

The Inclusion of an Omental Flap in Pancreatoduodenectomy

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Abstract: A technique for reducing the morbidity and mortality of pancreatoduodenectomy by using an omental flap to protect the anastomoses and splanchnic vessels exposed during dissection is described herein.

Key Words: pancreatoduodenectomy, omental graft, periampullary cancer

Introduction

The most common cause of death following pancreatoduodenectomy is failure of the pancreatojejunal anastomosis with secondary hemorrhage and sepsis.^{1,2} A number of techniques for performing the pancreatojejunal anastomosis have been proposed; some authors even recommend occluding the main pancreatic duct to obviate the need for an anastomosis.^{3,4} Other investigators have recommended protecting the anastomosis by draining the pancreatic duct⁴ or the jejunal loop.⁵ We recently adopted a different approach to protect the anastomosis and vulnerable vessels by using an omental pedicled flap to reduce the incidence of complications following pancreatoduodenectomy. The details of this new technique are described herein.

Operative Procedure

Pancreatoduodenectomy for periampullary cancer is performed simultaneously with lymphadenectomy, which involves resection of the lymph nodes in the hepatoduodenal ligament, along the superior mesenteric artery and vein above the first jejunal artery, and

along the celiac and common hepatic arteries. The right side of the nerve plexus around the superior mesenteric artery was also resected with the pancreas head. Following the resection, an omental flap based on the left gastroepiploic vessels was created by dividing the left side of the omentum from the transverse colon and stomach. The vessels exposed during resection were covered and separated from the anastomoses by the flap which is mobilized upward, posterior to the stomach remnant (Fig. 1). The anastomoses to the jejunum were performed in physiologic order: first the stomach, then the pancreas, and then the common hepatic duct, from orad to aborad. The main pancreatic duct was intubated by a retrograde transhepatic pancreatic tube, with purse string sutures around the duct and the stab wound in the jejunum. Hemostasis of the cut surface of the pancreas was achieved and the pancreatic remnant was sutured directly to the jejunal serosa. The omental tissue was then tied loosely around the pancreatojejunostomy. Finally, a cholecystojejunostomy was performed using a one-layer technique and a gastrojejunostomy was created using a stapling device.

Discussion

Using the omentum to protect anastomoses offers two advantages. First, omentum adheres to inflamed bowel and strengthens the anastomosis;⁶ and second, it promotes revascularization and facilitates healing.⁶ The omental wrap has been shown to provide significant benefit in models of high risk anastomoses using ischemic intestine⁷ and ischemic bronchi.⁸ It also has been successfully used clinically to protect low anterior colonic anastomoses.⁹

The omentum acts as a barrier against infection, and its transplantation has been performed successfully in patients with thoracic empyema and mediastinal in-

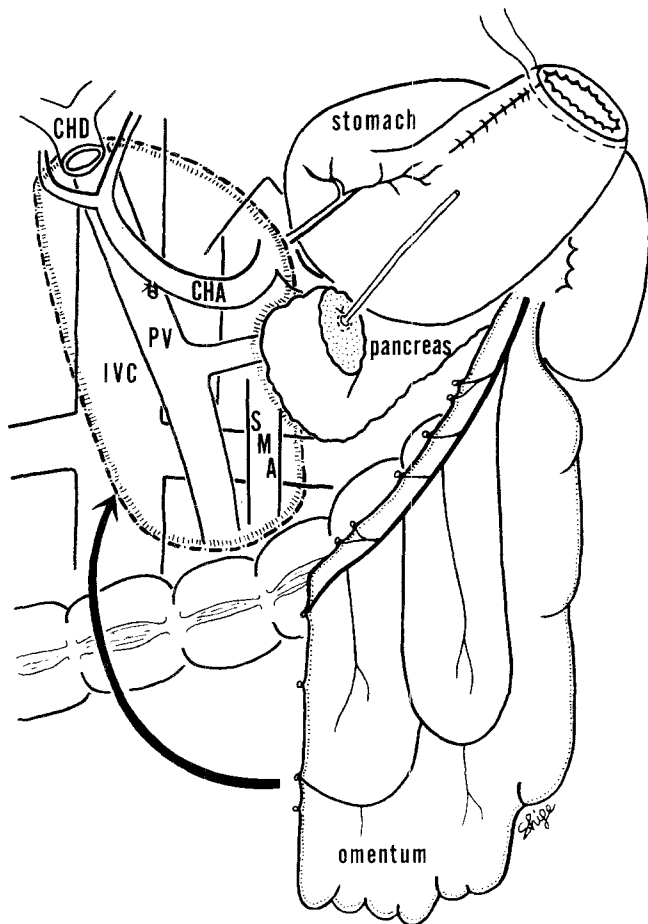


Fig. 1. Schematic diagram showing the application of an omental flap in pancreatoduodenectomy. Following resection of the pancreatic head, an omental pedicle flap was created by dividing the left side of the omentum from the transverse colon and stomach. The vessels exposed during resection are then covered and separated from the anastomoses by transferring the flap upward posterior to the stomach remnant. After the anastomoses, the omentum is tied around the pancreatojejunostomy. *CHA*, common hepatic artery; *PV*, portal vein; *SMA*, superior mesenteric artery; *IVC*, inferior vena cava; *CHD*, common hepatic duct

fections.¹⁰ In cases of anastomotic dehiscence following pancreatoduodenectomy, the omental flap resists infection and minimizes intraabdominal dissemination. Moreover, it should also prevent hemorrhage secondary to anastomotic leakage by protecting the exposed vessels from infection and contact with septic activated enzymes.

Omental grafting in pancreatoduodenectomy is easily accomplished in about 10 min. Although our experience is still limited, we believe that the use of an omental flap in pancreatoduodenectomy will decrease the mortality and thus, further studies should be undertaken.

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