Hemorrhagic Cholecystitis Leading to Gallbladder Perforation with Subsequent Bilio-thorax: a Rare Case Report with Literature Review

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Introduction

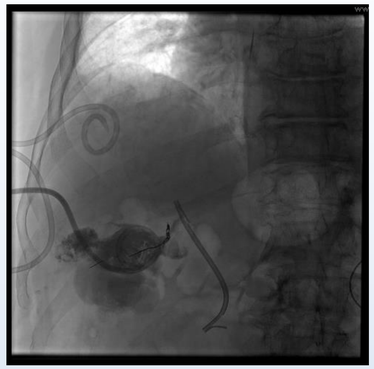
- Bilio-thorax is a rare diagnosis with varied etiologies found in the literature including congenital fistulas, infection, biliary obstruction, trauma, or iatrogenic (liver resection, radiofrequency ablation, percutaneous biliary drains).
- Gallstone etiology is one of the least published causes
- We present a recent case to add to the literature in addition to performing a systematic review to help guide treatment

Case Report

- 89-year-old male on anticoagulation presented with epigastric abdominal pain.
- CT scan was performed showing pericholecystic fluid, and concern for active bleeding within gallbladder lumen
- Ultimately, he underwent percutaneous cholecystostomy tube and cystic artery angioembolization
- He developed a right sided pleural effusion prompting tube thoracostomy with bilio-serosanginous output. Pleural bilirubin was assayed and found to be higher than serum levels
- He underwent biliary drainage and diversion with upsizing of his percutaneous cholecystostomy tube, as well as ERCP with sphincterotomy and stent placement
- No pleuro-biliary fistula was found. Contrast extravasation from gallbladder from presumed perforation was identified
- With time his chest tube output minimized and was pulled and he was discharged to rehab in stable condition

Methods

- A MEDLINE search from 2000-2023 yielded 66 relevant cases
- These cases were systematically analyzed and tabulated
- We intentionally began the search from 2000 to represent modern percutaneous and endoscopic treatments





Literature Review of Gallbladder Etiology Bilio-thorax Management

Article	Thoracostomy tube placement	ERCP	Identified Fistula	Surgery	Mortality
Jain et al. 2008	Yes	Yes Failed papillary intubation	Yes	Bilio-enteric bypass + fistula takedown	No
Lopez et al. 2008	Yes	No	No	Cholecystectomy + CBD exploration	Yes
Frampton et al. 2010	Yes	Yes Stone extraction + sphincterotomy	No	No	No
Grino et al. 2019	Yes	No	No	No	No
Gomez-Alvarez et al. 2022	Yes	No	Yes	Cholecystectomy	No
Our case report	Yes	Yes Sphincterotomy + stent	No	No	No

Results

- Literature search returned 66 identified cases of biliary pleural effusion: trauma (59%) was the most common etiology, followed by radiofrequency ablation or chemo embolization (10.6%), hepatic biliary instrumentation (10.6%), liver resection related (7.6%), gallstones (8%), infection (3%), and choledochal cyst (2%)
- All 6 cases related to gallstones underwent pleural drainage. 5 of these cases underwent biliary drainage or fistula takedown.
- Endoscopic retrograde cholangiography (ERCP) was attempted in 3, and successful in 2 cases in reducing pleural outputs
- Open surgical biliary decompression was required in 2 cases, and laparoscopic fistula takedown in 1 case

Conclusions

- Bilio-thorax is diagnosed by identification of an effusion which when drained is characteristically bilious, and on laboratory workup has elevated bilirubin
- MRCP is typically ordered next to identify presence of fistula, and identify any causes for development of bilio-thorax such as choledocholithiasis
- Definitive biliary drainage should be individualized to the patient and pursued to allow fistula tract to close
- ERCP is reasonable if pleural drainage does not resolve symptoms to allow diversion of bile, sphincterotomy, extraction of stones, and stenting over fistula
- Percutaneous cholecystostomy tube may be required if initial presentation is due to cholecystitis and otherwise high risk for surgical intervention
- Endoscopic & percutaneous therapies should be attempted to obviate need for major morbid surgery in compromised patients

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