

Image Diagnosis: Endobronchial Tuberculosis Masquerading as an Endobronchial Tumor with Presentation as Middle Lobe Syndrome

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CASE REPORT

A 70-year-old woman, a never-smoker, presented to our hospital with a dry cough, breathlessness, temperature increase in the evening, and 2 months of loss of appetite and weight loss. Her physical examination was unremarkable. Her chest radiograph posterior-anterior view showed an ill-defined patchy opacity in the right lower zone with loss of cardiac silhouette (Figure 1A). Chest radiograph right lateral view showed a wedge-shaped density extending anteriorly and inferiorly from the lung hilum and loss of lung volume (Figure 1B), suggestive of middle lobe syndrome (MLS). On high-resolution computed tomography of the patient's thorax (Figures 2A and 2B), consecutive axial images revealed the abrupt truncation of the right middle lobe bronchus (bronchial cut-off sign) and a trapezoidal opacity with its base toward the hilum, confirming the presence of MLS.

Mantoux test using 1 TU elicited an induration of 15 mm after 48 hours. Fiberoptic bronchoscopy revealed a mass lesion covered with caseous material, which completely occluded the right middle lobe bronchus (Figure 3) and extended into the intermediate bronchus (Figures 4A and 4B). Multiple endobronchial biopsy (EBB) samples were taken from this lesion and sent to the laboratory for histopathology and *Mycobacterial tuberculosis* culture. Bronchial aspirate was negative for acid-fast bacilli, and histopathologic examination of EBB samples was inconclusive, but *Mycobacterium tuberculosis* was cultured in the EBB sample. A diagnosis of tumorous-type endobronchial tuberculosis (EBTB) presenting as MLS was made on the basis of the following: 1) on bronchoscopy, a mass lesion covered with caseous material was found occluding the middle lobe bronchus, suggesting a tumorous-type lesion of EBTB (Figure 3, Figure 4A and 4B); 2) isolation of *Mycobacterium tuberculosis* from the EBB sample; and 3) characteristic radiologic presentation suggestive of MLS. The patient was started on antituberculous treatment and showed clinical improvement after 2 weeks.

DISCUSSION

MLS is defined as chronic or recurrent collapse of the right middle lobe¹ and has a multitude of causes, both obstructive and nonobstructive.² Obstruction can be caused by intraluminal or extraluminal factors. As obstructive pathologies, tumors account for 24% of patients with MLS. Eight percent to 10% of cases of MLS are secondary to tuberculosis (Brock syndrome).³

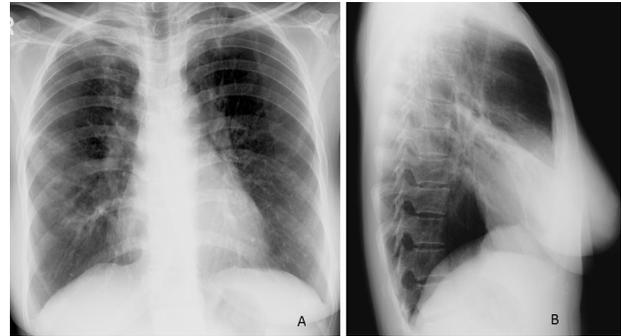
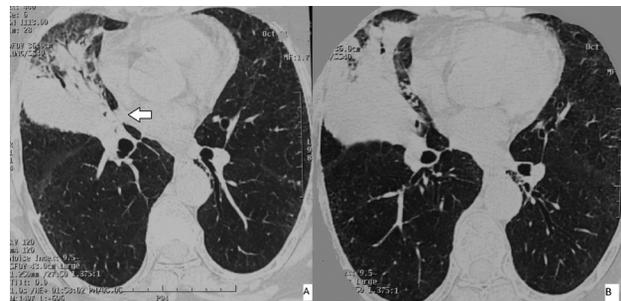


Figure 1A. (left) Chest radiograph posterior-anterior view showing an ill-defined opacity in the right lower zone with loss of cardiac silhouette. Figure 1B. (right) Chest radiograph right lateral view showing a wedge-shaped density extending anteriorly and inferiorly from the lung hilum along with loss of lung volume, suggestive of middle lobe syndrome.



Figures 2A (left) and 2B (right). Consecutive axial-view high-resolution computed tomography images of the thorax. The white arrow indicates the abrupt truncation of the right middle lobe bronchus (bronchial cut-off sign). A trapezoidal opacity with its base toward the lung hilum is also visible, confirming middle lobe syndrome.

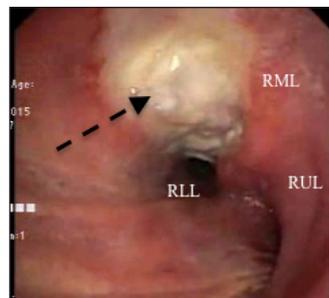
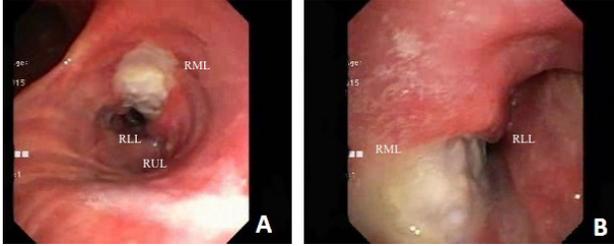


Figure 3. Fiberoptic bronchoscopy of the patient's right lung. The dashed arrow indicates the mass lesion covered with caseous material that completely occluded the right middle lobe bronchus. RLL = right lower lobe; RML = right middle lobe; RUL = right upper lobe.

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Figures 4A (left) and 4B (right): Fiberoptic bronchoscopy of the patient's right lung, showing the caseous material extending into the right intermediate bronchus. RLL = right lower lobe; RML = right middle lobe; RUL = right upper lobe.

Nonobstructive-type MLS is caused by inflammation, usually as a consequence of unresolved infection. Benign inflammatory disease accounts for about 62% of nonobstructive cases and is the most common cause of MLS. MLS occurs more commonly in females.⁴

Imaging plays a key role in the diagnosis of MLS because of the syndrome's characteristic chest opacities and densities. Bronchoscopy has a central role in diagnosing EBTB because sputum smears are often negative, and chest radiology can be normal in 10% to 20% of cases of EBTB.⁴ EBTB is a rarely documented cause of MLS in the literature. EBTB presenting as MLS has been documented in 22 patients from Korea,⁵ 3 from Turkey,⁶ and 1 from India.⁴ In the literature, an edematous-type lesion of EBTB is the predominant lesion in patients presenting with MLS.⁵ In our patient, the rarer tumorous-type lesion was responsible for MLS.

Bronchial stenosis is an uncommon but dreaded complication of EBTB.⁵ Diagnosis must be established as expediently as possible with this presentation to prevent complications. ❖

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

How to Cite this Article

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