Laparoscopic pancreatoduodenectomy with binding pancreatogastrostomy reduces pancreatic fistula rate but increases postpancreatectomy hemorrhage rate

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Introduction

- Laparoscopic PD being performed with increased frequency with advancements in laparoscopic skills and technology
- Laparoscopic pancreatico enteric anastomosis is one of the technically challenging steps of laparoscopic pancreaticoduodenectomy (PD)
- Binding pancreaticogastrostomy (PG) - described as a safe & technically simpler alternative to pancreatico jejunal anastomosis in open PD
- Feasibility of laparoscopic binding PG has not been reported
- The aim of this study was to report our early experience of modified laparoscopic binding PG in laparoscopic PD

Methods

- Interim analysis of a Prospective study
- Patients with suspected peripancreatic tumors were included
- Locally advanced tumors, borderline resectable tumors and patients with Body mass index > 30 excluded from the study
- Steps of laparoscopic PD
  - Patient position : supine with leg split
  - Ports : 12mm umbilical or supraumbilical camera port, two 12mm working ports in right and left pararectal area, two 5 mm working port in the right and subcostal region
  - Cholecystectomy performed as a first step
  - Gastric ligament divided. Henle’s trunk ligated and divided
  - Kocheurisation & Mobilisation of hepatic flexure
  - Lymph node dissection along hepatoduodenal ligament (HDL)
  - Division of gastroduodenal artery
  - Bile duct transection above cystic duct stump
  - Tunneling and transection of pancreas at neck
  - Mobilisation of pancreatic stump for 3-4cm
  - Posterior gastrostomy - size equivalent & location opposite to the pancreatic stump
  - Anterior gastrostomy - approximately 5cm
  - Placement of full thickness purse string sutures around posterior gastrostomy
  - After the pancreas stump was pulled into the gastric lumen, purse string suture was tied
  - Anterior gastrostomy was used to perform gastrojejunostomy
- Steps of laparoscopic binding PG
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- Postoperative pancreatic fistula, haemorrhage and delayed gastric emptying graded as per International study group of pancreatic fistula and surgery classification

Results

- During the study period, twenty two patients with suspected peripancreatic cancer underwent laparoscopic PD with modified binding PG
- The majority (14/22) had soft pancreas with an undilated pancreatic duct of diameter 3-4mm with intermediate or high fistula risk score
- The median (range) time taken for laparoscopic binding PG was 30 (25-50) minutes.
- None of the patients had a clinically significant postoperative pancreatic fistula
- Six patients developed Intraluminal post pancreatectomy hemorrhage
  - Grade A – 4
  - Grade B – 2
  - Grade C – 1
- Seven patients developed delayed gastric emptying
  - Grade A – 4
  - Grade B – 3
- The final histopathological diagnosis
  - Lower end cholangiocarcinoma (n=11)
  - Ampullary adenocarcinoma (n=9) and
  - Duodenal adenocarcinoma (n=2)

Conclusions

- The results of this limited case series show that laparoscopic modified binding PG reduces pancreatic fistula but increases the incidence of postpancreatectomy haemorrhage
- The safety of laparoscopic modified binding PG needs to be validated in a larger prospective series

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Methods – Surgical steps

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