

## Thoracic empyema due to migrated gallstones

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### ABSTRACT

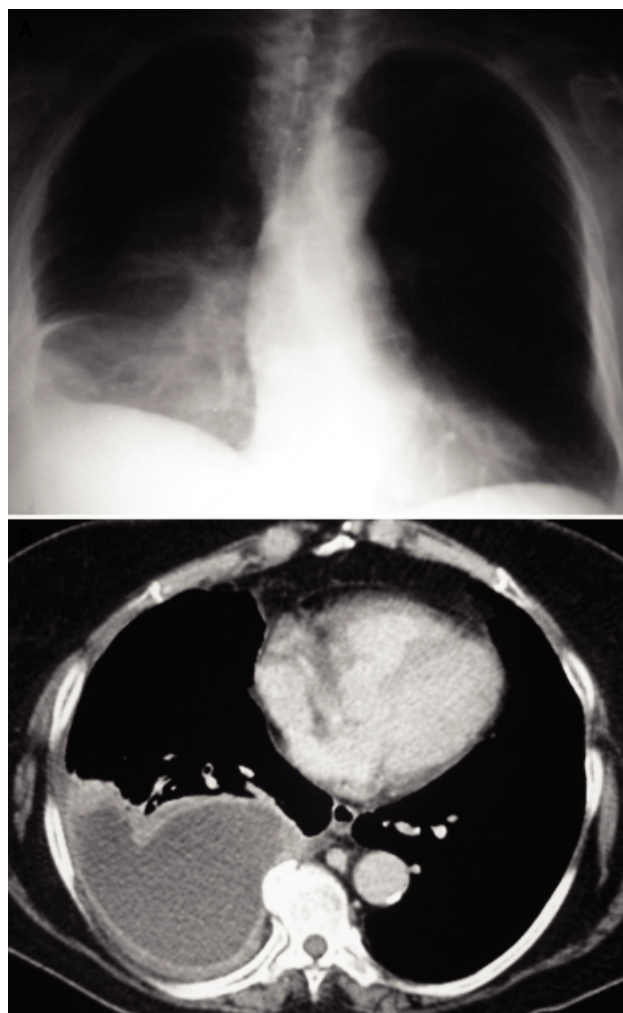
Hepatobiliary conditions should be considered in the differential diagnosis of right pleural effusion. Here we present the illustrative images of thoracic empyema due to migrated gallstones in a woman who was treated for laparoscopic cholecystectomy one year before. The gallstones were obtained unexpectedly during a thoracentesis with aid of an Abrams needle. This rare complication is discussed under current literature review.

**Key words.** Pleurolithiasis. Cholecystectomy. Diaphragm. Abdominal abscess. Thoracentesis.

### CASE REPORT

A 76 year-old woman presents to our service because 2-months of chest pain and progressive dyspnea. She underwent laparoscopic cholecystectomy a year before and no incidents were reported after this procedure. A physical examination and chest x-ray both detected a right sided pleural effusion (Figure 1). Other laboratory tests were inconclusive. During an ultrasound guided thoracentesis using an Abrams needle, 500 mL of pus and small dark brown color stones were obtained unexpectedly (Figure 2). A pleural biopsy and cultures did not show any microorganisms. A magnetic resonance and other imaging studies showed a subdiaphragmatic abscess containing small stones inside (Figure 3). Finally, the patient was taken for surgical treatment of empyema but she refuted surgical removal of intra-abdominal gallstones. Actually she is still under antimicrobial treatment alone and her follows up continues.

During the laparoscopic cholecystectomy the gallbladder can be accidentally perforated and gallstone



**Figure 1.** Chest X ray (A) and thoracic computed tomographic scan (B) showing a right empyema.

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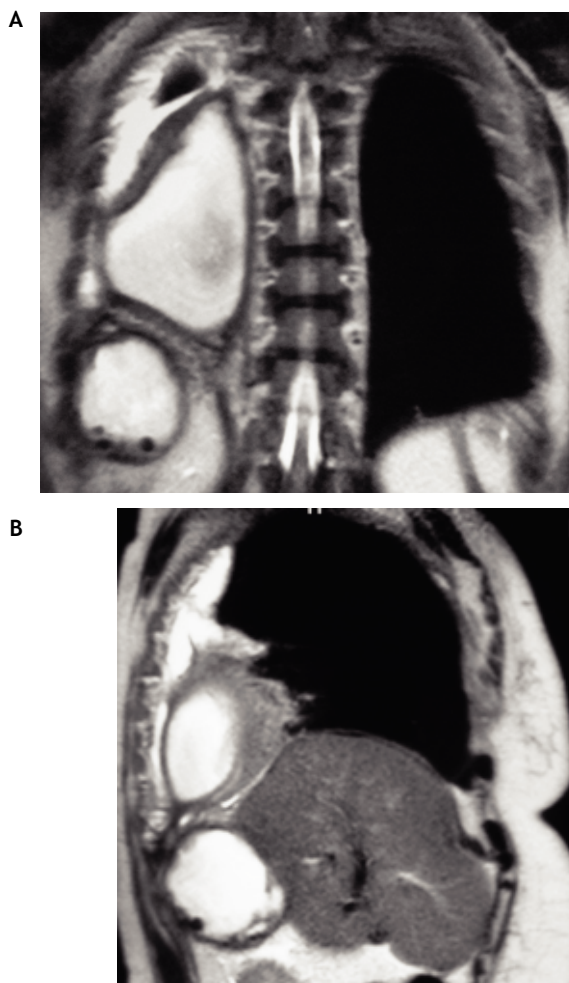
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**Figure 2.** A 4-mm diameter outer cannula of Abrams pleural biopsy needle and the small gallstones obtained during thoracentesis of right empyema.

spillage is estimated to occur in 0.2 to 20% of cases with very few causing complications.<sup>1</sup> The pneumoperitoneum and the intraoperative irrigation facilitate distant migration of gallstones, specifically to the subphrenic space. Abscesses formation is the main complication, so these gallstones should be extracted from the abdominal cavity. The swollen due to a subdiaphragmatic abscess can cause a sympathetic pleural effusion or allow the migration of gallstones inside the thorax with the subsequent development of a right empyema. Other possible routes of intrathoracic migration of gallstones are the lymphatic channels of Ranvier and congenital diaphragmatic defects.<sup>1</sup>

The spilled stones may be unnoticed on initial imaging tests and in some cases were described without the presence of frank subphrenic abscess.<sup>2,3</sup> Other thoracic complications of retained gallstones also were reported with pleurobiliary and broncho-biliary fistulas. These complications usually presents several weeks to years after the cholecystectomy. Earlier pleural effusions should orient to other etiologies like postoperative atelectasis or pneumonia. In the absence of a biliopleural effusion, diagnosis of pleural migration of gallstones only could be done during thoracoscopy or thoracotomy,<sup>3</sup> and actually there have not case reports diagnosed with aid of thoracentesis. In our case, the appropriate size of the Abrams needle permits us to extract the small gallstones and in advance made the correct diagnosis.



**Figure 3.** Coronal (A) and sagittal (B) T1-weighted magnetic resonance images showing a right empyema and subjacent subdiaphragmatic abscess containing small gallstones.

## CONFLICT OF INTEREST

The author doesn't have financial or other relationships that would influence assessment of the data or that would constitute a conflict of interest.

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