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Case Report:

Bilothorax post-laparoscopic cholecystectomy

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ABASTRACT:

Bilothorax is an extremely rare cause of pleural effusion. It is an uncommon complication post laparoscopic cholecystectomy. Bilothorax occurs due to diaphragmatic trauma during surgery or translocation of bile via natural orifices. We report a case of 16 years female who underwent laparoscopic cholecystectomy and developed bilothorax. In this case there was no obvious communication between peritoneal and pleural cavity. Bilothorax should be considered as a cause of pleural effusion post laparoscopic cholecystectomy if patient develops unexplained pleural effusion, fever, breathlessness along with right upper quadrant pain and tenderness.

Keywords:- Laparoscopic cholecystectomy; Bilioma; Biliothorax; Diagnostic laparoscopy; Thoracostomy.

INTRODUCTION:

The term bilothorax was first coined by Williams[1] in 1971 in a case of blunt trauma resulting in a biliary fistula into the pleural space. Laparoscopic cholecystectomy is the gold standard treatment for gallbladder diseases due to its low morbidity and cost effectiveness. Other than the common complications of laparoscopy, additional complications include gallbladder perforation, clamping or injury of the common bile duct, injury to the right hepatic artery, injury to the vena porta or one of its branches, and hemorrhage from the liver[2]. Postoperative pleural effusion is more frequent in patients who undergo hepatobiliary surgery. Bilious effusion in the thorax is extremely rare and not completely understood, despite the identification of its several mechanisms for its pathophysiology[3].

There are approximately sixty cases reported in the medical literature. Most of the described cases are from bile tract injury resulting in a pleuro-biliary fistula or from a sub-phrenic abscess formation[4].

CASE REPORT:

16 years female presented to us with on and off pain right upper quadrant of the abdomen. On clinical examination there was mild tenderness in right hypochondrium. An ultrasound abdomen was advised, and she was diagnosed with cholelithiasis (12mm calculus and sludge). All the hematological and biochemical investigations were advised, and the patient was posted for elective laparoscopic cholecystectomy. Postoperative period was uneventful, and patient was discharged on day 2 on oral medications.

After 2 weeks patient reported to us with complaints of pain in abdomen, vomiting, difficulty in breathing and fever. Patient was readmitted, on examination she was having tachycardia, tachypnea, tenderness in right hypochondrium

and epigastric region, decreased air entry on right basal area. All the base line investigations were done which revealed TLC-28000/cu mm, DLC- P89L6E4M1, total Serum bilirubin- 0.5mg/dl, AST-13 U/L, ALT 10 U/L, ALP 130 U/L and GGT-31 U/L. Intravenous antibiotics were started (inj Imipenem + Amikacin) and patient was kept NPO. Regular vital monitoring of the patient was done. USG abdomen was done which showed right side pleural effusion and perihepatic collection. Chest X-ray (fig1) was done which showed right sided pleural effusion. Pleural tapping was done, 50ml of dark yellow colored fluid was drained and sent for biochemical analysis which revealed pleural fluid proteins -3.1gm/dl, albumin 1.5gm/dl, LDH-1530 U/L and total bilirubin of 7.78mg/dl.

Patient was planned for emergency diagnostic laparoscopy and a walled of bilioma on right subdiaphragmatic region was found and drained (fig 2). Vigorous intrabdominal washes were given with normal saline and Intra-abdominal drain was kept in situ in subhepatic region and tube thoracostomy was also done under water seal. Drain output was as follows:-

ABDOMINAL DRAIN:-

Postoperative day	Volume (ml)	Color
1	150	Greenish
2	100	Greenish
3	50	Bile tinged
4	50	Bile tinged
5	40	Serous
6	20	Serous (Drain removed)

THORACOSTOMY DRAIN:-

Postoperative day	Volume (ml)	Color
1	300	Greenish
2	100	Greenish
3	50	Light yellow
4	50	Serous
5	30	Serous (tube removed)

The patient improved symptomatically, orals were started on day 3, and total leukocyte count came within normal limits on day 5. The patient received respiratory physiotherapy. Patient was discharged on day 6 on oral medications and had a follow up after 1 week with no fresh complaint. Follow up chest X-ray and USG abdomen was which did not show any collection.

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Fig 1

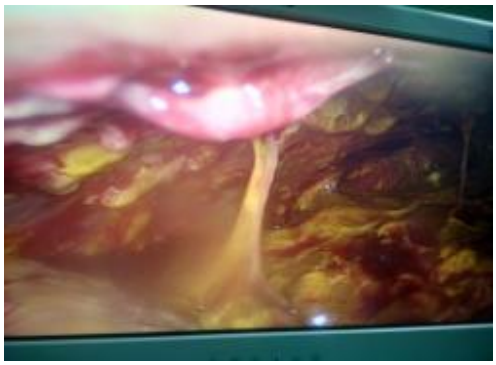

Fig 2

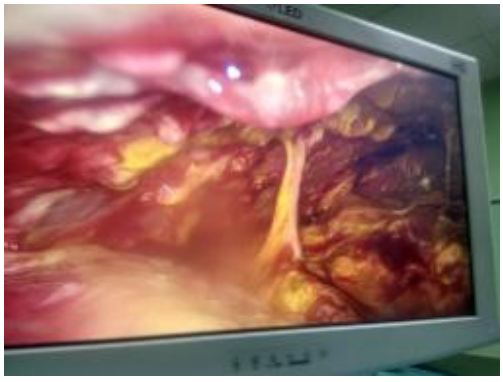

FIG 3

DISCUSSION:

Bilothorax is an uncommon complication mostly reported after iatrogenic diaphragmatic injuries during laparoscopy cholecystectomy. Rarely bilothorax can occur due to subdiaphragmatic collections. Transition of bile from the abdominal cavity into the pleural space may also occur either due to congenital diaphragmatic defects or

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through the aortic and esophageal hiatus. In our case there was no evidence of diaphragmatic injury or congenital defect. Therefore, the bile leak most likely occurred by passive transit through the diaphragm from the localized suprahepatic bilioma via lymphatics in the setting of inadequate biliary drainage or by caustic damage from the bile salts to peritoneal tissues and pleura. Bilious pleural effusion is a rare condition that can be a very serious cause of morbidity and mortality. It should be suspected in patients who develop a pleural effusion following upper gastrointestinal surgery, particularly if it involves manipulation of the biliary system. The majority of the reported bilothoraces occur on the right-side of the thorax due to the anatomical location of liver and biliary system. The diagnosis of a bilothorax requires a high level of suspicion. Conventional imaging modalities, including chest radiograph, ultrasound and CT can be used in establishing an accurate clinical diagnosis. The most specific test for the diagnosis of bilothorax is a total pleural fluid to serum bilirubin ratio greater than 1.0, with higher ratios increasing specificity for the diagnosis[5].

CONCLUSION:

The diagnosis of bilothorax requires a high degree of clinical suspicion and should be considered in cases of blunt abdominal trauma, severe hepatic infections, percutaneous transhepatobiliary interventions and laparoscopic cholecystectomy. Complete emergent drainage of a bilothorax is essential to prevent morbidity and mortality of patients.

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