The Iron Lady

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Figure 1. (A) Computed tomography image with circumferential thickening of the bronchus intermedius. (B) Positron emission tomography–computed tomography image with circumferential fluorodeoxyglucose-avid area of the bronchus intermedius.

Figure 2. (A) Bronchoscopic view of bronchus intermedius with brown staining and necrosis of the mucosa. (B) Biopsy specimen showing strong positive reaction for iron.

A 68-year-old female with a history of breast cancer was referred for evaluation due to an abnormal positron emission tomography–computed tomography (PET-CT) scan.

PET-CT images showed an area of circumferential soft tissue thickening at the level of the bronchus intermedius with associated localized increased metabolic activity (Figures 1A and 1B). During bronchoscopy, the bronchus intermedius was found to be coated with brown necrotic material (Figure 2 A). The rest of the tracheobronchial tree was normal. Analysis of a biopsy specimen using Perls' Prussian blue iron stain showed the presence of iron deposits in the bronchial wall (Figure 2B). When the findings were discussed with the patient, she recalled aspirating an iron tablet a month earlier.

Unlike other foreign bodies, iron tablets disintegrate in the airway. If the tablet is not removed, the local release of ferrous sulfate leads to brown staining and caustic necrosis caused by local production of cytotoxic oxidants and free radicals. Acutely, broncho-vascular necrosis can lead to severe and fatal hemorrhage. Late complications, such as bronchial necrosis and stenosis, can be avoided with early diagnosis and removal of the iron pill (1). The observed fluorodeoxyglucose avidity on PET-CT scanning and circumferential thickening can be explained by the presence of necrosis and inflammation due to iron deposits. The triad of history of aspiration, airway inflammation, and iron deposits without ever finding the pill is consistent with the diagnosis of iron pill aspiration.

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Reference

1. Lee P, Culver DA, Farver C, Mehta AC. Syndrome of iron pill aspiration. *Chest* 2002;121:1355–1357.