CASE REPORTS

Laparoscopic resection with minilaparotomy anastomosis for pancreatico-duodenectomy

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Introduction

Pancreatico-duodenectomy is the surgical treatment of choice for carcinoma of the periampullary region and head of pancreas. The open procedure is associated with considerable morbidity and occasional mortality. The long incision, continuous handling and prolonged use of retractors can result in post operative respiratory inadequacy due to severe pain and ileus. There is often significant blood loss. Laparoscopic assisted Whipples resection is an achievable alternative minimizing post-operative complications, thus facilitating early feeding, mobilization and discharge from hospital [1,2,4,6]. However literature indicates the need of further studies to recommend its routine use [4,5,6,7,8].

Case Report

A year 50 year old male presented with obstructive jaundice who was deeply icteric with a palpable Gall bladder. Imaging were suggestive of a periampullary carcinoma which was confirmed by endoscopy and biopsy. Laparoscopic assisted pancreatico-duodenectomy was planned.

Patient was evaluated for co-morbidities and optimized as required. His weight was 58kg with a BMI of 25.1kg/m2. Procedure was carried out under general anaesthesia with invasive monitoring and supplemented by epidural analgesia. The patient was placed in reverse-trendelenburg 20 degrees and rotated to the left by 30 degrees with legs abducted to 60 degrees. Five ports were used. Pneumoperitoneum was created by insufflation of CO2 at a pressure of 14 mmHg. The gastro-colic omentum was divided, entering in to lesser sac exposing the pancreas. Colon was mobilized from the mid transverse colon to caecum. The duodenum was identified and 'kocherized' and the inferior vena cava was exposed until the left renal vein crossed the abdominal aorta. Mobilization of the duodenum was continued until the ligament of Treitz was divided allowing the jejunum to be pulled freely to the right side. The portal vein was exposed to the neck of pancreas and the dissection continued until the common bile duct and common hepatic artery hepatic artery and gastroduodenal artery were exposed. The gastro-duodenal artery was divided in between clips. The stomach was transected with a stapler. The pancreas was divided in front of the portal vein.

The jejunum was transected with a stapler. The divided pancreas and uncinate process were taken off from the portal vein. The common bile duct was transected and the resection was complete. The time for resection was 330 minutes with a blood loss of 400ml. The patient was stable during procedure and did not require blood transfusion.

A mid line laparotomy of about 10 cm was made to retrieve the specimen and perform the anastomoses -
pancreatico-jejunostomy, hepatico-jejunostomy and gastro-jejunostomy.

The respiratory and cardiovascular parameters were monitored carefully and were stable. Following extubation, the patient was managed in the ICU. Pain relief was provided using the epidural catheter for the first day. Subsequently the patient was comfortable with diclofenac sodium suppositories 100mg twice a day. He was mobilized after twenty four hours and started on oral sips forty eight hours after surgery. Semisolids were started after four days and a normal diet by the sixth day. He was discharged on the eighth post operative day.

**Discussion**

Laparoscopic pancreatico-duodenectomy creates a new learning curve for the gastrointestinal surgeon. The patient positioning, port placement, adequate retraction, traction and counter traction, precise appreciation of anatomy and tissue planes are all required for successful completion. Adherence to meticulous haemostasis is crucial.

We successfully completed the laparoscopic resection in this patient. This was after conversion to open surgery at various stages of resection in seventeen patients. For the reconstruction, we opted for a minilaparotomy [3]. Anastomoses could be performed laparoscopically, for which a skill in laparoscopic suturing is essential. The next goal to achieve is performing the hepatico-jejunostomy laparoscopically. Then the pancreas can be anastomosed to the posterior wall of the stomach. This and the gastro-jejunostomy could be performed with a mini incision of about 5cm.

The meticulous fluid balance, monitoring and vigilance reduced complications due to altered physiology owing to pneumoperitonium, position, abdominal compartment syndrome with aorto-caval compression leading to impediment of perfusion to organs, possibility of gas embolism during this surgery which took 330 minutes [9].

**Conclusion**

Laparoscopic pancreatico-duodenectomy may well be performed safely with minimum blood loss in an acceptable time with minimal complications and speedy post operative recovery. Persistence during the learning curve is a must in reaching the goal.

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**Key Points:**

- Laparoscopic pancreatico-duodenectomy is a treatment method which leads to reduced perioperative complications and speedy recovery. However there is a steep learning curve to be negotiated before it becomes standard practice.