



Intramural Hematoma of the Esophagus as a Complication of Laparoscopic Cholecystectomy

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Abstract

We present a case of an intramural hematoma of the esophagus in a patient undergoing routine laparoscopic cholecystectomy. This uncommon condition predominantly affects women and is often mistaken for cardiovascular or other urgent digestive disorders.

The typical clinical signs include a triad of chest pain, dysphagia and hemoptysis. The intramural hematoma of the esophagus can be triggered by factors such as the Valsalva maneuver, mechanical trauma, and coagulopathies, though spontaneous occurrences are also documented. Diagnostic methods such as chest imaging (including computed tomography or magnetic resonance imaging) and upper gastrointestinal endoscopy are valuable for identifying this condition. Chest imaging provides detailed visualization of the hematoma, while endoscopy allows direct examination of the esophageal lining to confirm the presence of a hematoma and rule out other potential issues.

Treatment is generally conservative involving rest, pain management, parenteral feeding and monitoring for complications. In most cases, the prognosis is favorable, with full recovery expected within a few weeks.

Introduction

Laparoscopic cholecystectomy is one of the most common procedures performed in surgical practice worldwide. A small percentage of patients undergoing this surgery report chest pain in the early postoperative period (defined as time up to the third postoperative day). This pain is most often the result of tracheal irritation secondary to intubation or esophagitis/Mallory-Weiss syndrome as a result of Postoperative Nausea and Vomiting (PONV) [1,2].

Less common causes include

- Acute Coronary Syndrome (ACS) [3], aortic dissection in the perioperative period - particularly in patients with cardiovascular comorbidities
- Pneumothorax secondary to iatrogenic intraoperative diaphragm injury or barotrauma (e.g. high PEEP or too deep insertion of the endotracheal tube and ventilation of the right lung only) [4,5]
- Pulmonary embolism [6]
- Atelectasis and pneumonia [7] - almost exclusively in severely ill or not mobilized patients
- Boerhaave's syndrome [1,2]

The following paper describes an infrequent cause of chest pain after laparoscopic cholecystectomy - Intramural Hematoma of the Esophagus (IHE).

Case Presentation

We describe a 74-year-old woman admitted to hospital with a history of gallbladder polyps greater than 10 mm concomitant with dysphagia. History of well-controlled hypertension, non-insulin-dependent type 2 diabetes mellitus and hypothyroidism. She did not take any anticoagulants. She was qualified for elective laparoscopic cholecystectomy. The surgery was performed without intraoperative complications. On the first postoperative day, the patient reported severe chest pain exacerbated while swallowing.

Diagnostics

A routine differential diagnostics of chest pain was performed - blood tests, chest X-ray and

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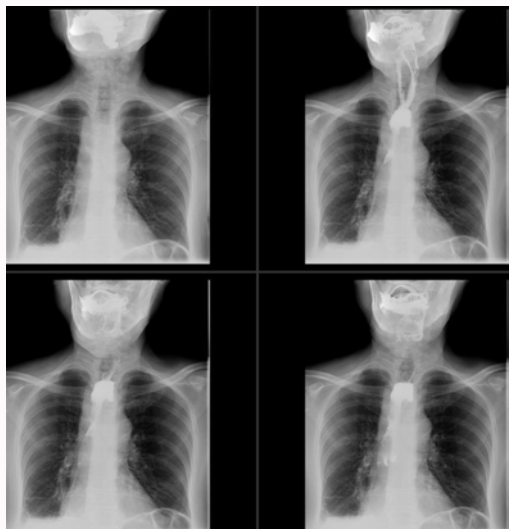


Figure 1: The esophagus shifted to the right side, in the thoracic section, presumably modeling on external structures, although intramural changes cannot be excluded, with multilevel stenosis of various degrees and dilated sections. The gastroesophageal junction is unobstructed, with good flow of contrast medium into the stomach. Further diagnosis by CT scan is indicated.

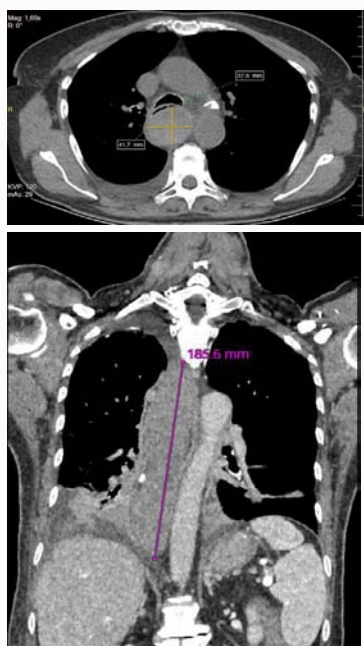


Figure 2a, 2b: A pathological structure in the esophagus - probably related to its posterior wall, a lesion in the transverse dimension with an oval outline, up to 40 mm in diameter - is visible at a length of about 200 mm. Uncharacteristic image, intramural hematoma of the esophagus cannot be excluded.

ECG showed no abnormalities.

The diagnosis was expanded to include a Gastrografin swallow study, which raised the suspicion of esophageal lumen narrowing (Figure 1). Chest CT scan and upper GI endoscopy revealed an extensive hematoma of the posterior esophageal wall, approximately 200 mm long and up to 40 mm in diameter (Figure 2a, 2b).

Further management

Conservative treatment including intensive pain management, parenteral feeding, and potassium supplementation was started.

Three units of red cell concentrate were transfused. The patient's condition remained fair and stable.

Follow-up chest CTs revealed a gradual reduction in the size of the hematoma (Figure 3a, 3b). On physical examination the abdomen remained soft, nontender.

The patient's condition gradually improved. The doses of pain medication were gradually decreased. Oral feeding including a soft diet and Oral Nutritional Supplements (ONS) was reintroduced with great tolerance. The patient received parallel parenteral nutrition and potassium and calcium supplementation was carried out. During dietary expansion, the patient reported diarrhea, hence a test for *C. difficile* was performed - negative.

The patient was discharged in good general condition with the recommendation to perform a follow-up upper gastrointestinal endoscopy in 4 to 6 weeks. The examination performed did not reveal any esophageal or gastric abnormalities.

Discussion and Review of the Literature

Intramural Hematoma of the Esophagus (IHE) is a very rare condition. The classic triad of symptoms associated with IHE includes retrosternal chest pain, dysphagia and hemoptysis. Most patients report at least 2 of the 3 symptoms presented [8,9]. It should be noted that symptoms can be similar to acute heart and lung conditions. However, dysphagia is a very specific symptom; it should prompt a widening of the diagnosis to include a barium or gastrografin swallow study, followed by upper gastrointestinal endoscopic examination and contrast-enhanced chest CT.

IHE can be divided into spontaneous and secondary. Secondary causes include:

- Mechanical trauma to the esophagus - oropharyngeal and nasogastric tube insertion, Endoscopic Ultrasound (EUS), Endoscopic Retrograde Cholangiopancreatography (ERCP), foreign body ingestion, endotracheal intubation [10-13]



Figure 3a, 3b: Complete regression of the lesion narrowing the esophageal lumen. The esophagus still remains dilated along almost its entire length.

- Increased esophageal wall pressure - Valsalva maneuver, increased vomiting.
- Severe coagulopathies [14,15].

In the presenting case, the most likely cause of IHE was the anesthetist's instrumental actions (endotracheal intubation and intensive suctioning of gastric contents) combined with Postoperative Vomiting (PONV).

The diagnostics of IHE include

- Blood tests (hs-cTn, pancreatic enzymes, AST, ALT, CRP, D-dimer, morphology), chest X-ray and Electrocardiography (ECG) to exclude more common causes of chest pain. The results of these investigations usually show no abnormalities in IHE
- Upper gastrointestinal series followed by contrast-enhanced chest CT and endoscopy to confirm unequivocally [16,17].

The management of IHE is usually conservative. The prognosis is very good; in most cases, it comes to complete resorption of the hematoma within 3 to 4 weeks. Nothing by mouth (NPO) for the first several days, total parenteral nutrition and intravenous administration of Proton Pump Inhibitors (PPI) drugs are recommended. In addition, potential coagulopathies are corrected and anemia is treated [18].

The size of the hematoma is monitored using chest CT. As the size of the hematoma decreases and symptoms subside, the fluids and soft diet are reintroduced.

Increasing hemoptysis (indicative of hematoma rupture) and increasing dysphagia (indicative of increasing hematoma size) should raise concern. In such cases, angiography with selective embolization of the actively bleeding vessel should be considered.

Operative treatment of IHE is usually associated with an unfavorable prognosis, but may be necessary in patients who do not respond to conservative treatment or who experience massive recurrent bleeding leading to hemodynamic instability [8,9].

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