

## Case Report

# Biliopleural fistula - A rare complication of blunt thoracoabdominal trauma

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## Abstract

We have reported here a case of thoraco diaphragmatico biliary fistula in a 24 years old male who was managed conservatively with antibiotics and tube thoracostomy and had complete radiological clearance. Thoracobiliary fistulas (TBF) (bronchobiliary and pleurobiliary) are rare complications of thoraco-abdominal trauma. Owing to their rarity, there is little consensus on the optimal management. The diagnostic suspicion however must be considered and it's important the correct selection of diagnostic imaging techniques.

## Key words

Thoraco diaphragmatico biliary fistula, Tube thoracostomy, Biliopleural fistula.

## Introduction

Thoraco diaphragmatico biliary fistula is a rare manifestation of post traumatic complications. Given their rarity, it is not surprising that there is little consensus on the optimal management of these fistulas [1].

## Case report

A 24 years old male patient with an alleged history of road traffic accident (RTA) presented to our hospital with complaints of pain in the right side of chest and whole of abdomen. After getting first aid, he was referred to our hospital for further management. On examination,

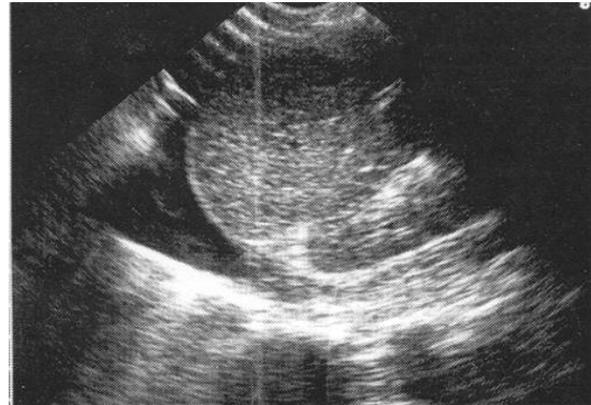
patient had decreased breath sounds on right side. Chest X-ray showed right side rib fractures involving 3 to 6 and 8 to 11 with pneumohemothorax, pneumomediastinum and extensive surgical emphysema.

Ultrasonography (USG) abdomen showed fluid collection about 200 ml in hepatorenal pouch, 100 ml in perisplenic area, 400 ml in bilateral paracolic gutter with sings of hemoperitoneum with hemorrhagic liver contusion. **(Photo – 1)** Tube thoracostomy was performed and blood was drained. **(Photo – 2)** Later contrast enhanced tomographic (CECT) scan of chest and abdomen was done which showed right side

anterolateral displaced fracture from 3<sup>rd</sup> to 6<sup>th</sup> ribs, posterolateral displaced fractures involving 8 to 11<sup>th</sup> ribs with pneumohemothorax, pneumomediastinum. Extensive emphysema involving bilateral cervical, right anterior, lateral chest wall was present along with perihepatic free fluid collection, and 6<sup>th</sup> rib internally displaced indenting liver. Grade III liver laceration involving 5, 6, 7, 8 segment of right lobe of liver was evident with moderate hemoperitoneum. **(Photo – 3)** After two days of thoracostomy, when the blood was drained, brownish colored fluid appeared in the bag with greenish tinge in intercostals drainage (ICD) tube. **(Photo – 4)** Thus, the diagnosis of thoraco diaphragmatico biliay fistula was made. Biochemical analysis of the ICD fluid was done and was positive for bilirubin and liver enzymes hence confirmed to be bile. Abdominal signs progressively improved. To identify biliary radical injury, MRCP was performed and was found to be right lobe posterior segmental contusion and laceration with perihepatic and perisplenic hemoperitoneum. **(Photo – 5)** Focal biliary dilatation involving the right lobe posterior segmental branches with visual thin streak of common right hepatic duct (RHD), left hepatic duct (LHD) and proximal common bile duct (CBD) was present along with biliary injury at the site of liver contusion/ laceration may be present.

ICD drain declined off over the next 2 -3 days. Oral feeds started on 5<sup>th</sup> day. Diaphragmatic rent cannot be made out by facilities in our hospital. Biliopleural fistula (BPF) healed spontaneously, patient improved with conservative management. Patient improved symptomatically IC drain was removed on 6<sup>th</sup> day and patient was taken over by cardiothoracic vascular (CTV) surgeons. Patient came for review after 2 weeks and sent for USG evaluation which was normal.

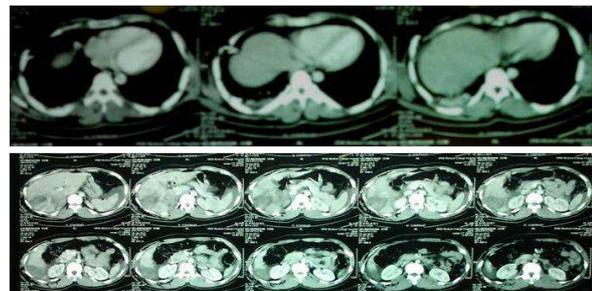
**Photo - 1:** USG abdomen at the level of liver and kidney showing hemoperitoneum.



**Photo - 2:** Tube thoracostomy.



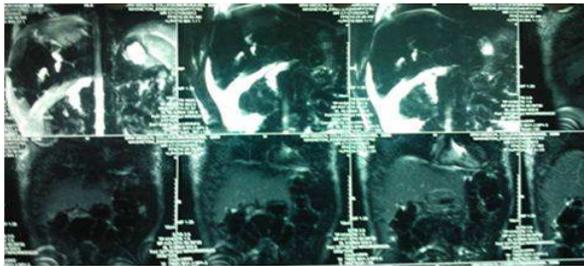
**Photo - 3:** Right side anterolateral displaced fracture from 3<sup>rd</sup> to 6<sup>th</sup> ribs, posterolateral displaced fractures involving 8 to 11<sup>th</sup> ribs with pneumohemothorax, pneumomediastinum and Grade III liver laceration involving 5, 6, 7, 8 segment of right lobe of liver. (CECT scan)



**Photo - 4:** ICD insertion draining fluid was observed to have altered colour with the greenish tinge over the ICD tube.



**Photo - 5:** MRCP image shows right lobe posterior segmental contusion and laceration with perihepatic and perisplenic haemoperitoneum.



## Discussion

Early diagnosis of BPF is crucial in the management of this condition. A delayed diagnosis leads to the development of several complications that may warrant extensive surgery [2]. Bile has been shown to have a corrosive effect upon the lung and pleural space. A high index of suspicion in the appropriate clinical situation is therefore mandatory. The presence of bile on thoracocentesis of a pleural effusion and bilioptysis are pathognomonic for TBF [3]. Bilioptysis may range in presentation from bile stained sputum to the expectoration of large volumes of bile occasionally approaching a liter. Pleurobiliary fistula may predispose to a loculated bilious empyema; the consequent development of pleural adhesions may entrap the lung, thereby compromising lung function.

Bronchobiliary fistula may predispose to necrotizing bronchitis or bronchopneumonia; rarely a chronic indirect pneumonitis may develop [4].

The initial management of patients presenting with thoraco diaphragmatico biliary fistula is conservative management with tube thoracostomy or drainage of sepsis when appropriate, or both; antibiotics are routinely administered [5].

Endoscopic cholangiography may demonstrate the fistulous tract and identify distal biliary obstruction, which is crucial for the persistence of TBF. Furthermore, endoscopic sphincterotomy may be undertaken during this study.

Endoscopic retrograde cholangiography is advised if symptoms persist to delineate the thoracobiliary communications and undertake sphincteroplasty.

## Conclusion

Thoraco diaphragmatico biliary fistulas can be successfully managed using a conservative approach. Surgery should be reserved for persistence of symptoms after exhaustion of this approach.

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