Journal of Acute Medicine 7(1): 44-46, 2017
DOI: 10.6705/j.jacme.2017.0701.008
Make Your Diagnosis

A Woman with a Mass in the Left Upper Thorax

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Patient Presentation

This 91-year-old Chinese woman is a patient of old pulmonary tuberculosis, arterial hypertension, and osteoporosis. She was brought to the Emergency Department due to progressive shortness of breath and productive cough for a week. Her consciousness was clear and sputum was yellowish and foul smelling with bright red fleck of blood. Her care giver denied symptoms of running nose or fever. Physical examination disclosed rales breathing sounds and a dull thud when percussion. There was no tenderness at her chest. There is an operative scar found on her left upper chest. Laboratory data reveal leukocytosis with white blood cell count of 11,800 cells/μL. C-reactive protein were elevated to 6.23 mg/L. Other chemistry panel were all within normal limits. Chest radiograph was undertaken to detect suspected pneumonia. It showed fibrotic change in right upper lobe of lung and infiltration in the bilateral lower lobes of lung and a radiopaque mass with peripheral calcification in the left upper thorax (Fig. 1). Computed tomography (CT) of the chest was performed, which yielded plombage in the left upper extrapleural space with compression the left upper lobe of lung (Fig. 2).

Discussion

Thoracic plombage, a type of collapse therapy for pulmonary tuberculosis infection, was used commonly before the advent of reliable antituberculosis drugs.[1] In 1891, Tuffier firstly performed an extrapleural apical dissection and follow by filled the space with body fat to produce a permanent apical lung collapse in 1910.[2] It was extremely popular in the 1940-60's, even today, we may see these thorax results. Various materials were used in the plombage cavity which include fat, oil, paraffin, spheres. The main differential diagnosis is chronic empyema which is a complication in the pleural space. On the contrary, thoracic plombage located in extrapleural space and may become calcified on the surface area after so many decades which could easily be indentified in image studies and provide anatomic clue for the differential diagnosis. Clinical signs of plombage include scar formation at the upper chest, or probably resected ribs. Features at imaging depend on the material used. In case of lucite spheres, multiple rounded ring objects are seen in the upper thorax and usually unilateral at presentation. In case of oleothorax except paraffin, a relative high density mass like lesion in the upper thorax in non-contrast enhanced CT is seen due to iodine salt content is added and thin calcifications on the wall may present. In case of paraffin, a relative low density mass like lesion in the upper thorax in non-contrast enhanced CT is seen and thick calcifications on the wall may be seen. Thoracic plombage may demonstrate an acute angle with the chest wall, indicating claw sign. By contrast, chronic empyema will depict an obtuse angle with the pleura and presence of split pleura sign.

Early complication primarily resulted from mechanical alterations such as upper influx blockages, as well as thrombosis of the jugular vein or of the subclavian vein. The most common late complication is the foreign-body reaction of the cavernous wall by calcification deposits, whereas others include pyogenic empyema, pleural calcifications, bronchopleural

Received: March 10, 2016; Revised: August 30, 2016; Accepted: September 19, 2016.
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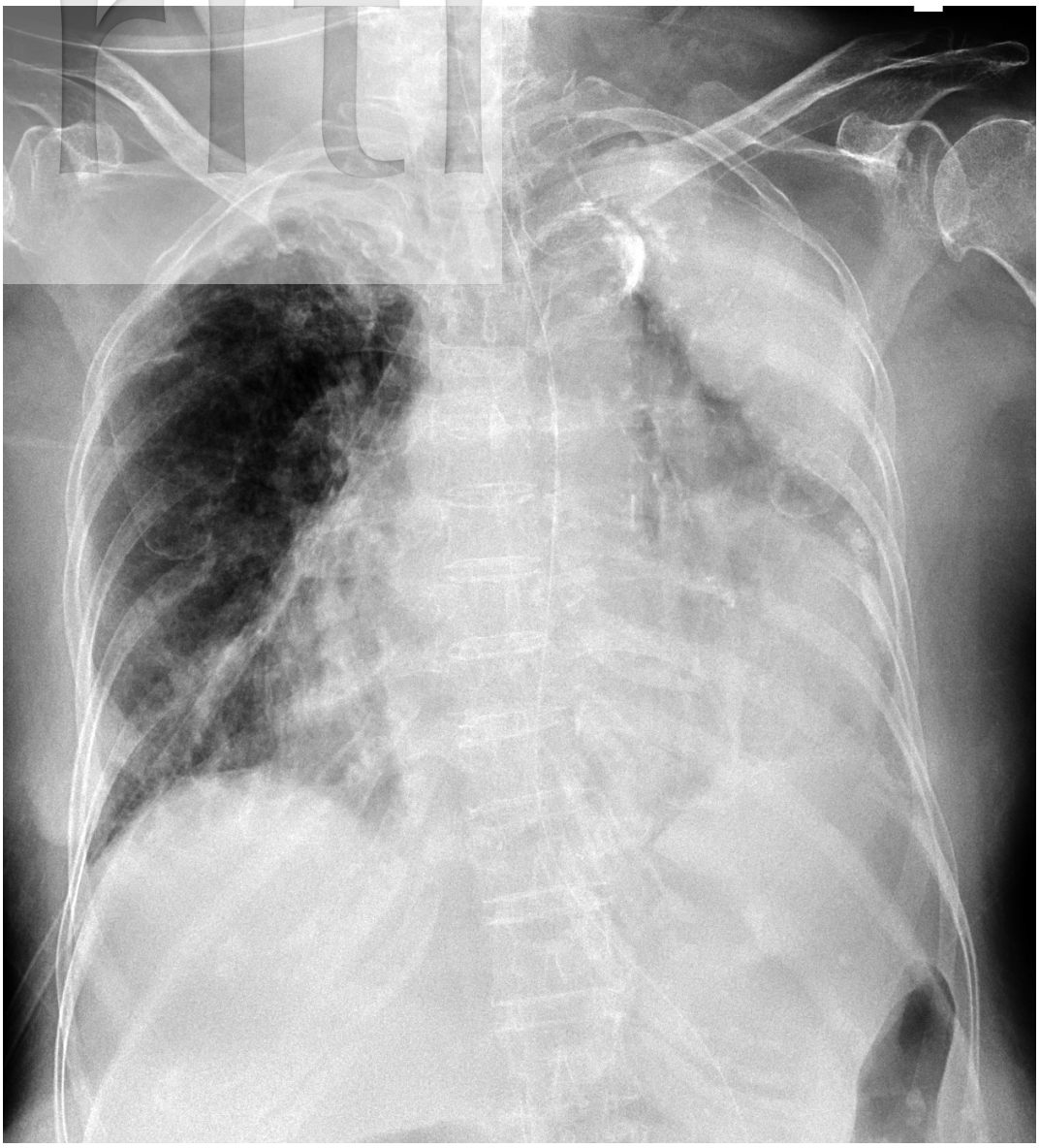

Fig. 1. Chest radiograph showed a radiopaque mass in the left upper thorax.

fistula, and nonresolvable pneumothorax.[1] If irregular wall thickening of plombage, ring enhancement of plombage, increased size of plombage, increased air content of plombage, air-fluid level in plombage, empyema, hematomas, a fistula, surrounding inflammatory change or other adjacent structure abnormalities developed should raise suspicion of complicated plombage. In our case, the left upper thoracic mass presented as a relative high density mass with thin calcifications on the wall and presence of claw sign. Therefore, thoracic plombage (oleothorax) was diagnosed. Absence of signs of complicated plombage was observed, indicating innocent plombage. Finally, culture of a sputum sample yielded pseudomonas aeruginosa, and pneumonia was impressed. After antibiotics and supportive treatment for two weeks, the patient was discharged uneventfully.

Next time when you found a mass lesion in patient's upper thorax, ask her or him about the history of collapse therapy for pulmonary tuberculosis. Unless there is solid evidence of complicated plombage, entering the plombage cavity during invasive procedures such as CT-guided biopsy, pleural interventions should be avoided to prevent introducing microorganism into this sterile space.[3]

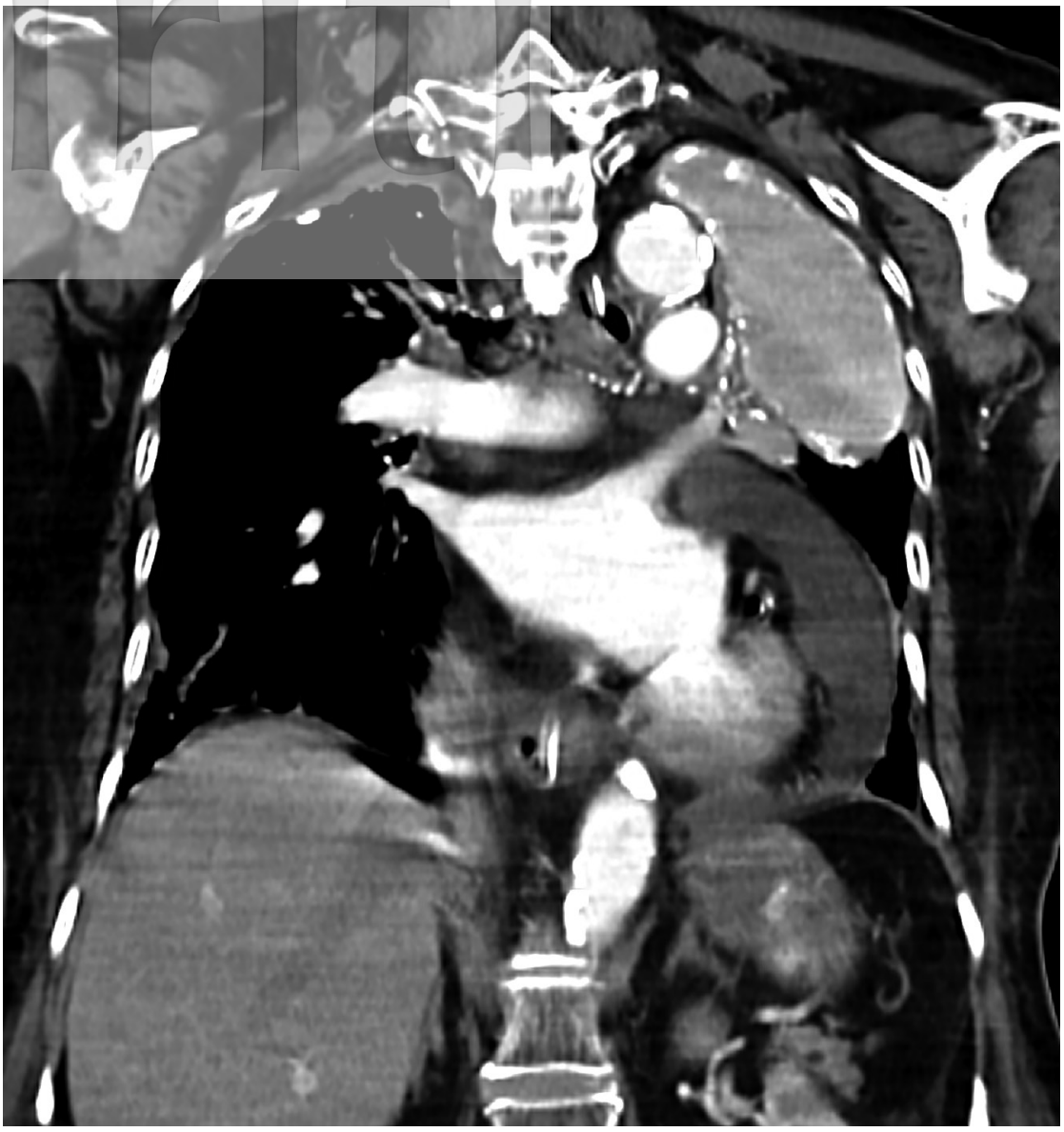

Fig. 2. Chest computed tomography showed thoracic plombage in the left upper extrapleural space with peripheral calcification.

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