

Middle Pulmonary Lobe Abscess: A Delayed Complication of Laparoscopic Cholecystectomy

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Rezumat

Abcesul de lob mediu pulmonar: o complicație întârziată după colecistectomia laparoscopică

Introducere: Colecistectomia laparoscopică a devenit o procedură de rutină în intervențiile chirurgicale abdominale, o regulă de "aur" în tratamentul litiazei veziculare. Perforația iatrogenă a veziculei biliare cu biliragie și eliberarea intraperitoneală de calculi biliari în timpul unei colecistectomii este un incident posibil, însă nerezolvat poate duce la numeroase complicații. Complicațiile la nivel pulmonar postcolecistectomie laparoscopică sunt extrem de rar întâlnite.

Prezentare de caz: Relatăm cazul unei paciente de 62 de ani cu abces subfrenic și fistulă trans-diafragmatică în lobul pulmonar mediu după colecistectomie laparoscopică. În acest caz, simptomele pulmonare au dominat tabloul clinic și explorările complementare inițiale au indicat o patologie strict pulmonară. Evoluția inițială a pacientei a fost spre agravare, iar explorările ulterioare au stabilit diagnosticul real.

Concluzii: Perforațiile veziculei biliare cu pierderea accidentală a calculilor biliari ar trebui să fie recunoscute imediat și manageriate. În dezvoltarea unui abces pulmonar se poate lua în considerare ca și cauză o patologie intraperitoneală.

Cuvinte cheie: calculi biliari restanți, complicații tardive, abces pulmonar

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Abstract

Background: Laparoscopic cholecystectomy has become a routine procedure in abdominal surgery, a "gold standard" in the treatment of gallstones. Iatrogenic perforation of the gallbladder during a cholecystectomy is a possible incident, with numerous complications due to unidentified intraperitoneal gallstones during surgery. Pulmonary complications of laparoscopic cholecystectomy are extremely rare.

Case report: This report presents the case of a 62-year-old female with post cholecystectomy subphrenic abscess and trans-diaphragmatic fistula in the middle pulmonary lobe. In this case, the pulmonary symptoms dominated the clinical picture and the initial complementary explorations indicated a strictly pulmonary condition. The initial evolution of the patient was towards worsening, and the subsequent explorations established the real diagnosis.

Conclusion: Gallbladder perforations with accidental loss of gallstones should be recognized immediately and managed. In the development of a pulmonary abscess, we can take into account an intra-peritoneal condition as well.

Key words: retained gallstones, delayed complication, lung abscess

Introduction

Laparoscopic cholecystectomy (LC) represents the actual "gold standard" in the treatment of symptomatic gallstones and one of the most common procedures encountered in general surgery. Even the most experienced surgeons can encounter intra- or postoperative complications like iatrogenic perforation of the gallbladder with intraperitoneal release of gallstones (1,2). There are cases when not all of the released gallstones are identified, medical literature emphasizing case reports of this problem. The iatrogenic perforation of the gallbladder while undergoing a laparoscopic cholecystectomy can appear in percentage of 18.3 patients and retained gallstones are represented by 7.3% of the patients with cholelithiasis and that of unretrieved peritoneal gallstones was estimated to be 2.4% (3). Thoracic complications resulting from gallstone spillage during laparoscopic cholecystectomy are rare and may occur years after the index surgery (2,4,8).

Case Report

We documented the case of a 62-year-old woman who, about 2 months before, in

apparently good health, experienced vomiting associated with cough with purulent sputum for which she was hospitalized in the Pneumology Clinic. A Computed Tomography (CT) scan of the chest reveals a hydroaerial cavity in the Middle Lobe (ML) with suspicion of a pulmonary hydatid cyst with bronchial fistula (*Fig. 1*). Eosinophilia, the ELISA test, and the sputum examination invalidate the diagnosis of pulmonary hydatid cyst. In the next period, the patient undergoes an antibiotic treatment, but her health worsens: experienced pain in the right hemithorax and

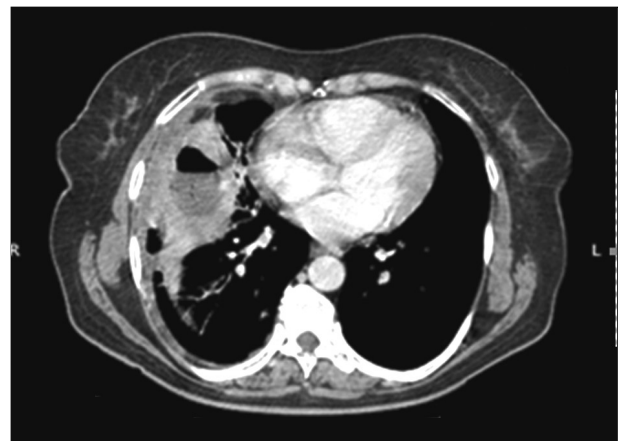


Figure 1. Hydroaerial cavity in the ML with suspicion of a pulmonary hydatid cyst with bronchial fistula

a cough with hemoptysis, as a result, the patient was transferred to the Thoracic Surgery Department.

From the patient's personal history we record: Stage II Hypertension and laparoscopic cholecystectomy 9 months previously for chronic lithiasic cholecystitis (for which a retrograde laparoscopic cholecystectomy was performed, using 4 trocars, without the use of an endobag and with damage to the gallbladder and loss of gallstones in the peritoneal cavity, a stone that could not be recovered; the patient receiving postoperative follow-up recommendations that she did not perform). On general clinical examination: afebrile, wanness, a tumor formation on the right lobe in the region of the thyroid gland, immobile, well-delimited, measuring 4/5 cm, diminished vesicular murmur with right basal subcrepitant rales. Laboratory tests were within normal parameters, except for hemoglobin = 9.6g/ dL. A new CT examination of the chest and abdomen with contrast material shows: in the thyroid gland a well-defined tumor formation with an irregular contour of 57/48 mm with malignant imaging (*Fig. 2*), minimal costal pahipleuritis, mediastinal lymphadenopathy. Pulmonary condensation of ML with minimum aerial bronchogram included, central collection with hydroaerial level, with thick wall, 58/53/45 mm, attached to the diaphragm, which comes in contact with a subphrenic collection (*Fig. 3*). Right subphrenic collection sizing 71/20/74 mm with parafluid content with hydroaerial level and an oval formation with calcareous density, measuring 19/16 mm (*Fig. 4*), which comes in transdiaphragmatic contiguity with the pulmonary collection and with the lumen of the duodenum at the superior flexure (*Fig. 5*). Taking into consideration the imagistic result, a possible duodenal fistula is suspected. Next follows a superior digestive endoscopy that denies the existence of duodenal fistula.

An exploratory thoracotomy was recommended, with phrenotomy and exploration of the subphrenic right-side cavity. An abscess of the ML is detected with transdiaphragmatic fistula. When exploring the subphrenic space:

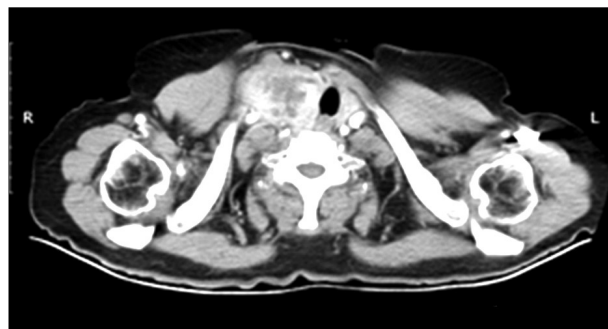


Figure 2. A right lobe tumor of the thyroid gland

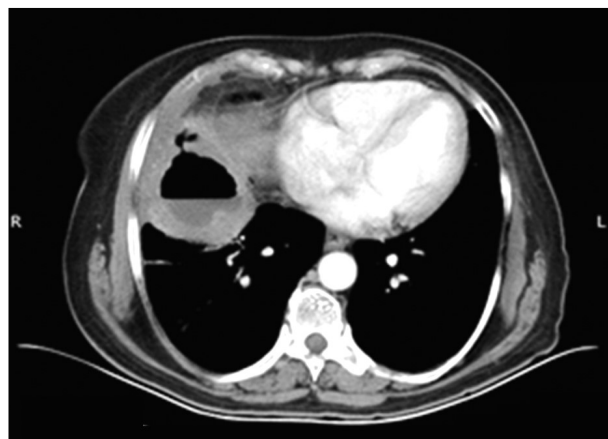


Figure 3. Pulmonary condensation of ML with central collection with hydroaerial level, attached to the diaphragm

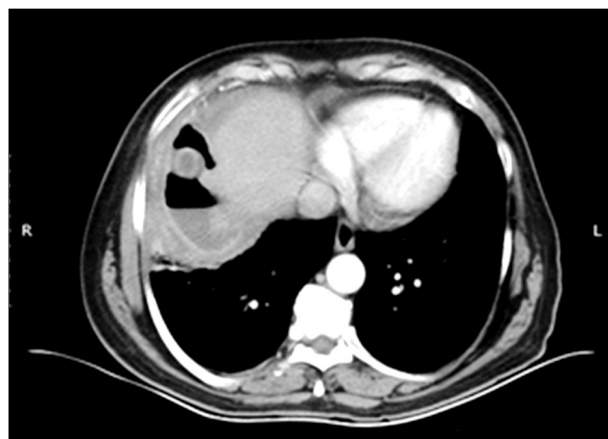


Figure 4. Right subphrenic collection with parafluid content with hydroaerial level and an oval formation with calcareous density

a cavity sizing 10/3 cm is revealed, that contains a 2/2 cm gallstone that is extracted transdiaphragmatically. The sample is collected from secretions for bacteriological examination

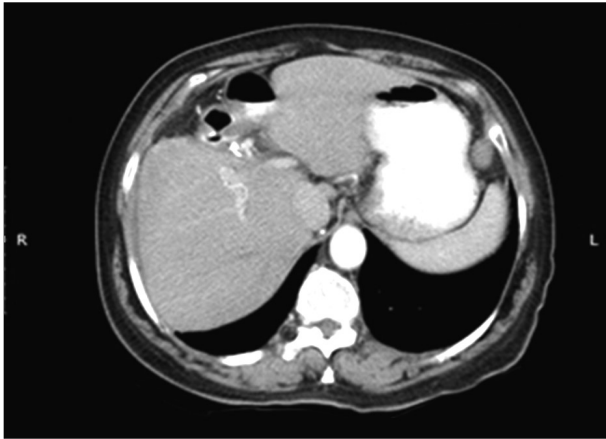


Figure 5. Collection near the lumen of the duodenum at the superior flexure, circumferential wall thickening of the first duodenum segment

and antibiogram, and then the subdiaphragmatic cavity is cleaned and drained. Subsequently, a medium lobectomy with pleural drainage is performed. The secretions collected for the bacteriological and antibiogram exam reveals infection with *Klebsiella Pneumoniae*, *Acinetobacter Baumanni*, *Candida Albicans*, for which the patient undergoes antibiotic and antifungal treatment.

The patient's postoperative condition was good, afebrile, without externalization of fluid or air leaks on the drainage tubes. Even if there were no postoperative complications, the hospitalization was long-term and the patient was discharged on the 20th day postoperatively, during which an endocrinological examination was performed (with biopsy of the tumor, the result being thyroid follicular carcinoma). At 3 months postoperatively, the patient underwent a total thyroidectomy and treatment with radioactive iodine.

Discussions

When we refer to the postoperative complications after laparoscopic cholecystectomy, the most common are: bleeding, biliary leaks or accidental injuries of the gallbladder with intraperitoneal loss of gallstones (4). Over 90% of these stones do not become symptomatic and may be accidentally discovered on subsequent imaging explorations (4,5). A study

performed on 1330 consecutive cases of patients who had undergone a laparoscopic cholecystectomy, followed for 13 years, performed in two different institutions, showed that there was a postoperative complication rate of 0.3% due to gallstones forgotten intraperitoneally (6).

Forgotten gallstones in the peritoneal cavity can act as a nucleus for subsequent infectious complications, as in this case. This is due to the migration of fluid and transdiaphragmatic bacteria, which led to the formation of an abscess at that level (6,7). According to the literature, over 80-90% of gallstones contain bacteria such as *Escherichia Coli*, *Klebsiella Pneumoniae*, and *Enterococcus* (2). The literature describes a relatively small number of cases of thoracic complications secondary to peritoneal gallstones after a cholecystectomy (2). A study from the literature published in 2020 conducted on 24 cases reported between 1993-2019, with thoracic complications from retained gallstones after laparoscopic cholecystectomy reports: 4 cases treated with antibiotic therapy alone and 20 patients needed surgery or interventional radiology (7 patients were managed with an abdominal approach, 3 patients - using thoracocentesis, thoracoscopic-thoracotomic drainage, 10 patients required right lung decortication and pulmonary wedge resections) (8).

There are three reported ways during a LC to lose gallstones in the peritoneal cavity: manipulation of the gallbladder, damage to the gallbladder during dissection, injury to the gallbladder when removed through a trocar orifice. A series of preventive measures can be considered: a gentle manipulation and dissection of the gallbladder, the use of an endobag in which to insert the gallbladder until the evacuation from the abdominal cavity, the use of at least 4 trocars. If the lesion has occurred and gallstones are in the peritoneal cavity, efforts should be made to minimize their spread and to identify all stones, including the use of a 30-degree laparoscope, extensive lavage, and the use of a 10 mm laparoscopic aspirator and a liver retractor (9,10).

Conclusions

The right-side pulmonary condition, not infrequently, are complications of certain abdominal affections and therefore the patient's medical history must be taken into account. Loss of gallstones during a laparoscopic cholecystectomy can rarely lead to complications, but these complications are severe when they occur. The thoracic approach is not the first intention in the treatment of pulmonary complications after spillage gallstones, but should be considered when the patient's condition does not improve.

Conflict of Interest

The authors declare that they have no conflict of interest.

Ethics Approval

The study case was carried out in accordance with the Declaration of Helsinki on experimentation with human subjects.

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