

CASE REPORT

Successful Partial Pancreatotomy as a Salvage Procedure for Massive Intraoperative Bleeding During Head Coring for Chronic Pancreatitis. Report of a Case

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ABSTRACT

Context Chronic pancreatitis is a continuous inflammatory disease of the pancreas resulting in scarring and fibrosis with consequent decline in exocrine and endocrine function. The inflammatory process leads to the development of a head mass, and strictures and stones in the pancreatic duct which present as pain, or loco regional complications such as duodenal obstruction and biliary obstruction. The gold standard for the treatment of pain and loco regional complications remains surgery, which is usually a combination of drainage and partial resection (coring). This can be hazardous due to adhesions, inflammation or portal hypertension.

Case report We report a case in which severe bleeding from the pancreatic duct was encountered during a Frey procedure. It was from the superior mesenteric vein/splenic vein confluence and would have warranted a Whipple procedure.

Conclusion We describe a pancreatotomy for exposure and control of the bleeding, with re-suturing of the cut pancreas and completion of the pancreaticojejunostomy.

INTRODUCTION

Surgery for chronic pancreatitis is mainly indicated for pain relief or for the loco-

regional sequelae arising due to the inflammatory mass and fibrosis. The need for careful dissection cannot be overemphasized in the context of adhesions, inflammation and associated involvement of the vessels in the form of fibrous encasement. Inadvertent bleeding from injury to either the portal vein, superior mesenteric vein or their confluence has often necessitated a pancreaticoduodenectomy as a part of the salvage procedure. We report such a case of intraoperative bleeding due to a tear at the superior mesenteric vein/splenic vein junction and how we managed it without having to resort to a pancreaticoduodenectomy.

CASE REPORT

A 27-year-old male presented with severe pain in the abdomen and back of 2 years duration. After investigation, he was diagnosed as a case of idiopathic chronic pancreatitis. The CT scan showed a dilated main pancreatic duct of 1.2 cm with a head mass, multiple large stones in the head with a normal common bile duct. The rest of the gland was atrophic. Unresponsive to conservative management, the patient was offered the Frey procedure, which includes a head coring and pancreaticojejunostomy.

At surgery, after aspiration to confirm entry into the duct and its location, the overlying parenchyma was opened with electrodiathermy. The duct opening was gradually increased, with an artery forceps holding the

anterior wall in order to prevent damage to the posterior wall of the duct. While trying to extend the opening in the anterior duct wall, there was a sudden brisk hemorrhage from inside the duct at the neck region. All attempts at trying to control the bleeding by suturing inside the duct with fine sutures were unsuccessful. Next, vascular clamps were placed across the porta and across the mesentery to include the superior mesenteric vein before it dipped posterior to the neck of the pancreas. The bleeding reduced but suturing the vessel remained impossible. Faced with the prospect of a pancreaticoduodenectomy in this young patient with its consequent high incidence of morbidity or a duodenum-preserving pancreaticoduodenectomy, the portion of the neck of the pancreas inferior to the duct and anterior to the superior mesenteric vein was transected, exposing the superior mesenteric vein/splenic vein junction. The bleeding was thus clearly seen and sutured with 5-0 polypropylene sutures in an interrupted manner (Figure 1). Once complete hemostasis was achieved, the choice of managing the pancreatotomy remained. It was re-sutured in 2 layers, first the posterior layer, close to the superior mesenteric vein and then the anterior, with 4-0 polydioxanone interrupted sutures. Hence, pancreatic continuity was re-established, and ductal integrity was maintained. The head coring was performed uneventfully and the intended procedure of

pancreaticojejunostomy (Frey procedure) was then completed, with special care being taken with regards to the duct sutures near the sutured pancreatotomy. The estimated intra-operative blood loss was 1,000 mL necessitating 3 intra-operative transfusions. The postoperative period was uneventful. At follow-up, the patient is symptomatically better and a contrast-enhanced computed tomography scan has confirmed the patency of the superior mesenteric vein, splenic vein and portal vein.

DISCUSSION

The Frey procedure, which consists of local resection of the pancreas without transection of the pancreas, adding a longitudinal pancreaticojejunostomy while preserving the whole of the duodenum, was first described in 1987 [1]. In chronic pancreatitis, the various indications for surgical intervention include intractable pain with a head mass causing complications such as common bile duct obstruction, main pancreatic duct obstruction, vascular obstruction and duodenal compression [2]. By preserving the duodenum and avoiding resection of the parenchyma, we lower the risks of further morbidity to the patient in terms of a reduction in exocrine function.

Bleeding during the procedure is usually secondary to the rise in the venous pressure from portal vein thrombosis and consequent portal hypertension, or from the anterior wall of the superior mesenteric vein while attempting to incise the pancreas. Bleeding from the splenic vein, as encountered in our case, could probably have been due to the posterior duct wall being closer than expected. As a result, a combination of factors such as the atrophic nature of the pancreas posterior to the duct, a posteriorly placed pancreatic duct, and dense adhesions of the vessels to the gland led to the inadvertent iatrogenic vessel injury when entering the duct with diathermy. Pseudoaneurysms could also account for bleeding during such procedures. Small pseudocysts related to the lateral wall of the superior mesenteric vein could cause the already thinned wall of the

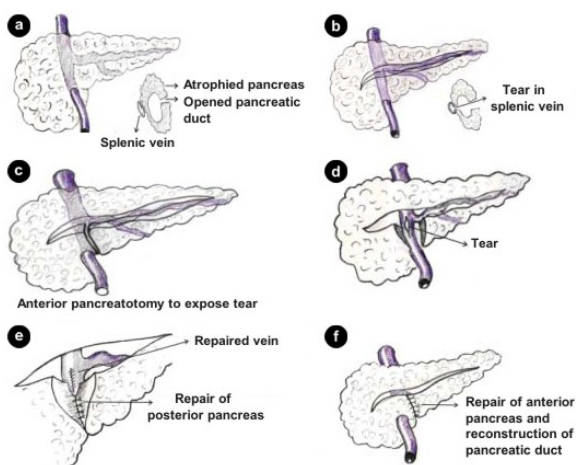


Figure 1. Step-wise representation of the partial pancreatotomy and reconstruction.

superior mesenteric vein/splenic vein to tear when entered. A similar situation arises occasionally during the course of a Whipple procedure, while making a tunnel between the neck of the pancreas and the superior mesenteric vein, especially in patients with pancreatic head cancer. Once tortorial bleeding from the duct is encountered, it is difficult to deal with. Suturing inside the duct is unsuccessful as the parenchyma is hard and sutures may not approximate the two edges of the tear, as they are in a deeper plane. The options at this stage could be to proceed with complete division of the neck of the pancreas and perform a Whipple procedure [3, 4, 5, 6]. However, this could be a formidable undertaking in someone with massive ongoing hemorrhage. Also, the complications following a Whipple procedure are numerous, including pancreatic exocrine and endocrine insufficiency [7, 8, 9], and problems of gastric emptying which would cause short-term and long-term morbidity. The mortality rate of this procedure performed as a salvage operation is likely to be higher. Conversion to a duodenum preserving head resection (Beger procedure) [10] may be a feasible option in the case of surgeons who are experienced in performing the Beger procedure. Moreover, the preservation of some head tissue would help in maintaining tamponade over the sutured tear and reduce the chance of postoperative hemorrhage. With the knowledge that suturing a firm or hard pancreas rarely produces leakage, and that a completed pancreaticojejunal anastomosis is unlikely to leak in spite of a sutured tear in the anastomosis, we proceeded with pancreatotomy inferior to the dilated pancreatic duct. Once this was done, the superior mesenteric vein/splenic vein junction was clearly exposed, and the tear was seen and sutured. We placed a piece of oxidized regenerated cellulose hemostatic agent between the tear and the sutured pancreas to reduce the risk of rebleeding into the anastomosis. In this way, we were able to quickly localize the bleeding and effectively use this maneuver as a salvage procedure to control hemorrhage in this difficult situation.

In this report, we present the successful use of a partial pancreatotomy as a salvage procedure for major bleeding from the superior mesenteric vein, splenic vein and their confluence at the time of surgery for chronic pancreatitis.

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