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Biliopleural Fistula: A Rare Case Report Following Blunt Trauma to Chest and Abdomen

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Abstract

Biliopleural fistula is a rare pathological communication between biliary tree and the pleural cavity. It is an uncommon but serious complication that may arise following trauma, hepatobiliary surgery, hydatid disease or liver abscess rupture. Here is a case of an adult male with unusual presentation of cough, breathlessness following blunt trauma to chest and abdomen. Later imaging revealed haziness involving right side of lung. Early diagnosis was made and supportive management was initiated. This case highlights the importance of timely diagnosis and conservative management followed by chest tube insertion in the case of a biliopleural fistula.

Keywords: Biliopleural Fistula, Blunt Trauma, Chest Xray, Hemoperitoneum, Pleural Cavity

Introduction

Biliopleural fistula is a pathological connection between the biliary tree [intrahepatic /extra hepatic tree/gall bladder/liver] and the pleural cavity which is a rare and a life threatening condition as bile in the pleural cavity causes continuous inflammation and irritation of the pleural cavity and causes formation of empyema and fibrothorax as a sequelae. The negative intrathoracic pressure draws bile from the formed fistulous tract and causes continuous drainage of bile from the biliopleural fistula thus causing delayed healing of the fistulous tract. In a review of the literature on traumatic thoracobiliary fistulas, about 75% percent of cases are secondary to penetrating injuries, and the remaining cases are due to blunt trauma.[1]

Case Presentation

A 25 year old male presented to the hospital emergency with a/h/o blunt trauma to right costal and subcostal region with bull horn. Clinical examination showed swelling of size approx. 8*6*2 cm over right costal and subcostal region with approx 2*2 cm abrasion over it. On per abdomen examination, generalized tenderness was present but more localized to right upper quadrant. On chest palpation, there were palpable rib fractures on right side with tenderness at the corresponding site, no subcutaneous emphysema was felt and air entry was equal on both sides on the day of presentation. Efast showed bilateral pleural space clear with mild to moderate hemoperitoneum with hepatic laceration and contusions. Chest Xray was also normal as shown below. Patient had no other external injuries.

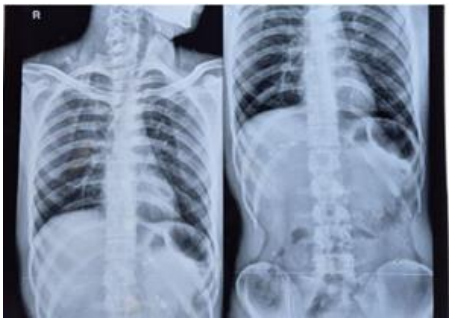

Figure 1: Day 1 Chest Xray and FPA

CECT W/A revealed liver contusion grade IV along with hemoperitoneum.

Serial radiographs were done and on day 4, xray showed haziness involving the right lung.

Figure 2: Day 4 Chest X Ray

Pleural tap was done on Day 5 – 1200 ml serosanguinous fluid aspirated. Patient was evaluated by doing serial radiographs of chest and next pleural tap was done on Day 11 – 1500 ml serosanguinous fluid was aspirated.

MRCP reported liver laceration with contusion with hemoperitoneum and biliopleural fistula in right lower part of diaphragm.

On Day 13 Patient was planned for ICDT (Intercostal drainage tube) insertion in right side of chest.

Figure 3: Post ICDT Insertion D1

Post op Day 1 (DAY 14) showed 1500 ml sanguinous content with bile tinge and air column movement was present.

On post op Day 5 (DAY 18) content turned bilious and air column movement was present.

Figure 4: Underwater Seal Bag Showing Bilious Output

On the following days, output slowly reduced with an average of around 400 - 500 ml bilious content.

On post op Day 12 (Day 25) Air column movement became absent with an output of only 50 ml bile tinged.

On post op Day 13 (Day 26) bilious content converted to serous and output was only 10 ml.

Figure 5: POD 13 (Day 26) Chest Xray

On post op Day 16 (Day 29) ICDT was removed.

Patient was discharged 2 days later with no complaint of fever, no difficulty breathing and no chest pain. Chest physiotherapy was explained and advised along with oral

antibiotics and patient was called for follow up after 7 days.

Figure 6: Chest Xray on Follow Up Day 7 After Discharge

Discussion

- A bilious effluent from pleural aspiration or chest tube with bilirubin levels usually in the range of 4–10 mg/dL is diagnostic.[2]
- There are multiple management options involving conservative along with chest tube drainage and biliary stenting [3]
- Antibiotics and iv fluids are given for supportive treatment.
- When conservative management fails, thoracotomy is the preferred approach.
- Endoscopic retrograde cholangiopancreatography is the imaging modality of choice because it has the potential of therapeutic intervention by sphincterotomy or stent placement.[4]
- Definitive treatment included sphincterotomy and stenting, pulmonary decortication, fistulectomy, hepatic suture in, perihepatic closed drain placement, and suture of the diaphragm.[5]
- Postoperatively patients should be followed up for control of bile leak and improvement of lung function.

Management

- In this case, serial radiographs and blood investigations were evaluated daily.
- Blood investigations revealed raised bilirubin levels in the early stage that later showed a decreasing trend.
- Conservative management included pleural tapping and chest physiotherapy with supportive antibiotics.
- Later, chest tube insertion was planned according to the patient's condition. This resulted in drastic improvement in patient's general condition and investigations.

Conclusion

The biggest dilemma regarding biliopleural fistula is the proper management. Although for the bulk of cases surgery is advised as the best solution but this case report shows the progression of biliopleural fistula by conservative management along with chest tube drainage

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