International Journal of Sciences & Applied Research

www.ijsar.in

A case of huge post traumatic Hepatic Pseudocyst in a young female

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Abstract

Blunt abdominal trauma frequently injures liver resulting in superficial lacerations. However, in rare cases it can manifest as a cystic lesion. Its incidence is very low and only few cases have been reported in literature. We are reporting a case of a fifteen year old female who presented with a large abdominal swelling two months after the initial history of trauma. Imaging study done by computerised tomography (CT) suggested the possibility of a pseudocyst. Preoperatively the cyst was found to be located in the liver and histopathology confirmed the diagnosis. The aim of this case report is to be aware of this rare complication of liver injury which may manifest after a particular time period of the initial insult.

Keywords: Post traumatic hepatic cyst, Pseudocyst, CECT (contrast enhanced computerised tomography, abdomen

Introduction

Liver is one of the most commonly injured organs in blunt abdominal trauma. The anterior location in the abdominal cavity and fragile parenchyma with easily disrupted Glisson's capsule make this organ vulnerable to injury. Most often trauma causes only superficial lacerations. However, in rare cases it can result in traumatic liver cysts.[1] These post traumatic hepatic cysts have a very low incidence among all liver cysts. Very few cases of post traumatic hepatic cyst have been described in literature. We are presenting a case of hepatic cyst which gradually developed two months after the initial history of trauma.

Case report

A fifteen year old female presented with complaints of right upper quadrant pain, abdominal distension and vomiting for five days. Two months prior to these symptoms, patient had a history of fall from roof resulting in blunt abdominal trauma. X-ray revealed rib fracture and Colle's fracture. Liver function tests (LFT) showed raised aspartate aminotransferase (AST) and alanine transaminase (ALT). On CT scan, there was large heterogeneous density of size 90 x 61x 71 mm noted in liver involving segment IV, VII and VIII suggestive of contusion (Figure. 1). Injury to the pancreatic head was also noted. Patient was managed conservatively for liver injury by intravenous fluids, antibiotics and

analgesics. She responded well and was discharged.

Figure 1: CECT abdomen coronal view at the time of injury showing area of contusion in the liver (white arrows).

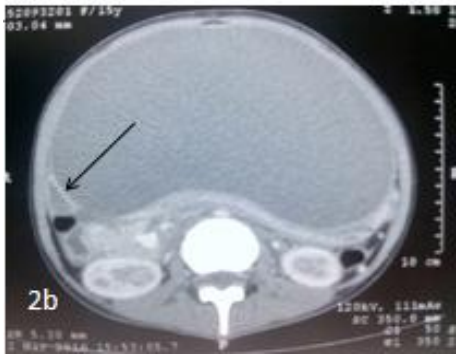

Figure 2a and 2b: CT images at different axial planes showing a cystic hypodense lesion with occasional fine septations (black arrow).

The patient presented now, two months after this episode with increasing abdominal swelling. Now LFT showed raised alkaline phosphatase but normal aminotransferase and alanine transaminase. Ultrasonography revealed anechoic collection in the right lobe of liver along with a large pelvic cyst compressing the bowel loops. CECT abdomen showed a large peripherally enhancing hypodense lesion of size 197x116x198 mm from epigastrium to infraumbilical region (Figure. 2 and Figure. 3).

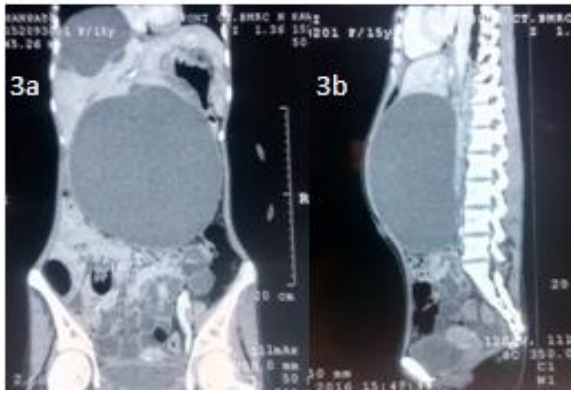

Figure 3a: Abdominal CT coronal plane showing two cystic lesions which were found to be communicating on serial slices.
Figure 3b: Abdominal CT sagittal plane demonstrating large fluid-filled collection in the liver**.**

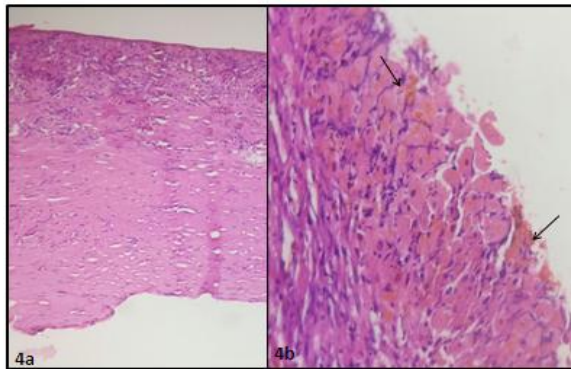

Figure 4a: (10X) Histopathology of the cyst wall showing fibrocollagenous tissue.
Figure 4b: (40X) At places the cyst wall is seen lined by hepatocytes showing reactive changes and hemosiderin pigment (black arrows).

Serial slices proved the intercommunicating character of the cysts which were suggested

to be separate on ultrasound examination. Overall, the imaging studies favoured an intraabdominal pseudocyst. With a history of initial liver and pancreatic head injury, a differential diagnosis of pancreatic or hepatic pseudocyst was kept.

Surgical intervention by excision of cyst was planned. Per-operatively the cyst was seen attached to the liver and the contents were found to be biliary and hemorrhagic. Thus, the diagnosis was more directed towards hepatic cyst. The cyst wall was sent to the Pathology department for further confirmation.

On histopathological examination the cyst wall was found to be composed of fibrocollagenous tissue along with granulation tissue at places (Figure. 4a). Haemorrhage was also present. There was no true epithelial lining of cyst. Occasionally hepatocytes were noted lining the cyst. Mild reactive changes were seen in the hepatocytes with hemosiderin pigment at places (Figure. 4b).

Discussion

Post traumatic hepatic cysts are the rare sequel of liver injury in blunt abdominal trauma having an incidence of about 0.5-2% among all liver cysts.[2,3] Patients most commonly present with complaints of abdominal pain, distension and hepatomegaly.[4] Our case also presented with similar complaints. Few cases have been reported which presented with complications of post traumatic hepatic cyst like obstructive jaundice, abscess formation, haemorrhagic shock and bile peritonitis due to cyst rupture.[5]

Most of patients were of paediatric age group or young adults with females being affected more commonly.[4-7] Our patient was also a fifteen year old female.

Christopher had classified traumatic liver injury into three types- central, sub capsular and rupture of liver tissue with its capsule. Central or intra-hepatic rupture of liver tissue causes oozing of blood and bile thus forming traumatic liver cyst. Bleeding may stop while continuous oozing of bile allows the cyst to grow. So, there is delay of several weeks to months even years after initial hepatic trauma, before patient develops the symptoms.[6,7]. Our patient had a typical natural history presenting two months after the trauma.

Some authors believe that moderately severe trauma is a prerequisite for the development of traumatic hepatic pseudocyst as rupture of bile ducts and haemorrhage must occur to cause it.[8] Many other researchers did not find any relation between the severity of trauma and cyst formation.[3]

Liver function tests should be performed to assess the extent of liver injury. Raised alkaline phosphatase after a time interval from the initial injury indicates expansion of the cyst as noticed in our case.[3] Ratan et al. advised that diagnosis of hepatic injury should be considered if the following imaging signs are present in a patient with abdominal injury: (i) a raised diaphragmatic dome on X-ray, (ii) altered hepatic echo texture on ultrasound, and (iii) altered liver attenuation at CT scan. The role of CT scan and specifically serial CT examinations for the diagnosis of hepatic cyst is well recognized.[3] In our case CT showed a large peripherally enhancing hypodense lesion of size 197x 116x 198 mm. MRI also plays a crucial role in differentiating various cystic lesions as bile and blood give different signal intensities on T1 and T2 weighted images.

Most of cases had a cyst of size up to 11 cm with largest of 15 cm. Despite extensively searching the literature, we could nowhere find any case of hepatic pseudocyst larger than ours. Thus our case is unique and one of the largest pseudocyst reported in literature.

The differential diagnosis of a post-traumatic liver cyst clinically and radiologically includes simple cyst, parasitic or hydatid

cyst, biloma, pseudopancreatic cyst, loculated ascites especially due to tuberculosis and multiple cysts arising in setting of polycystic liver disease.[9] It is investigations along with the nature and location of the mass at surgery which helps in establishing diagnosis. In a post-traumatic cyst, altered blood and bile are the chief constitutents while simple unilocular hepatic cyst contains thin clear fluid and hydatid cyst contains scolices. Biloma has bile as the main constituent and usually follows any surgical procedure. However, histopathology remains gold standard for differentiating between various types of cysts. Simple cyst shows true epithelial lining while it is absent in hepatic pseudocyst. In our case, cyst wall was composed of fibrocollagenous tissue along with granulation tissue. No true epithelial lining was noted.

These post traumatic pseudocysts sometimes regress spontaneously.[3] If they are symptomatic, appropriate treatment should be planned. The treatment modalities employed for these cysts included simple drainage, intermittent irrigation and drainage by means of a tube, marsupilisation of the cyst to the abdominal wall, decortication of cyst wall, omentoplasty and capitonnage for larger cysts.[6-8] Due to large size, in our case entire cyst was drained and excised. Recently, laproscopic excision of cyst and USG guided percutaneous drainage of cyst with supra-cath have been carried out with minimum morbidity. [10, 11]

Conclusion-By this case report we would like to highlight the fact that trauma to liver may lead to delayed manifestations in the form of cyst formation. If a patient presents with abdominal complaints with history of abdominal trauma in past, proper imaging studies with special emphasis on serial CT scans and MRI should be done. If a cystic lesion is found, one should always consider the possibility of a post traumatic hepatic pseudocyst as a differential. Histopathological examination should be done for confirmation of diagnosis. Treatment should be planned according to the site and size of the cyst.

Conflicts of interest: None

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