior and anterior displacement of the major fissure. Anterior displacement of the major fissure is more easily seen on lateral chest X-rays. Segmental atelectasis of the left upper lobe with preservation of the lingula, as seen in our patient, can result in findings similar to those of atelectasis of the right upper lobe. Although the Golden S sign was initially used in order to describe signs of right upper lobe atelectasis, it can be applicable to atelectasis involving any lung lobe. The Golden S sign represents bowing or displacement of a fissure caused by a mass (generally bronchial carcinoma) that prevents complete displacement of the fissure.[1-3]

On the basis of the aforementioned findings, a diagnosis of left upper lobe atelectasis was made. A bronchoscopy was then performed, showing a tumor obstructing the left upper lobe bronchus, the lingular segments being spared.

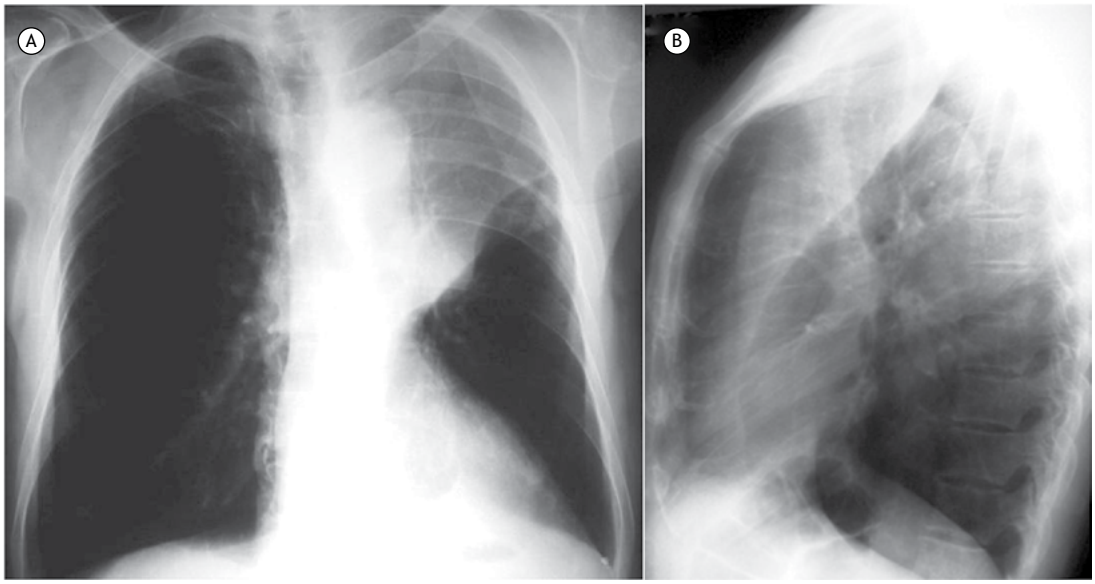

Figure 1. Posteroanterior and lateral chest X-rays (in A and in B, respectively) showing opacity and left upper lobe volume loss. Note an upward and forward shift of the major fissure and a mass in the left hilar region, preventing complete displacement of the fissure, which assumed an S shape (the Golden S sign).

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REFERENCES

1. Webb WR, Muller NL, Naidich DP, editors. High-resolution CT of the lung. 4th ed. Philadelphia: Lippincott Williams & Wilkins; 2008.
2. Müller NL, Silva CI, editors. Imaging of the Chest. Philadelphia: Saunders-Elsevier; 2008.
3. Marchiori E, Hochhegger B, Zanetti G. Opaque hemithorax. J Bras Pneumol. 2017;43(3):161. https://doi.org/10.1590/S1806-37562017000000024