Inadvertent choledochotomy during Frey’s procedure: management options

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We report the occurrence of inadvertent injury to the intra-pancreatic common bile duct in 3 of 9 patients undergoing Frey’s procedure for chronic pancreatitis with inflammatory mass in the head. In one case, the choledochotomy was extended and anastomosed to the cored-out parenchyma. In the other two, after lateral pancreatico-jejunostomy, hepatico-jejunostomy was performed using the same Roux loop. [Indian J Gastroenterol 2003;22:226-227]

Key words: Chronic pancreatitis, surgery; common bile duct injury

Local pancreatic head excision with longitudinal pancreatico-jejunostomy (LPJ) is a procedure described by Frey in the management of chronic pancreatitis (CP) with inflammatory head mass.1 Introducing a Baku’s dilator via a choledochotomy during head excision or resection is recommended to prevent injury to the intra-pancreatic common bile duct (CBD).2,3 Reports in English literature on management of such CBD injury are anecdotal. We describe three cases of inadvertent CBD injury in Frey’s procedure and the techniques used in its management.

Case Reports

The senior author (KA) performed Frey’s procedure in nine patients with CP who had an inflammatory head mass proven by CT and/or MRI scan. During pancreatic head coring a Fogarty (5 Fr) balloon catheter was introduced via the cystic duct stump to identify the CBD. Inadvertent entry into the intra-pancreatic CBD occurred in three instances. These three patients had no concomitant CBD obstruction.

In the first case the inadvertent choledochotomy was extended by 4 cm and anastomosed to the parenchyma of the cored-out pancreatic head using interrupted 5-0 polydioxanone sutures. The postoperative period was uneventful. In the other two cases, the cored-out head had multiple small retention cysts (Fig). In one case the main pancreatic duct was completely obliterated. The pancreatic tissue was not firm and hence sutures would not hold. In both cases, after LPJ, hepatico-jejunostomy was performed using the same Roux loop.

The follow-up period ranged from 3-5 months: all three patients have no clinical, biochemical or sonographic evidence of biliary obstruction.

In Frey’s head-coring procedure the crucial step is excision of the pancreatic head tissue between the superior mesenteric-portal vein, main pancreatic duct and the distal CBD. During this step the intra-pancreatic part of the CBD and the superior mesenteric and portal veins may be injured. To identify and safeguard the CBD the recommended steps are choledochotomy and placement of a Baku’s dilator in the CBD or insertion of a balloon catheter via the cystic duct stump.

In the initial series by Frey4 such injuries have not been reported. In Beger’s series, 13 patients had persistent CBD obstruction after head resection.5,6 In these cases the intra-pancreatic CBD was opened, and a duct-to-mucosa anastomosis was carried out between the pre-papillary CBD and the interpositioned Roux loop.

Kerremans et al.,7 describing subtotal resection of head of pancreas for CP, reported 7 lower bile duct injuries. Roux-en-Y hepatico-jejunostomy was used in the management of intra-operative CBD injuries. Farkas et al.8 reported organ-preserving pancreatic head resection for CP. Three of 30 patients had jaundice; in these patients the CBD was opened longitudinally for 8-10 mm and sutured to the pancreatic tissue with 3-0 vicryl. Of the 66 cases with CP undergoing duodenum-preserving resection of pancreatic head by Izbicki et al.,9 accidental CBD injury occurred in four. Hepatico-jejunostomy was done in two cases; reinsertion/saturing of the CBD into the pancreatic head cavity was done in the rest, with favorable outcome at a mean follow-up of 4.2 years. Among the 9 cases in our series, three had inadvertent...
choledochotomy; the reasons for the high percentage of injuries were extensive inflammation, fibrosis, multiple retention cysts in the pancreatic head, difficult dissection and the learning curve.

Traditionally, biliary injuries have been managed by duct-to-mucosa biliary-enteric anastomosis. Injury to the intra-pancreatic CBD is a likely event during pancreatic head excision or resection. Inner choledocho-jejunostomy has been reported by Beger. However this cannot be applied in patients undergoing Frey’s head-coring procedure or its modifications. Hepatico-jejunostomy, choledocho-jejunostomy or choledocho-duodenostomy are good options but risk a second anastomosis. In our patients we found that the angulation between the intra-pancreatic CBD and pancreatic duct, inflammation and fibrosis prevented anastomosis between the two ducts. Complete obliteration of the pancreatic duct by severe fibrosis, as seen in one of our cases, also precludes such anastomosis. Duct-to-parenchyma anastomosis, when feasible, is a good option for it drains into the LPJ and obviates the need for a separate hepatico-jejunostomy either to the same or a second Roux loop. A procedure similar to our technique has been described by Farrokhi et al wherein the CBD is opened and anastomosed to the pancreatic parenchyma; this yielded good results at a follow-up period of 6-14 months.

Biliary duct-to-pancreatic parenchyma anastomosis is simple, easy and a viable option for treatment of CBD injury during Frey’s procedure.

References

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