Pylorus-Preserving Pancreatoduodenectomy for Severe Complications of Chronic Pancreatitis*

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Summary. Anatomical changes around or within the head of the pancreas, resulting from chronic pancreatitis that is frequently alcohol induced, can be associated with abdominal pain. In symptomatic patients we follow the Longmire principle, i.e., that the head of the pancreas acts as a pacemaker for the pathological inflammatory process and thus must be removed. Using the pylorus-preserving pancreatoduodenectomy (PPPD) technique we have alleviated clinical symptoms of benign disease with few sequelae, permitting long-term follow-up. Careful selection of patients according to pathological criteria, and the requirement for a functioning pylorus, are emphasized. Selection criteria, anatomical anomalies, surgical techniques, and hospital data for 42 patients undergoing surgery between 1986 and 1995 are reviewed in this chapter. Commonly encountered were pancreatic pseudocysts, obstructions of pancreatic or biliary ducts or the duodenum, arteriovenous fistula, and abnormalities of the upper abdominal blood supply. Development of a seromuscular envelope with contained end-to-end mucosa-to-mucosa pancreaticojejunostomy has recently eliminated the problem of anastomosis leakage. Abdominal pain is completely relieved for most patients. Nearly all the patients in this series returned to their normal lifestyle. The 5-year survival rate in patients over five years after surgery was 88%.

Key words. Pancreatitis—Pylorus-preserving pancreatoduodenectomy—Selection criteria—Anastomoses—Pancreaticojejunostomy

Introduction

Severe or potentially fatal complications of chronic pancreatitis commonly occur inside or around the head of the pancreas. These anatomical changes are always associated with abdominal pain. The vexing and sometimes critical clinical problems

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can seem insurmountable; however, our approach has been successful after utilizing an integrated multimodality approach. We use specific diagnostic maneuvers to pattern the pathological anatomy of the disease, and therapeutic endeavors are then targeted toward those pathological patterns through the expertise of the interventional radiologist, therapeutic endoscopist, and pancreatic surgeon.

In many of these complicated cases we follow the Longmire principle that the head of the pancreas acts as the “pacemaker” for the pathological inflammatory process and thus must be removed. We have used pylorus-preserving pancreateoduodenectomy (PPPD) for removal of the head and have observed amelioration of the clinical problem with few gastrointestinal sequelae [1]. The patients resume a normal lifestyle and remains in this improved condition if the etiology for the disease (usually alcohol) remains eliminated. Long-term follow-up after pancreateoduodenectomy (PD) is unknown because reports of this surgical technique involve periampullary cancer; these patients succumb to their disease and long-term follow-up is thus not possible. Our patients, with benign disease, have provided the first opportunity for an in-depth long-term follow-up after any type of PD. These patients are routinely contacted on a yearly schedule to observe how they are living after PPPD for benign disease.

Our results with PPPD have been pain relief in all patients, but these superlative results cannot be achieved unless two criteria have been met: the patients have been properly selected and the preserved pylorus is functioning. After these criteria have been met, the postoperative long-term problems focus away from the abdominal pain and are mainly related to the patient taking responsibility for their health, i.e., abstinence from alcohol and coping with the progressive and insidious sequelae of chronic pancreatitis that may smolder in the pancreatic remnant. Slow and progressive loss of exocrine and endocrine function results. Although uncommon, the pancreatic remnant may become symptomatic, causing episodic left-sided abdominal pain. The alternative would have been total PD and diabetes; the latter is already common in these patients before surgery. After surgery relief of abdominal pain is obtained in all these patients, and the majority have refocused themselves on diabetes control; unfortunately, some do return to alcohol use. Preservation of endocrine tissue during surgery is an important judgment decision, and we have learned to avoid total PPPD. Medical assistance for these patients with complications of chronic pancreatitis is not only by means of a surgical procedure but entails a long-term commitment by physicians from many specialties.

The purpose of this chapter is to outline the selection criteria for PPPD and to describe the technique for preserving a functioning pylorus while removing the head of the pancreas. Because the technique of PD with hemigastrectomy is familiar to abdominal surgeons, only a few modifications are required to preserve a functional pylorus. This chapter then continues with a description of in-hospital and long-term follow-up after the integrated approach that has culminated with PPPD.

Selection Criteria

Not all patients with chronic pancreatitis have symptoms. When symptoms develop, the most common type is abdominal pain. Some of the patients who develop symptoms have specific pathological alterations in pancreatic anatomy. Patients with both abdominal pain and pathological changes can be helped with a variety of therapeutic