# Bilothorax: Uncommon Accumulation in the Pleural Space

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## Introduction

In rare circumstances, pleural fluid can accumulate from outside of the blood vessels. This disease state has been termed pleural effusion of extra-vascular origin (PEEVO) and can include urine, CSF, bile, dialysate or chyle.

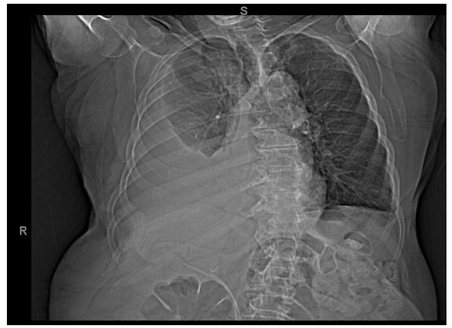
**We present a case of spontaneous translocation of bile into the thorax in a patient with a hepatic duct stricture.**

## Case Presentation

We present an 88-year-old male with history of cholecystitis status post cholecystectomy complicated by common hepatic duct stricture with indwelling T-tube presented to the ED with two days of fatigue, abdominal pain and shortness of breath. Prior to presentation, the T-tube was functional for several months and then was removed inadvertently while at home.

Vital signs significant for SpO2 90% on room air
Labs showed WBC 17.9, AST 140, ALT 130, ALP 867, TBili 0.9

**Figure 1: CT Chest/Abd/ Pelvis**
Large right sided pleural effusion causing complete atelectasis involving the right middle and lower lobes. Subcapsular right hepatic fluid collections



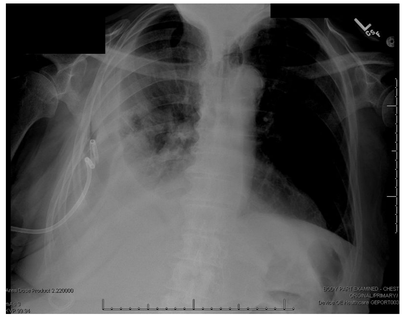

## Hospital Course

MRCP showed high grade stricture at the junction of left and right hepatic ducts and CBD with intrahepatic ductal dilatation.

ERCP was performed and the proximal biliary tree was unable to be opacified with contrast.

A percutaneous trans-biliary drain was placed with fluid samples positive for *staph simulans.*

**Figure 2: Chest Xray**
Moderate right pleural effusion with associated pleural air and right pigtail catheter



Repeat ERCP was performed, and two stents were placed in the common bile duct via rendezvous IR and GI

A chest tube was placed and 1.5L of green fluid was removed.

Fluid studies showed **WBC 925, glucose 54, LDH 1831k, protein 2.9, Bilirubin 7.5 (serum bilirubin 0.8), and pH 7.21**. The diagnosis of bilothorax was made. Repeat imaging demonstrated improvement in fluid collection and the chest tube was removed after 5 days.

## Topic of Discussion

PEEVO in which bile is the accumulated fluid is termed as “bilothorax”. It is often the result of injury to the biliary tree leading to a fistula between the tree and pleural space. **In this case, there was spontaneous translocation of bile which is quite uncommon.**

### Bilothorax:

- Imaging will typically demonstrate isolated right-sided effusion.
- Diagnosis is confirmed with pleural studies
  - Often exudative
  - Distinguishing feature is the presence of bilirubin in the fluid.
  - If the bilirubin concentration in the pleural fluid is greater than that of the serum bilirubin, the diagnosis of bilothorax is made.
- Coordination between pulmonology and gastroenterology specialists is essential for prompt drainage of the accumulation and decompression of the biliary system.
- The presence of a fistula additionally warrants surgical correction.

## Learning Points

- Bilothorax is a rare form of PEEVO
- Bilothorax should be considered in patients with trauma to the biliary tree and right sided pleural effusion
- Diagnosis is confirmed by pleural studies showing pleural bile > serum bile
- Treatment includes antibiotic therapy and surgical correction when fistula is present

## References:

Aydogan A, Erden ES, Davran R, Yetim I, Ozkan OV. Cholethorax (bilious effusion in the thorax): An unusual compli- cation of laparoscopic cholecystectomy. Arch Iran Med. 2013;16(8):489–90.