Clinical Case Reports: Open Access

Yumed Text
OPEN ACCESS JOURNALS

Case Report | Vol 5 Iss 2
ISSN: 2582-5038
https://dx.doi.org/10.46527/2582-5038.219

Hemoperitoneum Following Liver Rupture in a Post ERCP Patient: A Case Report

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Received: June 05, 2022; **Accepted:** June 14, 2022; **Published:** June 22, 2022

Abstract

Spontaneous liver laceration is a rare event, which usually occurs in patients with some underlying liver pathology. Subcapsular hematoma is an uncommon but known complication post-ERCP. ERCP guidewire induced liver injuries typically present within 48 hours of the procedure. Here we describe the case of a 67-year male patient who developed a hepatic pseudoaneurysm which ruptured leading to grade IV liver laceration 5 days after ERCP. The patient was managed non surgically, with angiographic embolization of the feeding artery, and later drainage of the collected hematoma through two pigtail drains placed under CT guidance. Treatment modalities include conservative medical management, angiographic embolization of the bleeding vessel, percutaneous drainage of the hematoma, and surgical management. Good outcome can be achieved with an individualized management plan and a multidisciplinary approach.

Keywords: ***Spontaneous liver laceration; ERCP; Hemoperitoneum***

1. Introduction

Spontaneous liver laceration is a rare event, which usually occurs in patients with some underlying liver pathology. Subcapsular hematoma is an uncommon but known complication post-ERCP. ERCP guidewire induced liver injuries typically present within 48 hrs of the procedure. Here we describe the case of a 67-year male patient who developed a hepatic pseudoaneurysm which ruptured leading to grade IV liver laceration 5 days after ERCP. the Patient was managed non surgically, with angiographic embolization of the feeding artery, and later drainage of the collected hematoma through two pigtail drains placed under CT guidance.

2. Case Report

We present the case of a 67-year-old male patient who had a history of gall stones, and had undergone endoscopic retrograde Cholangiopancreatography (ERCP) with common bile duct (CBD) stone extraction 4 days prior to presentation. Patient had been discharged after a smooth post procedure course after ERCP. Patient had no history of alcohol use, no prior liver disease. He presented with fever and chills 24 hrs prior to admission. There was no history of jaundice or vomiting. On examination the patient was febrile, and hypotensive. Abdomen was soft. Initial investigations were as follows: Haemoglobin was 12.5 g/dl, white blood cells 15,240/µl, platelets were wnl.haematocrit 39.2%. Prothrombin time was high, with an international normalized ratio (INR) of 1.60, rest of the liver function tests were unremarkable. Initial ultrasonography (USG) confirmed the CBD stent to be in situ with pneumobilia, no free fluid or other significant abnormality.

Initial impression based on clinical findings and investigations was that of acute febrile illness with hypovolemic shock. Patient was initially treated in intensive care unit with intravenous broad-spectrum antibiotics and crystalloids, after which he stabilized.

On second day of admission, patient developed right upper quadrant pain and abdominal distension. On examination, patient was hypotensive and pale, right upper quadrant tenderness was present. There was fall in haemoglobin (7.8 g/dl) and haematocrit (23.4) D-Dimer was more than 5000 ng/ml. In view of the new clinical findings, urgent Computed Tomography (CT) abdomen was done. The imaging was suggestive of American Association for the Surgery of Trauma (AAST) grade IV [1] liver laceration involving segment VIII of liver with a narrow neck pseudoaneurysm arising from segment VIII branch of right hepatic artery and mild to moderate hemoperitoneum predominantly in perihepatic and right para colic region.

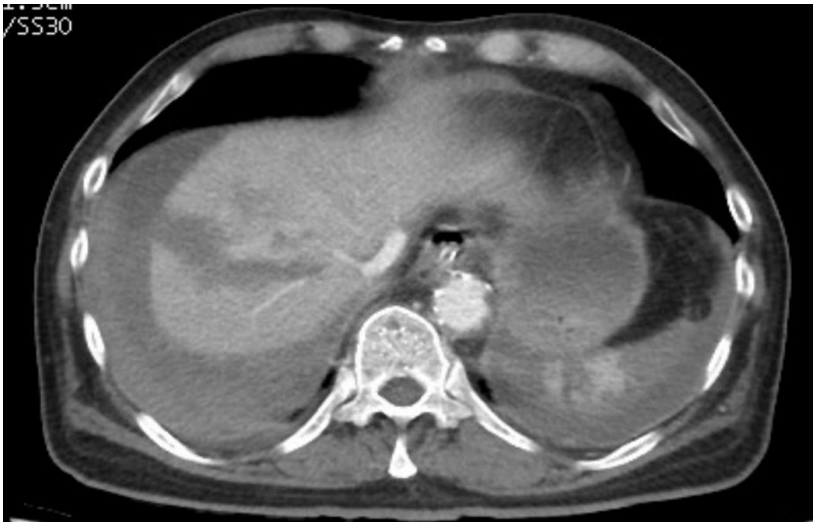

FIG. 1. **Perihepatic hematoma on CT scan.**

Blood and blood products were transfused, and emergency hepatic digital subtraction angiography (DSA) with embolization was undertaken. Angiography revealed a 2 cm × 1.7 cm ruptured pseudoaneurysm arising from distal branch of right hepatic artery which was embolized using multiple coils and polyvinyl alcohol (PVA) particles. Check DSA showed complete thrombosis of the pseudoaneurysm.

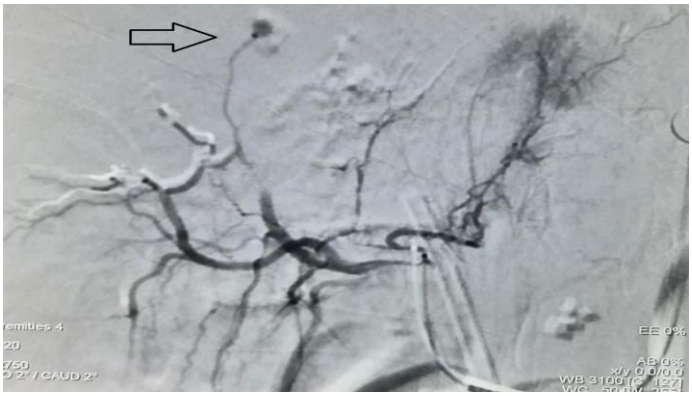

FIG. 2. **DSA showing extravasation of contrast.**

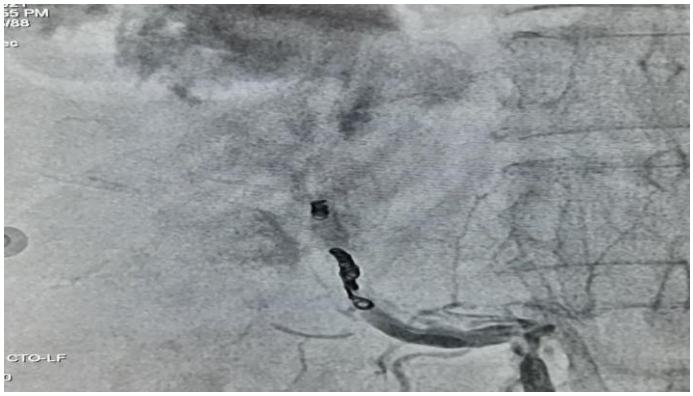

FIG. 3. **Post embolization.**

Evolution of the hematoma and post procedure changes in liver were periodically monitored with imaging. He developed right upper quadrant pain, fever, and mild dyspnoea on day 7 post procedure. Imaging was suggestive of almost 500 ml of liquefied hematoma in the right upper quadrant.

The perihepatic collection was drained through two 14 French pigtail catheters inserted under CT guidance. Patient gradually improved and was discharged. The pigtail catheters were removed after 2 weeks on outpatient basis, once imaging showed resolution of the collection.

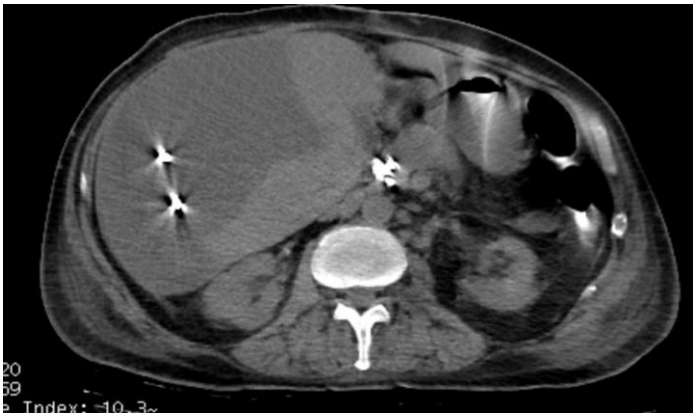

FIG. 4.

3. Discussion

Atraumatic spontaneous liver laceration is a rare event which, in most cases, occurs in patients with pre-existing liver pathologies like malignant or benign liver lesions, amyloidosis, or specific predisposing factors like connective tissue diseases, bleeding disorders, or pregnancy. Spontaneous liver laceration in a patient without underlying liver pathology is very rare, only a few cases have been reported [2-4].

In the present case, the patient did not have any pre-existing liver parenchymal pathologies. There was no history of trauma. The only suggestive history was that of ERCP 5 days prior to the rupture.

Ortega et al described the first case of ERCP related liver injury, wherein they hypothesized that liver parenchyma had been torn by the guidewire, leading to hematoma. Similar injuries have been reported in multiple studies thereafter [5].

In most of these cases, the liver injury presented relatively early compared to the present case - within 1-2 days of ERCP [6], with a rare case presenting on day 5 [7]. In our case, patient had undergone ERCP 5 days before the presentation of liver rupture. Posttraumatic hepatic pseudoaneurysm is a known entity, which was studied by osterballe et al in a large study [8]. They found that hepatic pseudoaneurysm develops in 4% of patients after traumatic liver injury, which did not correlate with the severity of the initial injury.

In the present case, it is likely that ERCP may have caused minor trauma, which later led to development of a pseudoaneurysm, which eventually ruptured.

In addition to clinical findings and lab values, appropriate and timely imaging is key to a prompt diagnosis.

Treatment modalities include conservative medical management, angiographic embolization of the bleeding vessel, percutaneous drainage of the hematoma, and surgical management. [7,6,9,4,10]

Most studies are in agreement that the treatment plan needs to be individualized for each patient based on hemodynamic stability and extent of injury.

If identified quickly and treated with a multidisciplinary approach (involving intensive medical care, interventional radiology and surgical input), the patients can be safely managed non-surgically [10].

Although this is a rare complication, it should be considered as part of differential diagnosis of symptomatic cases after ERCP to ensure early diagnosis and favourable outcome. [11,6]

4. Conclusion

Ruptured hepatic artery pseudoaneurysm with liver laceration following ERCP is a rare and potentially life-threatening condition but can be managed effectively with multi-disciplinary input.

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