Spontaneous Common Bile Duct Perforation Presenting as Acute Abdomen

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Abstract Spontaneous common bile duct (CBD) perforation is an unusual cause of acute abdomen. It is rarely suspected or correctly diagnosed preoperatively. Clinical presentation is as biliary peritonitis. The common causes are CBD calculus disease, tumors of the bile duct, choledochal cyst and sometimes idiopathic. Treatment is surgical and consists of CBD exploration and repair over a T tube.

Keywords CBD · Perforation · Biliary peritonitis · T tube

Spontaneous common bile duct (CBD) perforation is a complication rarely seen in infants and children due to congenital anomalies [1, 2]. The proposed theories for its etiology have included congenital weakness of the CBD, distal obstruction and pancreatic reflux. Occasionally it has been reported in adults following invasive procedure in and around CBD. But spontaneous perforation is very rare in adults. Probable causes include high intraductal pressure due to tumor obstruction of the ampulla, calculus, pregnancy and necrosis of duct wall secondary to vascular thrombosis. Till date less than 50 cases have been reported in adults. Most of these perforations are extrahepatic; intrahepatic ductal perforation is still further rare. Acute

abdomen due to biliary peritonitis can be caused by duodenal or gall bladder perforation but occasionally due to spontaneous CBD perforation. We report an interesting case of spontaneous CBD perforation in an elderly woman and review the literature of such cases.

Case Report

A 50 year-old-female patient presented with sudden onset acute abdominal pain and distension with vomiting, and non-passage of flatus and stool for five days. On examination she was pale, tachypneic and dehydrated, with tachycardia and hypotension. The abdomen was distended and tender. Shifting dullness was present but liver dullness was not masked. An abdominal paracentesis examination revealed biliary fluid. No free gas was found under the diaphragm in abdominal X-ray film done in erect posture. A provisional diagnosis of peptic perforation was made, and she was explored after resuscitation. Operative findings included two liters of bile-stained purulent fluid with pus flakes, gall bladder was thick walled and contained multiple calculi without any evidence of perforation. The stomach and duodenum were unremarkable. A single 0.5 cm×0.5 cm free perforation was present in the anterolateral surface of supraduodenal portion of the common bile duct about 1 cm distal to cystic duct and common hepatic duct confluence. The common bile duct was not dilated and contained multiple stones. A cholecystectomy was done and the CBD was explored. Multiple small stones were removed, irrigation was done with warm normal saline, the patency of the ampulla was checked and the CBD was closed over a T-tube inserted through the site of perforation. The peritoneal cavity was irrigated with

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warm normal saline. The abdomen was closed after inserting a suction drain in the hepatorenal space.

Discussion

Perforation of the extrahepatic bile duct is extremely rare and is described mainly in infants due to congenital anomalies of common bile duct [1]. Very few cases of bile duct perforation have been reported in adults.

In one review of literature conducted on spontaneous perforation of bile duct in adults, 70 cases were found [3]. Among these, site of perforation was common bile duct in 42 cases, followed by hepatic duct in 28 cases. The commonest cause for perforation was a stone. The other causes for spontaneous perforation of bile duct reported in literature were, previous biliary tract surgeries, tumors, congenital malformations like choledochal cysts, biliary diverticulum and sometimes idiopathic [1, 4].

The presentation of CBD perforation may be acute or insidious, with the latter type being more common and characterized by progressive jaundice, painless abdominal distension and clay colored stools. The acute form is less common and presents with fever, vomiting and signs of fulminant peritonitis [5]. Rarely, spontaneous CBD perforation may present as gastric outlet obstruction [6].

Ultrasound findings in CBD perforation are free intra-peritoneal fluid with normal intra and extra-hepatic ducts. Failure to demonstrate the gallbladder reflects decompression of the biliary system due to leakage through perforation. In doubtful cases, the diagnosis can be confirmed with a radioisotope scan. However, in the present case, the diagnosis was made intraoperatively.

Recommended treatment for such cases is T-tube drainage of the common bile duct along with cholecystectomy. In cases with distal obstruction of the CBD, a biliary enteric bypass should be done. Primary suture repair of the CBD is considered unnecessary and even hazardous due to local inflammation.

Conclusion

In conclusion, spontaneous perforation of the extra-hepatic bile duct is a rare but important condition in adults. Only awareness of the clinical presentation, expert ultrasound examination combined with scintigraphy, if required, helps in early preoperative diagnosis. Conservative surgery is the mainstay of treatment.

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