

MANAGEMENT OF POSTOPERATIVE PANCREATIC FISTULA BY LIGATION OF THE PANCREATIC DUCT

Orlando Jorge Martins **TORRES**, Alzira de Alencar Lima **LINS**, Paulo Márcio Sousa **NUNES** and Itaguacy Rodrigues **COELHO**

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ABSTRACT - Pancreatic fistula is a serious and potentially lethal complication after pancreaticoduodenectomy. Ligation of the pancreatic duct ensure the absence of activated pancreatic enzymes in the lumen of the jejunum and the potential related complications. The aim of this study is to report a case of ligation of the pancreatic duct in the treatment of pancreatic fistula after pancreaticoduodenectomy. A 62-year-old man were underwent to pancreaticoduodenectomy due to a focal mass in the head of the pancreas. On the fourth postoperative day an anastomotic leak was found and treated by ligation of the pancreatic duct. The postoperative course was uneventful. The authors concluded that pancreatic duct ligation is an alternative for treatment of pancreatic fistula after pancreaticoduodenectomy.

HEADINGS - Pancreatic fistula. Pancreatic duct ligation. Pancreaticoduodenectomy.

INTRODUCTION

Pancreaticoduodenectomy is a difficult abdominal procedure that involves the resection of a complex area and the reconstruction of important organs such as the stomach, pancreas and biliary tract. Pancreaticojejunostomy is the main cause of morbidity and mortality and pancreatic fistula is a serious and potentially lethal complication after pancreaticoduodenectomy^(7,8). Pancreatic secretions if activated by succus entericus, trypsin and other enzymes of pancreatic juice can cause autodigestion of tissues in its path, resulting in necrosis and breakdown of surgical anastomosis. Hemorrhage and sepsis would often follow^(7,8). The extravasation of pancreatic fluid secreted by the remaining part of the gland post-pancreatectomy, predisposes to subphrenic abscess formation, dehiscence of visceral anastomosis and erosion of blood vessels in the area of the pancreas, causing a high operative mortality⁽⁵⁾.

Several methods have been used to avoid these complications. Ligation of the pancreatic duct ensure the absence of activated pancreatic enzymes in the lumen of the jejunum and the related complications^(1,6). The aim of this study is to report a case of ligation of the pancreatic duct in the treatment of pancreatic fistula after pancreaticoduodenectomy.

CASE REPORT

A 62-year-old man was admitted at President Dutra University Hospital because of abdominal pain, jaundice and weight loss. A computed tomography scan revealed bile duct obstruction and a focal mass

in the head of the pancreas. The Whipple procedure were performed 4 days later. On the 4th postoperative day he had tachycardia, tachypnea, oliguria, rise in temperature, and epigastric tenderness. The ultrasonographic findings were decrease in parenchymal echogenicity and the presence of fluid collections in the abdominal cavity. At laparotomy we found an anastomotic leak with pancreatitis (Figure 1).

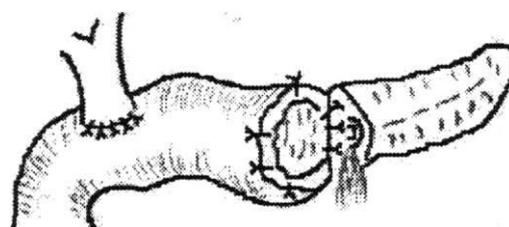


FIGURE 1 - Pancreaticojejunostomy and anastomotic leak

The treatment consisted of closure of jejunal stump and ligation of the pancreatic duct which was carefully identified in the cut surface of the pancreas (Figure 2). Gentle occlusion of the parenchyma of the pancreas at the cut surface was accomplished by placing four horizontal loop sutures parallel to the cut end, thus approximating the anterior and posterior lips of the pancreatic capsule. The omentum was mobilized to cover the stump and was secured in proper position

From the Department of Surgery, University Hospital, Federal University of Maranhão, São Luís, MA, Brazil.

Address for correspondence: Dr. Orlando Torres - Rua Ipanema, 01 - Ed. Luggano BI I/204 - São Francisco - 65076-060 - São Luís, MA, Brazil, e-mail: otorres@elo.com.br

with sutures. Penrose drains were used for drainage of the subphrenic spaces in the postoperative period. The postoperative course of the patient was uneventful, and he was discharged 2 weeks after reoperation.

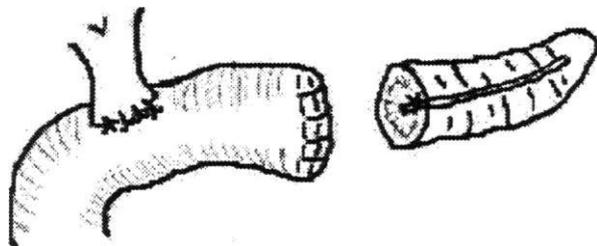


FIGURE 2 Closure of jejunal stump and pancreatic duct ligation.

DISCUSSION

Pancreatic fistula is the most dangerous complication of pancreatectomy and is lethal in up 22% of the cases. The key to successful treatment of these complications concerning the pancreatic anastomosis is early diagnosis. The simple clinical findings elicited by continuous observation are abdominal tenderness, rise in temperature, pulse or respiratory rate, and agitation. Laboratory findings invariably lag behind these subtle clinical signs^(6,7).

The treatment include reimplantation of pancreatic duct (pancreaticojejunostomy), pancreatic duct drainage, anastomotic coverage with fibrin or collagen, pancreatic duct occlusion, pancreatic duct ligation, and completion pancreatectomy^(3, 4, 6). The percentage of lethal fistulas is much higher following pancreatojejunostomy than ligation of the duct. This is expected because the ligated pancreatic remnant

is completely isolated from the gastrointestinal tract. The probable explanation here is that pancreaticojejunostomy permits contact of pancreatic secretions and enteric secretions which causes activation of the former. Activated pancreatic fluid is more corrosive than fluid secreted from the isolated and ligated pancreatic remnant. Ligation of the pancreatic duct ensure the absence of activated pancreatic enzymes in the lumen of the jejunum⁽⁶⁾. GOLDSMITH et al.⁽³⁾ observed that the exocrine function of the pancreas, as reflected in acinar cell structure appeared histologically similar in patients underwent to pancreaticojejunostomy and ligation of pancreatic duct. The endocrine function of the pancreas also appeared similar in both groups of patients, as reflected by the appearance of the islets of Langerhans. Alpha and beta cells were notably well preserved, and in no instance was hyalinization of the islet cell observed, an indication of cellular disfunction^(3, 6).

It has been generally believed that reimplantation of the pancreatic duct after pancreaticoduodenectomy is highly desirable although not essential for life. BRUNSCHWIG⁽²⁾ always believed that it was totally unnecessary to reimplant the pancreatic duct after pancreaticoduodenectomy, since he believed that the chance of continued pancreatic duct patency was highly unlikely. However, eliminating a second pancreaticojejunostomy, which is the most difficult step in this patient, should lessen the high surgical mortality rate now associated with this operation⁽⁴⁾. Most surgeons perform this extensive surgical procedure on an infrequent basis. It would seem that simplification of the operation is not only surgically appealing but clinically and histologically justifiable.

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RESUMO - A fístula pancreática é complicação séria e potencialmente letal após duodenopancreatectomia. A ligadura do ducto pancreático assegura a ausência de enzimas pancreáticas ativadas na luz do jejuno e suas potenciais complicações. Apresenta-se um caso de ligadura do ducto pancreático no tratamento de fístula pancreática após duodenopancreatectomia. Paciente do sexo masculino, 62 anos foi submetido a duodenopancreatectomia devido à massa focal na cabeça do pâncreas. No 4º dia do período pós-operatório uma fístula anastomótica foi encontrada e tratada por ligadura do ducto pancreático. O curso pós-operatório ocorreu sem complicações. Conclui-se que a ligadura do ducto pancreático é alternativa no tratamento da fístula pancreática após duodenopancreatectomia.

DESCRITORES - Fístula pancreática. Ligadura do ducto pancreático. Duodenopancreatectomia.

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