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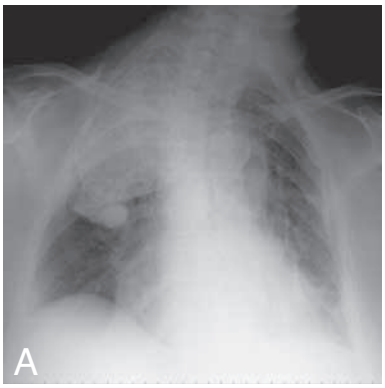
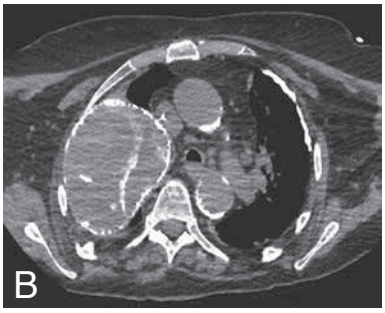
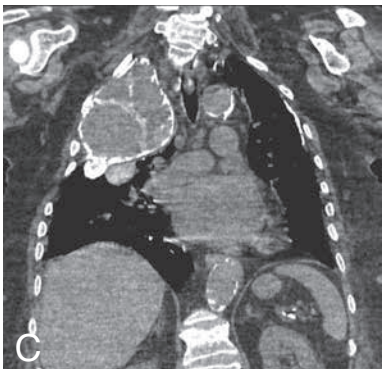
IMAGES IN CLINICAL RADIOLOGY







Oleothorax

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An 84-year-old woman presented with exertional dyspnoe, productive cough, but absence of chills, night sweats, or fever. Physical examination was unremarkable except for dullness and auscultatory absence of breath sounds over the right upper hemithorax. The patient's previous medical history revealed the diagnosis of pulmonary tuberculosis at the age of 21. At that time, she was treated successfully with right artificial pneumothoraces and finally with "antiseptic oil", but the patient was lost to follow-up thereafter.

On admission, a chest X-ray was performed which showed dense pleural thickening with medial and lobulated bulging of the pleural surface and compression of underlying right upper lung lobe. Extensive, coarse pleural calcifications were also noted (Fig. A). Displacement of the trachea to the left was present. Subsequent unenhanced CT-scan of the chest demonstrated cicatricial lesions with associated pleural thickening and some calcifications in the left upper lung lobe. In the right upper lobe, areas of pleural thickening associated with extensive coarse calcifications enclosing a pleural effusion with different densities which was compressing the right upper lobe parenchyma were noted. Dense calcified loculations extending posteriorly and inferiorly were also present (Fig. B, C). A partial defect of the fifth right rib representing sequellae from previous surgery was identified. Medical record review confirmed that the patient was treated for progressive tuberculosis in 1944 with intrapleural injection of oil (oleothorax therapy). Clinical symptoms were caused by a small infectious infiltrate in the left lower lobe and successfully treated with antibiotics.

Comment

Oleothorax is intrapleural injection of oil-based substances for therapeutic purposes. Injected oils included primarily paraffin and mineral oil, although other oils such as olive, cod liver, peanut, and cottonseed oil were also used. Its purpose in the treatment of pulmonary tuberculosis was basically pulmonary collapse, although in the early stages it was also advocated for control of bronchopleural fistulas and persistent tuberculous empyema. Between 1930 and 1950, the induction of an oleothorax was widely accepted as treatment of patients with progressive tuberculosis. The approach was abandoned in the early 1950s with the advent of effective antituberculous chemotherapy. However, patients may still present with unrecognized residua of this therapy.

Collapse therapy was a well-established treatment for pulmonary tuberculosis before the advent of antituberculous chemotherapy. Artificial pneumothorax was a technique advocated as an alternative to surgical thoracoplasty. Intra- and extrapleural filling pneumolysis was introduced as an alternate method for pulmonary compression. In addition to exerting a mass affect on the adjacent lung, substances were caustic and produced an obliterative pleuritis, which justified their use in tuberculous empyemas and bronchopleural fistulas. Volumes ranged from 100 tot 2.000 mL. The recommended length of therapy was up to 2 years, after which the material was to be removed. However, asymptomatic patients were often lost to follow-up, and as a consequence, no pleural evacuation was performed.

Long term complications of oleothorax consist of pleural calcifications, secondarily infected pleuroliths, pleurocutaneus fistulas, lipoid pneumonia, recurrent tuberculous empyema, oil embolism, fatty infiltrations of osseous structures, and chest wall abscess. Oleothorax expansion may also occur many years after oil instillation as a result of the irritating effect of instilled oil resulting in pleural fluid production and subsequent lung compression with respiratory distress.

Differential diagnosis of a large longstanding calcified pleural mass includes organized empyema, hemothorax with calcification, loculated effusions, late reactivation tuberculosis, pleural neoplasm such as mesothelioma, and in some cases a pancoast tumor.

In the elderly patient, with a previous history of pulmonary tuberculosis, oleothorax should be included in the differential diagnosis of large calcified pleural collections.

Reference

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