

Avulsion of the Common Bile Duct from the Duodenum: A Case Report

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ABSTRACT

Rupture of the extrahepatic bile duct due to blunt trauma abdomen is an infrequently encountered condition which will tax ingenuity of the surgeon. Our aim here is to highlight one such unique injury to common bile duct and outline appropriate method of management.

The complexity of injury is increased by the degree of involvement of duodenal wall, pancreatic duct and pancreas. Injuries that include ampullary area are rare, therefore require special consideration. Case report demonstrates specific injury to common bile duct and duodenal wall without injury to pancreatic duct.

Key Words: Traumatic rupture of the common bile duct, Avulsion of the common bile duct

INTRODUCTION

The rupture of the extra hepatic ducts by blunt trauma is an infrequent and serious lesion. Mason [1], in an excellent review article in 1954, noted that there were "less than 100 cases which were recorded in the last century". Hicken [2], in 1948 stated, "the traumatic rupture of the common bile duct occurs very infrequently and it is usually fatal". Numerous individual case reports of laceration of either or both the hepatic ducts or the common bile duct have appeared [3,4,5,6,7,8,9]. A careful search in the literature has however revealed only one case report on the complete severance of the common bile duct (CBD). The complexity of these injuries is increased by the degree of involvement of the duodenal wall and the main pancreatic duct. The injuries that include the ampullary area are rare, and they therefore require special consideration.

CASE REPORT

A 46-year old male agriculturist was admitted with a history of pain abdomen and vomiting, following blunt trauma abdomen. He was attacked by a wild boar while he was working in the field. As a result of this, he sustained blunt trauma in the upper abdomen. On examination, he was found to be febrile (99.4°F), his pulse was 100/min and he had a systolic blood pressure of 90 mm/hg. He had generalized tenderness over the abdomen with guarding, rigidity and sluggish bowel sounds which were suggestive of generalised peritonitis. Following resuscitation, the patient was subjected to investigations. The initial laboratory data showed Hb-12.9%, TLC-7600/cu.mm with 80% PMNLs and RBC-4.3 million/cu.mm. He had raised serum bilirubin-4mg% and raised SGOT and SGPT values. The serum amylase value was 542 mg%. His renal function tests were normal. His CT scan showed an intra-peritoneal collection (haemoperitonium) without any injury to the liver, spleen or gut. On exploratory laparotomy, his peritoneal cavity was found to contain bile stained fluid and blood. Since the presence of bilious fluid in the peritoneal cavity points to injury to the biliary system or gut, a thorough search for an injury to the gall bladder or the CBD was carried out by mobilizing the transverse colon and by Kocherizing the duodenum. The patient had an avulsion injury to the CBD which was detected, as there was bile leak from the CBD and the

duodenal opening. Without much effort, the CBD was mobilized and an end to end anastomosis was performed to the duodenum after keeping a No.5 infant feeding tube as a stent. However, the contrast study was not performed due to the emergency situation. The patient made a remarkable improvement post-surgery. He did not show any evidence of pancreatitis in the post-operative period. He was discharged with an advice to return back after 6 weeks for the removal of the stent, but he refused the stent removal and was investigated with an MRCP, which revealed a stent in the CBD and that the CBD and the pancreatic duct had two separate openings in the duodenum. However, the patient came after 9 months of surgery with cholangitis and cholecystitis. He underwent removal of the stent endoscopically and was subjected to cholecystectomy. Till today, he is asymptomatic and healthy. As this was an interesting case to us and as it was planned for publication, an informed consent was obtained from the patient.

DISCUSSION

The rupture of the extra hepatic bile duct which is caused by a blunt trauma is rare. The cause of the rupture of the bile duct is merely always a crushing trauma to the right hypochondrial region and especially to the costal margins. This syndrome was first recognized by Mason et al., [1], Fizeau [4]. Fletcher et al., [10] and Hinshaw et al., [2]. Although injuries to both the common bile duct and the pancreatic ducts had been mentioned by Maingot [11], White and Sanderson [12], Ehrlick and Howard [13], no case report which had described this as an isolated injury which was caused by blunt trauma had been previously reported.

The total transection of the duct can be repaired by a primary end to end anastomosis, primary choledocooduodenostomy or by Roux-en-Y choledocojejunostomy. The injuries to the common bile duct, together with or in the vicinity of the main pancreatic duct, are the most severe ones and they present the most challenging clinical problems. A search of the literature revealed 12 previously reported cases of complete transection of the common duct at the junction with the duodenum which had been caused by blunt trauma [1,2,3,5,7,10,14,15,16]. Lysaght [6] performed a cholecystogastrostomy and Mast and Oz [15] performed a

choledocoduodenostomy, while Hinshaw, Turner and Carter [2] performed a loop choledocojejunostomy and a jejunojejunostomy for this lesion. Tolins [16] located the distal severed common duct through duodenostomy with retrograde probing through the ampulla of Vater and thus was able to perform a direct duct to duct anastomosis.

Pancreatoduodenectomy has also been described as an option for the management of such cases, especially the ones which involve the distal CBD or the confluence. But in view of it as a time consuming procedure, it may not be a very viable option in an emergency situation. Also, the expertise of the young surgeon/residents who handle such emergencies may also not permit the use of this procedure routinely. This can be used in selected, haemodynamically stable patients in the presence of a surgeon who is experienced in this procedure.

The authors feel strongly that insufficient attention has been given to the pancreatic duct in this injury. With complete intra-mural transection of the common bile duct as was presented in a case report, the identification of the pancreatic duct is imperative. A separate duodenotomy may be necessary on the anterior surface of the duodenum to identify the pancreatic duct orifice and to facilitate the debridement and closure of the duodenal wall at the site of the choledochal rupture. With the pancreatic duct being cannulated during the repair of the defect in the duodenal wall, the likelihood of an iatrogenic injury to the duct is minimized. When injuries to the main pancreatic duct occur and remain unrecognized, any of the grave complications of peritonitis, pancreatic abscess, subphrenic abscess, external pancreatic fistula or pseudocyst formation may follow.

Another case reported the total transection of both the common bile and the pancreatic ducts at the ampulla. The pulpy haematoma of the head of the pancreas made adequate identification of the main pancreatic duct difficult or impossible. Recent literature has indicated an increasing interest in the treatment in pancreaticoduodenal wounds by pancreatoduodenectomy [9,17,18]. Under certain circumstances, this may be the best method for handling the problem, but alternative conservative approaches should be undertaken whenever they are feasible [8].

SUMMARY

With this rare case report, we would like to enlighten the surgical community about this rare and frequently not looked for injury in cases of blunt abdominal trauma. This has highlighted the distal CBD transections, especially the ones in the retro duodenal and the intra-pancreatic portions. These are prone to be easily missed, in part, because of the emergency situation and the poor preparedness on the part of the surgeon who is handling the emergency. We would

like to suggest with our experience that, a thorough exploration of the region by a Kocher's manoeuvre and a further duodenotomy is needed, especially in the cases which involve the confluence or the intra-pancreatic portion. Such cases need to be addressed with a discreet identification of both the ducts (pancreatic and CBD) and a repair after the cannulation of both, lest late strictures occur. In case the expertise is not available or in an emergency situation, a closed circuit drain can be placed and the patient can be referred to a high volume centre or he/she can be re-explored by a surgeon who is experienced in handling the same.

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