

# Spontaneous Common Bile Duct Perforation in Adult: A Case Report and Review

Ali J. Awad \*

MBChB, CABS, MRCS

*Fac Med Baghdad*  
2010; Vol. 52, No. 1  
Received Nov. 2009  
Accepted Nov. 2009

## Summary:

**Case Report:** Common bile duct perforation has been reported in adults after invasive procedures, spontaneous common bile duct perforation is a rare entity as a cause of acute abdomen in adults. A few cases due to choledocholithiasis have been reported as a cause of spontaneous perforation. We report an adult patient who presented with acute abdomen after spontaneous common bile duct perforation due to unknown etiology who was treated successfully.

**Keywords:** Common bile duct-perforation- acute abdomen.

## Introduction:

Spontaneous perforation of the common bile duct (CBD) as a cause of acute abdomen is a rare event in adults 1. cholelithiasis, choledocholithiasis, and tumor obstruction of the ampulla have been reported as some of the causes of perforation 2. We report a case of a patient with spontaneous CBD perforation who presented as acute abdomen without any predisposing etiological factors.

**Case Report:** A 55-years old male presented to emergency with acute abdominal pain and vomiting for 2 days. There was progressive distension of the abdomen. There was no associated constipation or diarrhea. The patient was a non-alcoholic and had no history of acid peptic symptoms or trauma. He was a known hypertensive and had suffered a cerebrovascular accident 4 years previously. Currently the patient was on a regimen of atenolol and half dose-aspirin. On examination, the patient had tachycardia with a pulse of 110/min and systolic blood pressure of 100mmHg. He was mildly icteric, with a respiratory rate of 35/min. abdominal palpation revealed tenderness with rigidity in the right hypochondrium on investigating, patient had a Hb count of 12mg% and a leukocyte count of 16000/cm. Serum bilirubin was elevated (3.2mg%) and a direct of 1.1mg% with alkaline phosphatase level of 78u/l. Plain radiographs of the chest and the abdomen were normal. Ultrasonography revealed free fluid in the abdomen with normal gall bladder and CBD. Abdominal paracentesis revealed bilious collection. The patient was given an emergency exploratory laparotomy during which 1.5L of bile was drained from the abdomen. A thorough exploration revealed normal bowel. The gall bladder was distended and 0.5 x 0.5cm perforation was noted in the lateral wall of CBD just interior to the insertion of the cystic duct. Cholecystectomy was done and the bile duct was explored. There was no evidence of any calculus or diverticulum in the bile duct.

Abdomen was closed. The patient had an uneventful recovery. A T-tube was kept with a drain in Morrison's pouch and the T-tube drain held about 1.5L on the first day which gradually decreased to 150ml on postoperative day 1. icterus of the patient decreased clinically and biochemically. A T-tube cholangiogram was done on postoperative day 1 showing a normal biliary tree and easy passage of the dye in the duodenum. The T-tube was removed on postoperative day 14. The patient was discharged later and is very asymptomatic at a 6-month follow-up. Histology of the gall bladder was normal.



A picture shows perforation of CBD during operation

## Discussion:

Spontaneous CBP perforation has been widely reported in infants (1-12 weeks old); the etiology is proposed to be congenital weakness of the wall of CBD 2. CBD perforation in adults has been commonly documented after invasive procedures such as endoscopic retrograde cholangiopancreatography, cholecystectomy & laparoscopy. Spontaneous CBP perforation in adults is a rare condition,

\* Al-Karama Teaching Hospital.

only 40 such cases have been reported in the past 3. The small number of reported cases may be partially due to high mortality. Choledocholithiasis with erosion of the wall and increased intrabiliary pressures has been documented as the most common causes of spontaneous perforation<sup>2</sup>. Theories of rare causes put forth include localized ischemia of the wall of CBD due to intramural thrombosis, infected diverticulum, intramural infection leading to weakness of the wall, reflux of active pancreatic secretions, and persistence of congenital weakness of the CBD wall<sup>2</sup>. Spontaneous CBD perforation presents as a jaundice and biliary ascitis in neonates. Rare presentations as gastric outlet obstruction due to spontaneous biliary perforation have been reported by Kumar ET al<sup>4</sup>. Presentation of spontaneous CBD perforation in pregnancy has been reported, with a probable etiological factor being gallstones with increased hemodynamic changes associated with higher pressure in the venacava<sup>5</sup>. Presentation of such patients is either insidious or acute. The acute presentation manifests as signs of fulminant bile peritonitis with, vomiting, fever, and distension of the abdomen. The former presentation includes painless abdominal distension, increasing jaundice, and clay-colored stools<sup>6</sup>. Treatment recommended isolecystectomy with CBD exploration and T-tube drainage. Nomura ET al<sup>7</sup> have reported a case of spontaneous CBD perforation 2mm in size, which was successfully treated with tube drainage. Patients may require even Roux-Y ductal anastomosis if the ductal disruption is severe<sup>3</sup>. In infants, primary closure with absorbable suture material can be attempted; however, in adults it is necessary to rule out distal obstruction<sup>2</sup>. Our patient presented with acute abdomen. On exploration, no calculus or diverticulum was found. Although localized ischemia of the bile duct wall cannot be ruled out, perforation appeared to be small with normal bile duct. Intraoperative & postoperative T-tube cholangiogram did not reveal any obstruction to the bile duct. Even the histology of the gall bladder was normal. Hence, we presume that a localized inflammatory event of the CBD wall must have resulted in CBD perforation, possibly with increased biliary pressure due to sphincter spasm.

#### References:

- 1- Kumar A., Spontaneous Perforation of CBD: a rare cause of acute abdomen in adults. *Surgery*, 2003, 123: 924-925.
- 2- Hill NS, Colapinto ND. Spontaneous Perforation of the CBD. *Br J Surg*, 2002, 68: 661-662.
- 3- Piotrowski JJ, Van Steigmann G, Liechty RD. Spontaneous Bile Duct Rupture in Pregnancy. *HPB Surg* 2005, 2: 205-209.
- 4- Kumar V, Chattopadhyay A, Bhat N, Rao PLNG. Spontaneous Biliary Perforation Presenting as Gastric Outlet Obstruction. *Indian J Pediatr*, 2003, 68: 361-363.
- 5- Balsarkar DJ, Subramanian P, Joshi MA. Spontaneous Perforation of CBD in Pregnancy. *Indian J Gastro-Enterol*, 2005, 20: 198-199.

- 6- Spigland N, Greco R., Rosenfeld D, Spontaneous Biliary Perforation, Does External Drainage Constitute Adequate Therapy. *J Pediatr Surg*, 2002, 31: 782-784.
- 7- Nomura T, Nikkumi K, Kato H, Yoshikawa T, Sasaki K, Shirai Y et al, Bile Peritonitis Due to Spontaneous Perforation of CBD: Report of a Case, *Surg Today*, 26: 822-824.