Laparoscopic doudenopancreatectomy (LPD)-our approach. How to do it?

**BACKGROUND**

Laparoscopic pancreaticoduodenectomy and laparoscopic distal pancreatectomy (LDP) are advocated to improve perioperative outcomes, including decreased blood loss, shorter length of stay, reduced postoperative pain and expedited time to functional recovery. However, the indications for minimally invasive approach for pancreatic surgery is often benign or low grade malignancies.

Total laparoscopic pancreaticoduodenectomy (TLPD) can be associated with significantly longer operative times and a steep learning curve. While oncologic results are comparable to open surgery, the long term benefits of the method are still debatable and need further studies.

Our preferred method is the hybrid approach or Laparoscopically assisted total pancreatectomy (LAPD). This method includes laparoscopic pancreatectomy followed by a mini-laparotomy for specimen extraction and reconstruction.

This way we combine the advantages of mini-invasive surgery with the superior ergonomics and shorter operative times associated with open surgery.

**OBJECTIVE**

To present our approach to minimally invasive duodenopancreatectomy and compare it to the open approach.

**MATERIAL & METHODS**

For the period 2014-2017, we have performed 76 PD, 24(32%) were done with laparoscopic approach. 46(61)% of patients were operated totally laparoscopically and 18(26)% of patients were operated by hand-assisted techniques.

**TECHNIQUE**

The first important step is preoperative evaluation of the patient. Good candidates for minimally invasive approach are patients with tumors limited to the pancreatic head or periampullary tumors with clear vascular margins seen on the preoperative image studies (CT or MRI).

We use 5 trocar technique:

1. Head
2. Specimen
3. Pancreato-jejunostomy
4. Hepatico-jejunostomy
5. Specimen

The steps of LDP procedures are similar to the open procedure. We perform destructive part of procedure totally laparoscopically.

The specimen is extracted and the reconstruction phase of the operation is performed through the mini-laparotomy.

**RESULTS**

We found longer operative time in laparoscopic group, 385 min vs 210 min in open group. Mean blood loss was 260 ml in laparoscopic operated patients and 430 ml in open group. Mean length of stay was 8 days in laparoscopic group vs 14 days in open group. Overall mortality in laparoscopic group was 19%. One patient with superior vein thrombosis (Clavien-Dindo-II), one patient with post-operative acute necrotizing pancreatitis (Clavien-Dindo-IVa), a 2(two) patients with low debit pancreatic fistula (Clavien-Dindo-III). Mortality rate was 75% patient was died in early postoperative period from venous mesenterial thrombosis and multiorgan dysfunction.

**Laparoscopic group complications**

- Morbidity - 4 patients (19%)
- Mortality - 1 patient (5%)

- Necrotizing pancreatitis (Clavien-Dindo IVa)
- Low debit pancreatic fistula (Clavien-Dindo II) – 2 patients
- Superior vein thrombosis (Clavien-Dindo II) – 1 patient

**CONCLUSION**

The hybrid approach to laparoscopic pancreaticoduodenectomy is a good alternative to TLPD and open surgery. It’s advantages include better vascular control and greater safety of reconstruction than TLPD during the open phase and reduced operative times and faster recovery than open surgery.

The place of laparoscopy in duodenopancreatectomy is still an open question due to the great complexity of the procedure, the steep learning curve, the need for strict selection of patients, the lack of standardization and the high cost of the procedure. Additional comparative prospective studies with a large number of patients are needed.

**REFERENCES:**

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