

Thoracolithiasis

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A 72-year-old man was referred to our hospital because an asymptomatic pulmonary nodule had been found in the periphery of the right midlung on a chest radiograph (Figure 1A). Nonenhanced chest computed tomography (CT) showed a centrally dense 10-mm nodule

located just above the major fissure (Figure 1B). Three months later, chest radiograph and CT showed no nodule in that location, but showed a new 10-mm nodule in the right middle lobe (Figure 1C,D), suggesting that the nodule had moved along the major fissure. Two

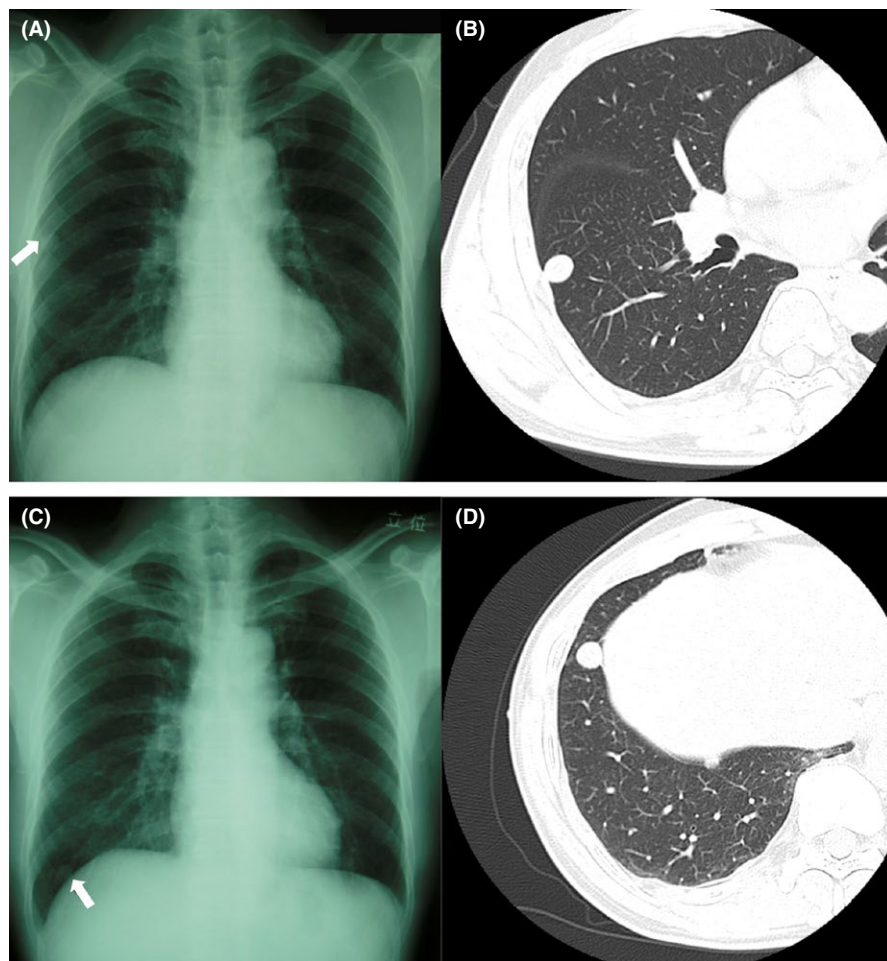
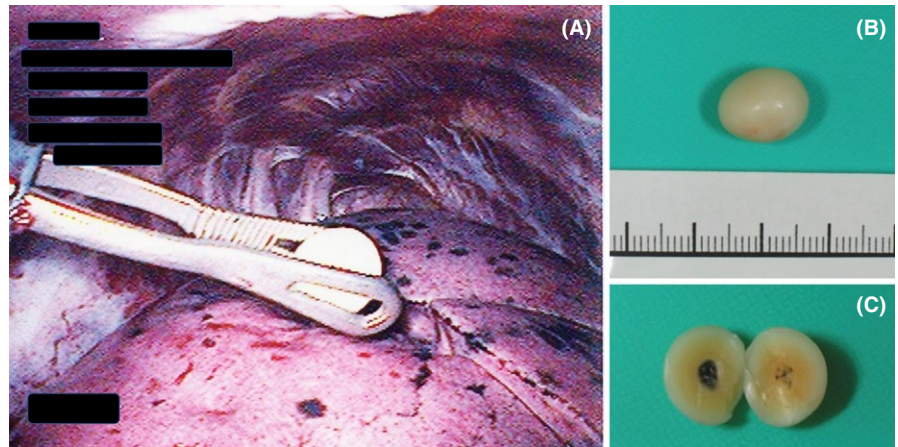


FIGURE 1 (A) Chest radiograph showing an asymptomatic pulmonary nodule in the periphery of the right midlung (arrow head). (B) Chest CT image showing a 10-mm nodule with a dense center located just above the major fissure. (C) Chest radiograph taken three months later showed no nodular lesion in the periphery of the right midlung, but a new pulmonary nodule in the right lower lung (arrow head). (D) CT image taken three months later showed no nodular lesion in the periphery of the right midlung, but a new 10-mm nodule in the right middle lobe

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FIGURE 2 (A) Thoracoscopic image showing a milky-white egg-shaped object in the right major fissure. (B) Photograph of a 13-mm thoracololith showing that it is soft and elastic and has a smooth surface. (C) Photograph of bisected thoracololith showing a black core surrounded by yellow connective tissue



years later, CT revealed that the nodule had returned to its original position and enlarged to 15 mm. It was decided to remove the nodule thoracoscopically. A milky-white egg-shaped object was seen in the right major fissure (Figure 2A). Because the nodule was not adherent to the pleura or lungs, it could be grasped and removed with forceps. It was 13 mm in diameter, soft, and elastic, with a smooth surface (Figure 2B). The core was black and surrounded by yellow connective tissue (Figure 2C). Since discharge, the patient has been healthy.

The first case report of thoracolithiasis was reported by Dias et al in 1968.¹ Since then about 70 additional cases have been reported,² the incidence reportedly being 0.086%.³ Thoracolithiasis presents as one or more ovoid bodies with smooth margins, with or without calcification, that can move freely in the pleural space. Most patients are asymptomatic, these stones being found incidentally on chest CT scans performed for other reasons. The causes remain unknown. Suggested mechanisms include: (a) necrotic pleural or pericardial fat; (b) pleural or peripheral pulmonary lipoma; (c) focus of old pulmonary tuberculosis; and (d) aggregation of macrophages with phagocytosed dust.⁴ They become rounded and polished over time with the continuous movement of breathing.³ On histological examination, our patient's thoracololith was found to consist of coal dust at the center surrounded by laminated layers of hyalinized fibrous tissue. There were no inflammatory changes such as granulation tissue suggestive of old pulmonary tuberculosis. It was concluded that the fourth mechanism described above had caused the stone's formation. Thoracolithiasis can confidently be diagnosed when a calcified intrathoracic nodule migrates or changes its location on serial CT examinations. The differential diagnosis includes fibrin bodies, foreign body granulomas, and gallstone spillage into the pleural space following cholecystectomy.⁵ The differential diagnosis of stationary nodules includes primary lung cancer, metastatic tumor, solitary fibrous tumor, pulmonary hamartoma, and pulmonary tuberculosis.

In our patient, the nodule gradually enlarged during follow-up, making it difficult to distinguish from neoplastic disease. We therefore decided to remove it thoracoscopically. Thoracolithiasis is a

very rare benign entity that primary-care physicians may encounter on routine chest radiographs. Physicians should consider thoracolithiasis in patients with a single or multiple calcified ovoid pulmonary nodule(s) with smooth margins, especially if they are mobile. Given that mobility of the nodule is the key finding for the diagnosis,¹ comparison with previous imaging studies is crucial.

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CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

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