

Broncholithiasis: An uncommon disease with life-threatening complications

El Mehdi Mniai*, Bouknani Nawal*, Mohamed Mahi, Rami Amal

CASE REPORT

A 60-year-old woman of Morocco consulted for a chronic dry cough evolving during the last five years. She did not relate any episode of fever, hemoptysis or weight loss. The patient was not vaccinated against tuberculosis. She reported a history of pulmonary tuberculosis during youth age, pharmacologically treated for six months. Physical examination was normal. Computed tomography (CT) scan revealed calcified material within the lumen of the bronchus in the left upper lobe (Figure 1) (white arrow) associated with distal bronchiectasis (Figure 2) (white arrow) and mucoid impaction (Figure 3) (black arrow). No segmental pulmonary collapse nor mediastinal lymphadenopathy were found. This CT finding was suggestive of broncholithiasis. Bronchoscopy confirmed the diagnosis by showing intraluminal broncholithiasis with mucosal edema and airway distorsion. Regarding minimal clinical presentation, conservative management was decided with observation.

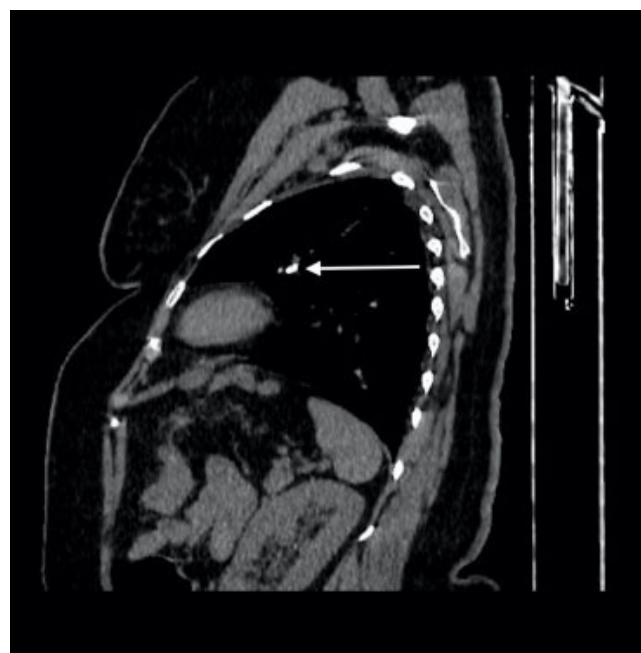


Figure 1: Sagittal CT section revealing calcified material within the lumen of the bronchus in the left upper lobe (white arrow).

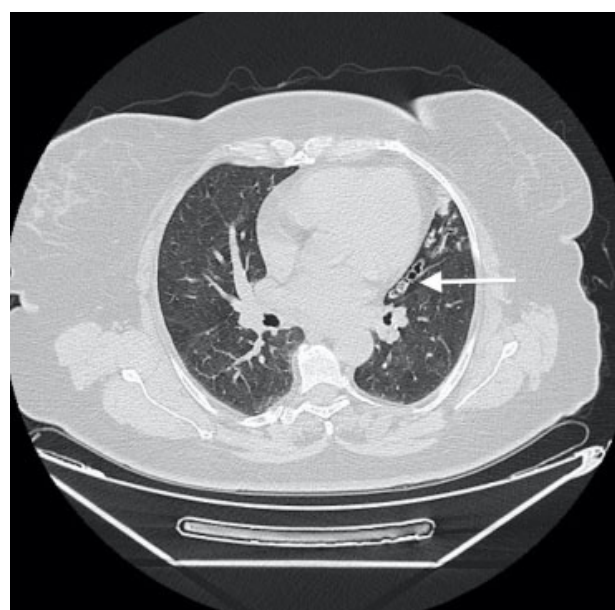


Figure 2: Axial CT section showing bronchiectasis in the left upper lobe (white arrow).

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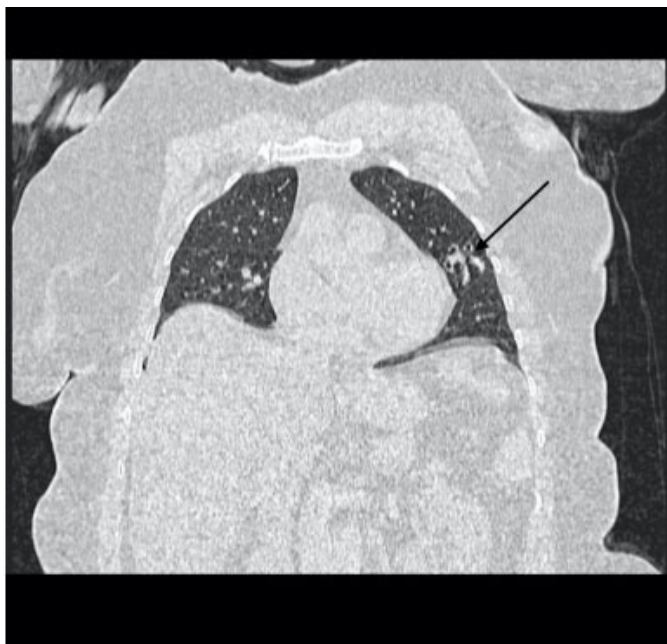


Figure 3: Axial CT section showing mucoïd impaction: “Finger in glove sign” (black arrow).

DISCUSSION

Broncholithiasis (BL) is a condition in which calcified material is present within the bronchial lumen resulting in partial or total airway obstruction [1]. Broncholithiasis is generally caused by a calcification-producing process such as histoplasmosis or tuberculosis. This explains its low prevalence in developed countries.

Clinical presentation ranges from asymptomatic patients to massive hemoptysis. Main symptoms are cough, wheezing and hemoptysis. Lithoptysis (coughing up of broncholith) is a specific symptom, but is rarely found [1]. Broncholithiasis can be a serious condition with life-threatening complications. Most serious presentations are massive hemoptysis and acute airway obstruction [1, 2].

The diagnosis relies mainly on imaging with typical CT findings [1–3]. Broncholithiasis is evoked in front of intraluminal calcified material with features of airway compression. The major signs of airway obstruction are distal lung collapse, bronchiectasis, and airway distortion. The fingers in glove sign have also been reported as a consequence of mucoïd impaction. Mucoïd impaction appears as a branching tubular opacity (Figure 3). It refers to airway filling by mucoïd secretions subsequent to the obstructive phenomenon [1, 4]. Main differential diagnosis are calcified endobronchial tumors and endobronchial infections with calcified component such as aspergilloma.

Bronchoscopy plays an important role in both confirming the diagnosis and in the management process. It can show the broncholithiasis, the airway

obstruction phenomenon and can evaluate the bronchial wall inflammation.

There are multiple management options for patients with BL, including observation, endoscopic removal, and surgery. However, there are no established guidelines [1]. Asymptomatic and minimally symptomatic patients can be managed conservatively with observation. Surgical or endobronchial BL removal are generally indicated for symptomatic or complicated patients [4].

CONCLUSION

Broncholithiasis (BL) is a condition in which calcified material is present within the bronchial lumen resulting in partial or total airway obstruction. Broncholithiasis can be a serious condition with life-threatening complications. The diagnosis relies mainly on imaging with typical CT findings. Early diagnosis avoids serious complications and an appropriate treatment.

Keywords: Bronchial diseases, Lithiasis, Lithiasis/diagnostic imaging, Pulmonary, Tuberculosis

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Author Contributions

El Mehdi Mniai – Conception of the work, Design of the work, Acquisition of data, Interpretation of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Bouknani Nawal – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Mohamed Mahi – Analysis of data, Interpretation of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Rami Amal – Analysis of data, Interpretation of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity

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Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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