



Original research

Laparoscopic perspectives for distal biliary obstruction



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ABSTRACT

Background: In patients affected by distal biliary obstruction deemed unsuitable for pancreatoduodenectomy, biliary diversion is the only proposable option. Defined goals of this treatment are: relief from jaundice preventing its related complications, reduction of in-hospital stay and adequate control of pain. Palliation can be obtained either by surgical or conservative procedures (endoscopic stenting or percutaneous treatment). Considering early complications' incidence, surgical approach has always been reserved for low surgical risk patients with longer survival perspectives, while recently developed long-lasting patency stents enlarged mini-invasive application resort. Comparative studies on these therapeutic options favour the conservative one in respect of conventional open surgery, but data on minimally invasive surgery to pursue palliative aims are lacking. We present our six-years casuistic and results referring to laparoscopic biliary diversions.

Methods: We analyzed results obtained in distal biliary neoplastic obstruction management between December 2008 and November 2014. During this period, selected patients considered unsuitable for pancreatoduodenectomy were scheduled to receive a laparoscopic biliary decompression. Perioperative variables and 30-days postoperative outcomes have been prospectively collected. Results: In the six-years period, 12 patients affected by distal biliary neoplastic obstruction were submitted to laparoscopic palliative bypass. Four procedures were proposed for distal biliary cancer, one for advanced periampullary cancer and seven for pancreatic head cancer. Ten hepatico-jejunal bypasses and two choledochoduodenostomies have been performed. No conversions to open surgery were encountered in this series. Main operative time was 85 min, main blood loss was 75 ml and main hospitalization was 4.5 days. According to Clavien Dindo Classification one class II and one class IIIb complications occurred.

Conclusions: Although the restricted number of patients, our results suggest that laparoscopic biliary bypass could be a valid option in managing distal biliary obstructions, resulting in low perioperative morbidity, effective long term palliation of symptoms and improved quality of life.

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1. Background

In patients affected by distal biliary obstruction not suitable for pancreatoduodenectomy, biliary diversion is the only proposable option. Defined goals of this treatment are: relief from jaundice preventing its related complications, reduction of in-hospital stay and adequate control of pain [1]. Biliary decompression can be obtained either by conservative procedures (endoscopic stenting

and percutaneous treatment) or by surgery, respectively associated with reduced earlier and later complications [1]. Moreover pancreatic surgery for cancer is demanding and requires experience and skills [2–11].

Because of the weakening of conventional open surgical approach, for a long time this option has been reserved only to low surgical risk patients with longer survival perspectives and given the recent introduction of long term patency stents, conservative procedures have been advocated as the best choice in chasing decompressive purposes [12,13]. As innovations in stents materials and applications are evolving, at the same time skills and expertise in mini-invasive surgery are in progressive expansion.

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Data on laparoscopic approach in biliary diversion are lacking but nowadays it is possible to propose the same long-term benefit achievable with open surgery, adding all the advantages arising from a mini-invasive approach, with less impact on morbidity and improved quality of life.

The aim of this paper is to present our six-years preliminary experience and results in approaching palliative biliary diversions by laparoscopy.

2. Methods

We analyzed data regarding patients affected by distal biliary neoplastic obstruction admitted to our Unit between December 2008 and November 2014.

The main reason for Emergency Unit Department referral was jaundice. Other symptoms reported were lack of appetite and weight loss. Disease assessment was obtained by submitting every patient to full-blood tests, including tumor markers, abdomen ultrasound evaluation followed by abdominal computed tomography scan and endoscopic ultrasound evaluation if needed. In planning a tailored approach case by case, once assessed each patient was discussed at a multidisciplinary team meeting constituted by surgeons, radiologists, gastroenterologists, oncologists and pathologists. Variables considered were demographics, anesthesiological risk assessment (according to the American Society of Anesthesiologist) and the chance to achieve an R0 resection at surgery. Considering these parameters, patients evaluated unsuitable for pancreatoduodenectomy but with acceptable performance status were scheduled to receive laparoscopic palliation. Depending on disease location, hepatico-jejunal bypass or choledochoduodenostomy have been proposed. Hepatico-jejunostomies have been realized between common bile duct, at least 1 cm from its bifurcation, and the first jejunal loop, at about 30 cm from Treitz ligament. In choledochoduodenostomies biliary tract has been anastomosed with third duodenal portion. For both procedures, the posterior row of the anastomoses has been constructed with an absorbable 3-0 running suture, while the anterior row with 5–7 interrupted 3-0 absorbable stitches.

Intraoperative and post-operative 30-days results have been prospectively collected. We also analyzed outcomes on survival and quality of life.

3. Results

From December 2008 to November 2014, 12 patients (8 female, 4 male), mean age 77 years old (range 69–86 years), affected by distal biliary neoplastic obstruction were evaluated unsuitable for pancreatoduodenectomy and therefore submitted to laparoscopic palliative bypass (Table 1). Underlying disease was distal choledochal carcinoma in four cases, advanced periampullary carcinoma in one case and pancreatic head cancer in seven cases. In total we performed 10 hepatico-jejunal bypasses and 2 choledochoduodenostomy. All the procedures were completely accomplished by laparoscopy and no conversion to open surgery was encountered in this series. Globally, mean operative time was 85 min (range 60–110 min), mean blood loss was 75 ml (range

30–115 ml). Mean hospitalization was 4.5 days (range 3–7 days). According to Clavien Dindo Classification one class II and one class IIIb complications occurred. Median survival has been 9.2 months (range 4–17 months) (Table 2).

4. Discussion

Nowadays mini-invasive surgery has gained more and more popularity being an accepted surgical approach for several abdominal procedures.

In respect of pancreatic diseases, laparoscopic surgery, is widely accepted and performed for pancreatic tail neoplasms but its application in pancreatic head resections still remains a matter of debate [1]. Several factors are responsible for such deference: first of all the connections of pancreatic head to several important anatomical structures, further on recognized complexity of surgical procedures in this field, technically demanding also for highly skilled laparoscopic surgeons. Since the first technical description of laparoscopic pancreaticoduodenectomy performed by Gagner and Pomp in 1994 [1], only few cases and case series have been published, and firm data on safety, feasibility and advantages of mini-invasive approach compared with conventional open procedures couldn't confirm it is worthwhile [2,3]. Moreover literature lacks of short and long term data.

Especially if combined with intraoperative ultrasound, laparoscopy revealed instead high capability in improving diagnostic work-up of pancreatic head cancer [13,14], being efficient in detecting peritoneal or liver metastases disregarded at computed tomography scan [6,15].

Another matter of debate is the rule of mini-invasive surgery as palliative proposal to treat bile and digestive obstruction in inoperable pancreatic cancer or advanced choledochal disease. Up to 15–20% of patients with local advanced tumours present with digestive obstruction and for years standard surgical treatment has been an open gastrojejunal anastomosis [16]. Several reports on laparoscopic palliation have been recently described, but only few of these compared open to laparoscopic gastrojejunal anastomosis [17,18]. In a retrospective cohort evaluation Guzman reported notable differences in terms of hospital stay between conventional and laparoscopic approaches, even if, given the small amount of patient in this series, any statistical evidence has been recorded [19,20].

In a randomized trial, Navarra reported improved outcomes in terms of postoperative ileus and complications for the laparoscopic group, but again the small number of patients enrolled doesn't allow to draw firm conclusions [19].

Regarding laparoscopic biliodigestive derivations, one of the most representative case series has been conducted on 26 patients affected by either malignant and benign biliary obstruction. Mean hospital stay reported was 12.6 days (± 11.5), post operative complication rate was up to 23% [20]. With a mean hospital stay of 4.5 days and a postoperative complication rate around 16.6%, our experience is in contrast with these data.

Considering poor early postoperative outcomes, surgical bypasses are actually recommended for patients with longer life expectancy, proposing instead endoscopic or percutaneous stenting

Table 1
Perioperative variables.

	n°
Vascular invasion	5
Peritoneal localization	2
Comorbidity	11
Mean age	77 years
Metastatic disease	4

Table 2
Operative variables.

Mean operative time	85 min
Blood loss	75 ml
Mean hospital stay	4,5 days
Complication	2
Median survival	9,2 months

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