



Surgical treatment of patients with intermediate-terminal pancreatic cancer

Yu-Bin Liu, Liang Huang, Zhi-Yong Xian, Zhi-Xiang Jian, Jin-Rui Ou, Zi-Xian Liu

Yu-Bin Liu, Liang Huang, Zhi-Yong Xian, Zhi-Xiang Jian, Jin-Rui Ou, Zi-Xian Liu, Department of Hepatobiliary Surgery, Guangdong Provincial People's Hospital, Guangzhou 510080, Guangdong Province, China

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Correspondence to: Dr Yu-Bin Liu, Department of Hepatobiliary Surgery, Guangdong Provincial People's Hospital, Guangzhou 510080, Guangdong Province, China. benson_lau@hotmail.com

Telephone: +86-13826288388 Fax: +86-20-83827812-60920

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Abstract

AIM: To investigate the surgical treatment of patients with intermediate-terminal pancreatic cancer.

METHODS: A retrospective analysis was made of the clinical data of 163 patients with intermediate-terminal pancreatic cancer who were surgically treated between August 1994 and August 2003.

RESULTS: A total of 149 patients underwent palliative surgery. The mortality rate of those who underwent cholecystojejunostomy alone was 14.2%, the icterus or cholangitis recurrence rate was 61.9% with an average survival period of 7.1 mo. The mortality rate for those who received hepatic duct-jejunostomy (HDJS) was 5.7%, the icterus or cholangitis recurrence rate was 6.8% with an average survival period of 7.1 mo. But 31.8% of the patients developed duodenum obstruction within 6 mo after the surgery, six of seven patients with severe pain were given peri-abdominal aorta injection with absolute alcohol and their pain was alleviated. The other patients underwent percutaneous transhepatic cholangial drainage (PTCD) and their icterus index returned to normal level within 40 d with an average survival period of 7.5 mo.

CONCLUSION: Roux-en-y HDJS combined with prophylactic gastrojejunostomy is recommended for patients with intermediate-terminal pancreatic cancer, and biliary prosthesis can partly relieve biliary obstruction in a short term.

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Key words: Pancreatic cancer; Bile duct conduction; Gastrointestinal conduction; Biliary prosthesis

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INTRODUCTION

Generally speaking, not until the patient has developed terminal pancreatic cancer can a diagnosis be made. The non-clinical survival time is not more than half a year and the post-operative survival rate is still lower than 20%^[1]. At present, surgical treatment is the most common method for patients with intermediate-terminal pancreatic cancer. The hospital received 163 patients with intermediate-terminal pancreatic cancer between August 1994 and August 2003.

MATERIALS AND METHODS

Basic data

A total of 107 male and 56 female patients aged 28-79 years with an average age of 43.2 years were included in the study.

Clinical symptoms

The most common symptoms were upper-abdominal spasm and gastric bulge without any motivation. One hundred and twelve patients (68.7%) suffered from anorexia and only 51 patients (31.2%) developed icterus. Among these 163 patients, 124 were not in the hospital until they had icterus. All the 163 patients were diagnosed as intermediate-terminal pancreatic cancer by B-ultrasound, CT, MR and explorative operation.

Operation procedures

One hundred and forty-nine patients underwent palliative surgery. Among them, 28 patients received cholecystojejunostomy (CJS), 53 hepatic duct-jejunostomy (HDJS) and 61 biliary enteric anastomosis plus gastrojejunostomy, 7 terminal peri-abdominal aorta injection with absolute alcohol. The other 14 patients did not undergo surgery but biliary prosthesis placement for PTCD.

RESULTS

Among the 149 patients who received palliative surgical treatment, 10 died 30 days after the surgery. The estimated

mortality rate of those who underwent CJS, HDJS, and biliary enteric anastomosis plus gastrojejunostomy was 14.2% (4/28), 5.7% (3/53), and 4.9% (3/61), respectively. Among the 21 patients who underwent CJS, 13 developed icterus or cholangitis, the recurrence rate was 61.9% with an average survival period of 7.1 mo. Among the 44 patients who underwent hepaticocholedochojejunostomy, only 3 developed icterus or cholangitis, the recurrence rate was 6.8% with an average survival period of 10.3 mo. Likewise, the recurrence rate of icterus or cholangitis among the 51 patients who underwent biliary enteric anastomosis plus gastrojejunostomy was 5.9% (3/51), but the average survival period was 13.9 mo.

Fourteen out of the forty-four patients who were followed up after HDJS developed duodenal obstruction, the rate was 31.8%. Among them, 11 patients who received an additional gastrojejunostomy did not survive for more than 3 mo. Fifty-one patients who received biliary enteric anastomosis in combination with gastrojejunostomy needed no additional surgical treatment for duodenal obstruction.

The icterus index of 14 patients became normal within 40 days after biliary prosthesis placement, 11 followed-up cases had an average survival period of 7.5 mo. Seven patients were given absolute alcohol injection and their pain was relieved with an average survival period of 3.4 mo.

DISCUSSION

Surgical treatment of patients with intermediate-terminal pancreatic cancer

Most patients have already developed terminal pancreatic cancer when a confirmed diagnosis was made. Palliative surgical treatment is the first choice of treatment for these patients. The purposes of the treatment are to relieve biliary tract and duodenal obstruction, to control and alleviate the symptoms in order to prolong the post-operative survival time^[2].

Common treatment approaches for intermediate-terminal pancreatic cancer include biliary enteric anastomosis, biliary prosthesis, and Roux-Y loop, etc. Biliary enteric anastomosis including cholecystojejunostomy (CJS) and HDJS is the most commonly used approach today.

CJS is easy to perform and does not incur severe trauma, but has certain disadvantages. For example, 10% of the patients have the opening of the cystic duct on the lower part of the common bile duct, thus the patients are liable to develop duodenal obstruction due to tumors and metastatic lymph nodes. Since it is difficult to make sure whether the bile duct is blocked during surgery, cholangiography is needed, thus the surgery is time-consuming. Such a surgery is inappropriate in the presence of cholecystitis, gallstones or ill-function. Post-operative icterus and cholangitis are more likely to occur. Rosemurgy *et al*^[4] demonstrated that the success rate of CJS and HDJS to relieve icterus is 89% and 97%, respectively, and the incidence rate of icterus and cholangitis is 20% and 8%, respectively. In our patients, the recurrence rate of icterus or cholangitis was 61.9%, much higher than that after HDJS (6.8%). The average survival period (7.1 mo) was far lower than that after HDJS (10.3 mo), suggesting that HDJS is a

better therapeutic approach than CJS.

It was reported that Roux-en-Capital Y anastomosis can be performed for patients with pancreatic cancer, because the suturing position of HDJS is relatively higher and less liable to be assaulted by tumors and suturing point is larger^[4]. On the other hand, Roux-en-y anastomosis can significantly reduce the incidence of reflux cholangitis and hepatitis^[6]. In addition, HDJS incurs direct hepatobiliary drainage, thus effectively reducing the incidence of icterus as well as the recurrence rate of icterus or cholangitis^[6]. We believe that it is suitable for patients whose potential survival period is relatively longer. However, the common bile duct in the superior border of the duodenum should be cut off leaving the distal end blocked, and the proximal end should be anastomosed to the duodenum to avoid tumor-incurred icterus. The common bile duct should be sutured with only one layer of stitches and the passage above the stitches should be unobstructed.

Biliary tract drainage or percutaneous transhepatic biliary drainage (PTBD) can effectively reduce icterus. But loss of bile seriously unbalances the electrolytes.

Pre-emptive application of gastrojejunostomy and pancreaticojejunostomy

One of the most important problems in the treatment of pancreatic cancer is whether the surgeon can resolve the duodenal obstruction during the biliary enteric looping process. It was reported that apart from direct tumor assaults, gastrointestinal dysfunction caused by visceral nerves is also a reason for duodenal obstruction^[7]. When duodenal obstruction occurs, GJS cannot improve the gastric drainage^[8]. Therefore pre-emptive GJS is not recommended. But 13-34% of the patients undergoing biliary enteric anastomosis suffer from duodenal obstruction^[6]. An additional GJS can prolong the survival period significantly but does not increase the mortality rate. Gastrointestinal conduction can assist the treatment by providing nutrition. The data in this series also showed that compared to biliary enteric anastomosis only, biliary enteric anastomosis combined with GJS resulted in a sharp increase of mortality rate but prolonged the post-operative survival time. Besides, biliary enteric anastomosis alone tended to cause duodenal obstruction, while the combination reduced its occurrence, suggesting that GJS should be normally accepted as an approach for unresectable patients. This is because terminal pancreatic cancer patients are more liable to develop duodenal obstruction, the mortality rate is high and the survival time is short when GJS is performed after the diagnosis of duodenal obstruction. Biliary enteric anastomosis in combination with GJS does not increase the risk of operative deaths, while prolongs the post-operative survival time.

It was reported that biliary enteric anastomosis combined with pancreatoenterostomy can prevent duodenal or pancreatic obstruction, relieve the accompanying pain caused by dilation and indigestion, and reduce the mortality rate^[10]. We believe that patients with apparent indigestive symptoms and pancreatic dilation confirmed by ultrasonic and CT examinations can undergo pancreatoenterostomy, since three anastomoses can be made in one surgery and there is no need for subsequent surgeries.

Application of biliary prosthesis

Biliary prosthesis is an advanced technique and the trauma caused by it is small, thus, patients can recover quickly. In our study, 14 patients with terminal pancreatic cancer underwent PTCD and their icterus index returned to normal level within 40 d, suggesting that this operation is applicable to terminal pancreatic cancer patients or very old patients in bad physical conditions. But this new technique leads to some complications, such as a relatively high failure rate and no long-term effect on reducing icterus. It is suggested that surgical treatment can reduce icterus in patients and prolong post-surgery survival^[2].

Treatment of persistent pain

Persistent pain is one of the major symptoms of intermediate-terminal pancreatic cancer patients, 30-40% of the patients suffer from abdominal and back pain due to cancer-afflicting post-peritoneum nerve plexus or chronic pancreatitis. In addition, high pressure of biliary tract, cholangitis or incomplete duodenal obstruction can also be a factor. Pain can be relieved or partly relieved by biliary or gastrointestinal by-pass surgery for some patients. But they have no effect on pain caused by post-peritoneum nerve plexus affliction. Some scholars have proposed that using a dose of 20 mL alcohol (50%) or lidocaine (1%) as a blockage injection to post-peritoneum nerve plexus near the tumor can alleviate or prevent late pancreatic cancer-related pain.

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