Palliative Surgery for Biliary Drainage in an Unresectable Pancreatic Cancer

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ABSTRACT

Pancreatic cancer, known for its rapid progression and poor prognosis, usually presents with obstructive jaundice. Biliary drainage can be achieved by various techniques and approaches, with endoscopic drainage as the preferred method. However, open drainage of the biliary tree is indicated when unresectable tumor is found during resection surgery. This is a case of biliary drainage with a double bypass biliodigestive construction, which could be performed in patients with unresectable cancer in the head of the pancreas presenting with obstructive jaundice and gastric outlet obstruction.

Keywords: *pancreatic cancer, biliary drainage, palliative surgery*

ABSTRAK

Kanker pankreas adalah kanker yang perkembangannya cepat dan prognosisnya buruk, biasanya muncul disertai ikterus obstruktif. Drainase bilier dapat dicapai dengan berbagai teknik dan pendekatan, satu di antaranya dengan drainase endoskopi sebagai metode yang lebih sering dilakukan. Namun, drainase terbuka dari saluran bilier merupakan indikasi apabila tumor yang ditemukan selama operasi reseksi, tidak dapat dibedah. Laporan kasus ini adalah kasus drainase bilier dengan konstruksi biliodigestif bypass ganda pada pasien dengan kanker caput pankreas yang tidak dapat dioperasi, yang mengalami ikterus obstruktif dan obstruksi lambung.

Kata kunci: *kanker pankreas, drainase bilier, operasi paliatif*

INTRODUCTION

Obstructive jaundice is a common symptom in patients with the periampullary cancer (cancer located near the ampulla of vater) or cancer in the head of the pancreas. Surgical resection is the only curative method available. Pancreas adenocarcinoma maintain its reputation as one of the most lethal of gastrointestinal cancers.[1,2] Unresectable pancreatic cancer, particularly, progresses rapidly and therefore has poor prognosis. Several palliative approaches for biliary drainage can be used for these cancers presenting with obstructive jaundice. These approaches include endoscopic biliary stent placement, percutaneous transhepatic biliary drainage, bypass surgery and chemotherapy.[3]

Approximately 5-20% patients with pancreatic cancer have infiltrative tumor expansion which causes gastric outlet or pyloroduodenal obstruction.[4] A large portion of these patients are not eligible for surgical

resection. Despite intensive research and therapeutic achievements in recent decades, the prognosis of pancreatic cancer has not significantly improved. The mean life expectancy for patients at all stages remains six to eight months due to local progress of disease, lymphatic metastases, perineural invasion, or disseminated metastases at the time of diagnosis.[4]

We hereby describe a case of a man with obstructive jaundice caused by unresectable pancreatic cancer in the head of the pancreas. Open bilio-digestive bypass was performed with cholecystojejunostomy, gastrojejunostomy, and jejunojejunostomy. This case showed that palliative surgery for only biliary drainage is the only option for advanced end stage pancreatic cancer.

CASE ILLUSTRATION

A 57 year old male presented with a 7 month history of epigastric pain. In addition, he had jaundice for 3 months, accompanied by dark colored urine, loss of appetite, pruritus as well as nausea and occasional vomiting. He had been admitted to another hospital 3 days before, where the diagnosis of obstructive jaundice was first established. Physical examination showed that the patient looked moderately to severely ill. He was alert with normal hemodynamic, and slight tachypnea with respiratory rate of 24x/minute. He was icteric with palpable liver and elicited right hypochondria and epigastric pain.

Results from the other hospital showed anemia, leukocytosis, elevated transaminase (AST 111 U/L, ALT 99 U/L), and bilirubin level (total bilirubin 7.63 mg/dL, direct bilirubin 5.23 mg/dL). Serology for hepatitis B and C were not reactive. Urinalysis showed positive for bilirubin and urobilinogen. Abdominal ultrasound revealed intra hepatic bile duct (IHBD) and extra hepatic bile duct (EHBD) dilatation, but pancreas could not be visualized, due to bowel gas. Non-contrast CT scan of the upper abdomen revealed intrahepatic and extrahepatic duct dilatation due to a mass.

Upon admission, there was a slight raise of transaminase and bilirubin level, with marked elevated Gamma GT and ALP level, strongly suggestive of an obstructive jaundice. There were normal amylase and lipase level, 29.0 U/L (N: < 220 U/L), 17.00 U/L (N: < 60 U/L) respectively and no PT prolongation noted. Raised tumor marker checked were AFP (> 2000.00 ng/mL) and CA 19-9 (290.05 U/mL). Abdominal CT scan with contrast done on the 3rd day of admission showed non-focal non-infiltrative hepatomegaly and tumor in the head of pancreas which caused dilatation of CBD and IHBD.

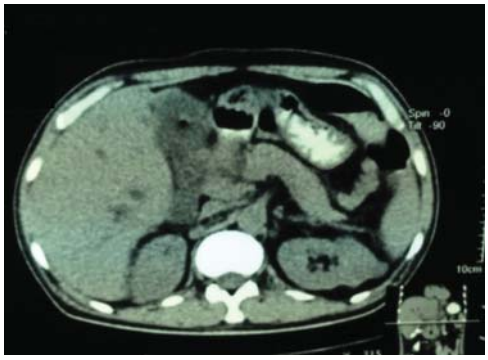

Figure 1. Abdominal CT scan showed pancreatic cancer

The patient was given oral and parenteral nutrition using Combiflex® and Ivelip® infusion, antimicrobials consisting Ceftazidime 1gr t.i.d and metronidazole 500mg b.i.d , omeprazole, paracetamol, and ketorolac. Transfusion of pack red cells and infusion of albumin were given to the patient. Hb was increased to 11.9 g/dL and there were raised leucocyte count. Open biliary drainage was performed on the 20th day of admission. Surgical finding showed pancreatic tumor in the head of the pancreas with a diameter of more than 5 cm, nodules in the liver with ascites and duodenal obstruction. Double bypass biliodigestive construction was performed, consisted of cholecystojejunostomy, gastrojejunostomy and jejunojenjunostomy. Cytology of the ascitic fluid revealed the presence of malignant cells consistent with adenocarcinoma.

DISCUSSION

Despite advances in chemotherapy regimens and improvement in radiation delivery, pancreatic cancer remains to be associated with a grim prognosis. Overall, the lifetime risk of pancreatic cancer is 1 in 67 individuals, with an expected incidence of 48,960 new cases for pancreatic cancer (24,840 men and 24,120 women) and expected 40,560 deaths from pancreatic cancer (20,710 men and 19,850 women) in the United States. Although, pancreatic cancer will account for only 3% of all cancers diagnosed in the United States, it will be the cause of 7% of cancer deaths and is the 4th most common cause of cancer-related deaths after more common malignancies such as breast, colorectal, prostate and lung cancers.[5,6]

Pancreatic cancer is often difficult to diagnose in the early stages. This is because there are no specific, cost effective screening tests for people with pancreatic cancer who have no symptoms. The opportunity to

detect pancreatic cancer, while it remains curable, depends on the ability to identify and screen high-risk populations before their symptoms arise. Early symptoms of pancreatic cancer result from a mass effect. Common presenting symptoms of pancreatic cancers include jaundice, pain, weight loss, and steatorrhoea.[7]

The majority of patients with pancreatic cancer progress to either metastatic or locally advanced disease in the asymptomatic phase. Defining the treatment strategy requires a specialized multidisciplinary team that includes surgeons, medical oncologists, gastroentero-hepatologist, radiologists, and supportive and palliative care specialists.[7] In this case, the pancreatic head cancer presented as a non resectable tumor with metastases, therefore positioning this cancer in an advanced stage. The tumor spread into the duodenum, resulting duodenal obstruction, which were found during surgery.

An increase in serum CA 19-9 is seen in almost 80% of the patients with advanced disease. The level of CA 19-9 is correlated to the level of bilirubin and any cause of cholestasis is able to induce false-positive results. Although it is not useful for the primary diagnosis of pancreatic cancer, CA 19-9 has a significant value as a prognostic factor and can be used as a marker to measure disease burden and potentially guide treatment decisions. A preoperative serum CA 19-9 level $\geq$ 500 UI/mL clearly indicates a worse prognosis after surgery.[7]

In this case, CA 19-9 level was 290.05 UI/mL. Alfa feto protein was also increased to a level of more than 2000.00 ng/mL (normal: < 5 ng/mL). Aside from that, measurement of bilirubin in blood can be helpful in determining the cause of jaundice. Marked elevation of liver test (AST and ALT) suggests inflammation of the liver. Elevation of the ALP and GGT suggests disease or obstruction of the bile duct. In this case hemoglobin became decreased, with hypoalbuminemia, leucocytosis, elevation of ALT, AST, ALP and GGT. Viral marker were non-reactive. Both abdominal ultrasound and non-contrast CT scan showed dilatation of IHBD and CBD. CT scan with contrast of upper abdomen showed a tumor in the head of pancreas causing pressure on CBD with dilatation of IHBD and CBD.

Preoperative biliary drainage performed for resectable pancreatic cancers with obstructive jaundice is intended to improve the post-operative outcome.[1,8] The three commonly used methods for achieving preoperative biliary drainage includes endoscopic retrograde biliary stent placement (ERBS), endoscopic nasobiliary drainage (ENBD) and percutaneous transhepatic biliary drainage.[9] The endoscopic positioning of a biliary endoprosthesis has become a relatively easy procedure for experienced endoscopists. Late cholangitis occurred only in case of dislodgement or clogging of the endoprosthesis. Many of the late complications related to biliary endoprostheses are due to clogging. Huang et al found that PTBD can improve surgical outcomes by reducing severe complication rate in jaundice patients following pancreaticoduodenectomy.[9] In this case, open bilio-digestive bypass was performed instead of preoperative biliary drainage. Whipple procedure (pancreaticoduodenectomy) was not performed, because the tumor size was more than 3 cm and there were metastases to the liver and peritoneum.

The pancreatic cancer in this case was developed rapidly. During 17 days of hospitalization, the disease progressed into causing duodenal obstruction and developing ascites that revealed metastases. Common manifestations of end stage pancreatic cancer include gastric outlet obstruction due to tumor ingrowth to the duodenum, cahexia, deep venous thrombosis (Trousseau' phenomenon), anasarca and ascites. Ascites is formed in only 20% of pancreatic cancer and its cause is multifactorial. It can occur due to obstruction of diaphragmatic lymphatics, increased production of exudates by the tumor itself and the production of osmotically active peptides that alter vascular permeability to favor ascites formation. The mortality of patients with those common manifestation is high before completing a standard course of therapy.[10,11]

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