

# Palliative Surgery For Pancreatic Carcinoma

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## ABSTRACT

**Objective:** To evaluate the role of palliative surgical treatment in patients with advanced pancreatic carcinoma.

**Study Design:** Case series.

**Place and Duration of Study:** Surgical "D" Ward of Khyber Teaching Hospital, Peshawar, from January 2005 to January 2009.

**Methodology:** The study included patients with pancreatic carcinoma admitted with advanced, unresectable carcinoma of the pancreas. Patients with resectable tumours and with previous history of gastric or biliary surgery were excluded. Palliative procedures were performed after assessment of the tumour and its confirmation as unresectable on ultrasound and CT scan  $\pm$  ERCP. Postoperatively all patients were referred to oncologist. Complications and mortality were noted.

**Results:** There were 40 patients, including 24 males and 16 females with mean age  $58.72 \pm 6.42$  years. The most common procedure performed was triple bypass in 21 (52.50%) patients followed by choledocho-, cholecysto-, hepatico- and gastro-jejunosomy in various combinations. Wound infection occurred in 7 patients and was more common in patients with co-morbidities. Biliary leakage occurred in 03 patients. Postoperative cholangitis occurred in 3 patients while 7 patients had minor leak from the drain site. Four patients developed UTI, while 5 patients had signs of delayed gastric emptying. Two patients had upper gastrointestinal bleeding. Three patients died due to septicemia and multiple organs failure. Rest of the patients were discharged in stable state. The mean hospital stay was  $8.40 \pm 3.48$  days and median survival was  $7.72 \pm 2.39$  months.

**Conclusion:** Surgical palliation for the advanced carcinoma pancreas can improve the quality of life of patients and is associated with minimum morbidity and mortality.

**Key words:** Carcinoma pancreas. Surgical bypass. Palliative treatment. Unresectable. Survival.

## INTRODUCTION

In the United States, approximately 30,000 people die of pancreatic cancer each year.<sup>1</sup> It is the third most common malignancy of the gastrointestinal tract, and the fifth leading cause of cancer-related mortality. The disease is difficult to diagnose in its early stages, and most patients have incurable disease by the time they present with symptoms. The overall 5-year survival rate for this disease is less than 5%.<sup>1</sup> The highest incidence rate is approximately 13 cases per 100,000 per year in black males in the United States. While the incidence in India is less than 2 cases per 100,000 persons per year.<sup>2</sup>

Approximately 75% of all pancreatic carcinomas occur within the head or neck of the pancreas, 15-20% occurs in the body of the pancreas, and 5-10% occurs in the tail.<sup>2</sup> Typically, pancreatic cancer first metastasizes to regional lymph nodes, then to the liver, and less commonly, to the lungs. It can also directly invade surrounding visceral organs such as the duodenum, stomach and colon.<sup>2,3</sup>

The median survival is 8-12 months for patients with locally advanced, unresectable disease and only 3-6 months for those with metastatic disease at presentation.<sup>2</sup> Surgical resection offers the only chance of cure. However, only 15-20 percent of patients have resectable disease at initial diagnosis; the majority have either locally advanced or metastatic cancer.<sup>2</sup> The prognosis of pancreatic cancer is poor even in those with potentially resectable disease. Despite potentially curative resection, the 5-year survival following pancreaticoduodenectomy is only about 20%.<sup>3-5</sup>

It has been questioned whether cure is possible at all in patients with pancreatic cancer. There is however, consensus that patients who undergo resection have the best chance for long-term survival and better quality of life. Thus majority of patients with carcinoma pancreas will have palliative treatment and in majority of patients palliation of symptoms is an important focus. The three most common presenting symptoms of carcinoma head of pancreas that need palliative treatment are obstructive jaundice, duodenal obstruction and pain.<sup>6,7</sup>

The aim of reporting this case series was to describe the complications and mortality after surgical bypass in patients with advanced inresectable pancreatic carcinoma.

## METHODOLOGY

This study was carried out in Surgical Unit "D" of Khyber Teaching Hospital, Peshawar, from January 2005 to

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January 2009. All those patients with advanced pancreatic malignancy which was unresectable at operation were included in the study. The patients with resectable tumour or those with history of previous gastric surgery or biliary bypass surgery were excluded from the study.

Pre-operatively all patients had upper GI endoscopy, CT scan abdomen and ultrasound abdomen as an initial tool for diagnosis. ERCP was done in 8 patients as an additional tool for diagnosis. All patients had FBC, blood urea and sugar, HBS, anti-HCV as a routine investigation before undergoing surgery. ECG and chest X-ray was done in patients aged more than 40 years as investigation for fitness for anaesthesia.

Patient was placed in supine position and midline laprotomy incision was used to open abdomen. Viscera as well as the tumour was assessed. The tumour was assessed for resectability. Hepatic metastasis, ascities, malignant nodules over the omentum and intestines, involvement of major viscera and vessels and fixation to the posterior abdominal wall were considered as unresectable tumour. Postoperatively all patients were shifted to ward. All of them were given third generation cephalosporins, postoperatively narcotic analgesics and IV fluids. Development of wound infection, UTI, gastric aspiration required, development of anastomotic leakage and the length of stay in the hospital were all noted and entered in the preformed proforma. The patients were followed-up for 9 months postoperatively for any complication. All patients were referred to oncologist for further oncological management.

Data was entered in a preformed proforma and was then analyzed using SSP version 13 to calculate the percentage, mean and standard deviation.

### RESULTS

This study included 40 patients (24 males and 16 females) with advanced pancreatic tumour. Their age ranged from 49-72 years with a mean of 58.7±6.4 years. Most of the patients (87%) presented with obstructive jaundice, 76% had pain and 60% had weight loss while 33% of the patients had nausea and vomiting. Of all the patients with advanced pancreatic tumour 12 were diabetics, 8 were hypertensive and 4 had previous history of cholecystectomy. Five patients were smokers, 4 were using snuff (naswar) and 09 of these patients had histories of other malignancies in their families.

The tumour was considered unresectable when at operation it was noted to have involved major blood vessel, there were liver metastasis or peritoneal implants or any combination of these. All the patients underwent different palliative procedures in the form

of triple bypass in 21 (52.50%) patients, choledochojejunostomy and gastrojejunostomy in 6 (15%) patients, gastrojejunostomy and hepaticojejunostomy in 4 (10%) patients, gastrojejunostomy and cholecystojejunostomies in 4 (10%) patients and gastrojejunostomy alone in 5 (12.65%) patients (Table I). Biliary bypass was done by cholecystojejunostomy, hepaticojejunostomy and choledochojejunostomy and gastric bypass was done by gastrojejunostomy.

The mean hospital stay was 8.40±3.48 days. The most common complication was wound infection which occurred in 12% of patients. Leakage from the drain site was seen in 12% of patients. Biliary leakage was seen in 8% of patients while postoperative cholangitis was seen in 4% of patients. Urinary tract infection developed in 6% of patients. Two patients had postoperative upper GI bleeding and 5 patients had signs of delayed gastric emptying. All complications responded well to conservative management.

Thirty five patients were followed-up for a mean period of 7.63±2.19 months, 13 patients had a survival of 4-6 months, another 10 had a survival of 7-8 months, 9 patients had a survival of 9-11 months while 3 patients having a survival of more than 12 months were still alive at the time of completion of this study (Table II). Five patients were lost to follow-up. During the follow-up period none of the 4 patients with hepaticojejunostomy developed recurrent jaundice, one of the patient who have undergone gastrojejunostomy alone developed jaundice after 3 months for which he underwent hepaticojejunostomy. None of the patients with gastric bypass developed symptoms of gastric outlet obstruction later. Similarly none of the patients who had undergone hepaticojejunostomy and gastrojejunostomy required any intervention later till the last follow-up (Table III).

**Table I:** Procedures.

	Frequency	Percent	Valid percent	Cumulative percent
GJ	5	12.5	12.5	12.5
GJ+CCJ	2	5.0	5.0	17.5
GJ+CDJ	6	15.0	15.0	32.5
GJ+HJ	3	7.5	7.5	40.0
GJ+HJ	1	2.5	2.5	42.5
HJ+CCJ	2	5.0	5.0	47.5
TRI BY	21	52.5	52.5	100.0
Total	40	100.0	100.0	

TRI BY=Triple Bypass; GJ=Gastrojejunostomy; CCJ=Cholecystojejunostomy; CDJ=Choledochojejunostomy; HJ=Hepaticojejunostomy.

**Table II:** Outcome of procedure.

	Age	Gender	Stay	Survival	Follow-up	Procedure
N	40	40	40	35	35	40
Missing	0	0	0	5	5	0
Mean	58.7250		8.4000	7.7143	7.6286	
Median	59.5000		8.0000	7.0000	7.0000	
Mode	60.00		8.00	6.00	6.00	
Std. deviation	6.4171		3.4848	2.3957	2.1974	
Sum	2349.00		336.00	270.00	267.00	

**Table III:** Morbidity and mortality after surgical procedures.

In hospital procedure	Number of patients	Number of laprotomies	In hospital mortality	Postoperative complications	
				No (%)	Description
Tripple bypass	21	21	3	7* (33.34%)	Bile Leakage (2) Abd. bleeding (2) Gastric retention (3)
Gastrojejunostomy	05	05	0	1 (20%)	Non Functioning GJ (1)
Gastrojejunostomy+ Choledochojejunostomy	06	06	1 (16.67)	1 (16.67%)	Bile leakage (1) Intraabd. bleeding Non funct. GJ+CDJ
Gastrojejunostomy+ Hepaticojejunostomy	04	04	1 (25%)	1 (25%)	Intraabd. bleeding (1) Non funct.GJ+HJ Bile leakage
Gastrojejunostomy + Cholecystojejunostomy	04	04	0	1 (25%)	Bile leakage (1) Intraabd. bleeding Non funct.GJ+HJ

Abd=abdominal; Intraabd=Intraabdominal; Non Funct=Non Functioning; GJ=gastrojejunostomy; CDJ=Cholecystojejunostomy; HJ=Hepaticojejunostomy.

## DISCUSSION

Carcinoma of the head of pancreas can be managed by two options depending on the stage of the disease, resection with pancreaticoduodenectomy or palliation of symptoms.<sup>2,4</sup> However, many patients have advanced disease at the time of presentation and surgical palliation is done to manage the symptoms associated with it.<sup>8</sup> The goal of palliative management is to relieve jaundice, gastric outlet obstruction and provide relief from pain due to involvement of the celiac plexus.<sup>9,11</sup>

Upto 90% of the patients with carcinoma of pancreas present with obstructive jaundice ultimately leading to hepatic failure due to bile stasis and cholangitis. Relief of obstructive jaundice causes a dramatic increase in the quality of life of patients and therefore should always be undertaken.<sup>10,12</sup> Four RCTS have been performed all of which compared surgical biliary drainage and endoscopic drainage.<sup>10,13-15</sup> In the trial by Borman *et al.* no significant difference was detected between percutaneous and surgical drainage.<sup>13</sup> In the study by Smith *et al.* a higher procedure-related mortality was found after bypass compared with stenting but the recurrence of jaundice and cholangitis during follow-up was significantly higher after stenting.<sup>15</sup> Taylor *et al.* conducted a material analysis and concluded that more treatment sessions were needed after stent placement.<sup>17</sup>

So surgical treatment of biliary obstruction in pancreatic carcinoma is associated with higher early morbidity, longer hospital stay and probably higher initial mortality rate, but long-term results are better. On the other hand endoscopic treatment is associated with a lower initial morbidity and mortality but leads to frequent biliary complications and clotting of the stents and gastric outlet obstruction.

At the time of diagnosis 11-50% of patients with pancreatic carcinoma present with symptoms of gastric outlet obstruction (GOO).<sup>9,10</sup> Approximately 3-20% of patients with unresectable pancreatic tumour will eventually develop mechanical GOO.<sup>12,16</sup>

In patients with unresectable tumour at laprotomy a gastrojejunostomy with or without a biliary bypass can

be done without substantial morbidity. Recently endoscopic duodenal stenting has been accepted as a non-surgical palliative treatment for duodenal obstruction.<sup>17,18</sup> However, so far no randomized trials have been performed to compare endoscopic duodenal stenting versus surgical gastroenterostomy.

Pain is the most disturbing symptom of pancreatic cancer. Intra-operative chemical splanchniectomy is very effective in control of pain in patients with ca pancreas.<sup>12</sup> Pain relief after this procedure has been achieved in 60-88% of the patients.<sup>7</sup> Chemical splanchni-ectomy was not done in present study.

The use of newer analgesic agent or the selective application of invasive techniques can control pain in most patients. Recently endoscopic palliation of duodenal obstruction using large caliber metallic stent has been reported although this experience has been limited.<sup>19</sup>

Prophylactic gastrojejunostomy was mentioned as a routine procedure by many authors in patients undergoing laparotomy for unresectable pancreatic cancer.<sup>20,21</sup> A gastrojejunostomy as the original surgical procedure was never shown to increase the surgical mortality rate. However, patients who required a second surgery their mortality rate approached 25%.<sup>16</sup>

Gastrojejunostomy done at the time of operation decreased the incidence of late gastric outlet obstruction to 0-4%. There is still a controversy remaining despite the result of these studies about the role of prophylactic gastroenterostomy and whether it shall be done routinely or not.<sup>22</sup> If gastroenterostomy is not done at the time of biliary bypass 13-21% of patients will require gastrojejunostomy and additional 20% will die with some symptoms of duodenal obstruction.<sup>16</sup> In the present study also gastrojejunostomy was not associated with higher morbidity and mortality. Therefore, it can be said that combined biliary and gastric bypass in a locally advanced carcinoma head of pancreas is practical and cost effective operation in a country like Pakistan where costs of stents is beyond the reach of many patients and expertise are not yet available commonly.

Both biliary and gastric bypasses are safe procedures with negligible mortality and normal morbidity. It has the double advantage of palliation of biliary obstruction and dealing with duodenal obstruction which may develop later and improving the quality of life of the patient.

### CONCLUSION

Palliative surgical bypass is a safe procedure with minimum morbidity and mortality and can treat all the three major symptoms associated with pancreatic carcinoma. For palliation of obstructive jaundice, a biliary bypass should be performed on relatively fit patients, while in patients with relatively short survival stents are preferred. In addition to biliary bypass, gastric bypass should be performed routinely to prevent GOO due to tumour ingrowth.

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