


Original Research Article

Laparoscopic repair of perforated peptic ulcer: Our experience

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Abstract

Laparoscopy is an important milestone in the history of surgery. Almost all abdominal surgeries can now be approached laparoscopically. Laparoscopic perforated duodenal ulcer (DU) repair has been shown to be feasible. However, whether its superior to open repair is yet to be established and has not become the standard of care. Laparoscopy offers better visualization and early recovery.

Key words

Laparoscopic approach, Perforated peptic ulcer, Duodenal ulcer.

Introduction

Laparoscopy is an important milestone in the history of surgery. Almost all abdominal surgeries can now be approached laparoscopically. Laparoscopic perforated duodenal ulcer (DU) repair has been shown to be feasible [1]. However, whether it's superior to open repair is yet to be established and has not become the standard of care. Laparoscopy offers better visualization and early recovery. Perforated duodenal ulcer is a surgical emergency. In 1990 Mouret, et al. [1] reported the first laparoscopic sutureless fibrin glue omental patch for perforated duodenal ulcer repair. The first successful laparoscopic suture repair for perforated peptic ulcer was described by Nathanson, et al. also in 1990 [2, 3]. Soon

after that, the laparoscopic approach became a widespread procedure [4].

Material and methods

A retrospective analysis of case records of all patients treated by laparoscopic closure of perforated DU was performed. A total of 20 patients were treated laparoscopically in our institute from 2012 to 2014. All our patients were initially stabilized with intravenous fluids, Ryle's tube aspiration and antibiotics and then taken up for surgery at the earliest.

Surgical technique: The patients were positioned supine with 15-20 degree reverse Trendelenburg's position. The operating and the camera surgeon stood on the patient's left side

and the assistant surgeon on the right side. Or operating surgeon stood between the patient's leg, the camera surgeon on right side of patient and assistant surgeon on left side of patient. The camera port 10 mm was placed in umbilicus. The right- hand working port 5 mm was placed medial to the left midclavicular line, just above the level of the umbilicus. The left- hand working port 5 mm was placed in the right midclavicular line, above the level of the umbilicus. A 5 mm port was placed in the epigastrium to retract the quadrate lobe of the liver if needed. The perforation closed with interrupted suture of 2-0 polygalactin.

Thorough peritoneal lavage then given with saline irrigation and aspiration. Special attention was given to the supra- and subhepatic regions, the left subdiaphragmatic space. After lavage, all the fluid was aspirated and a tube drain was kept in the subhepatic space. In case of generalized peritonitis, a second drain was placed in the pelvis.

Post-operatively, proton pump inhibitor, intravenous fluids, and broad- spectrum antibiotics were administered.

During surgery, biopsy was taken from the edge of the ulcer to test for the presence of helicobacter pylori. H. pylori infection was diagnosed by histology. If it was positive, a triple therapy regimen consisting of amoxicillin, pantoprazole and metronidazole for one week was administered on resumption of oral intake. Patient taking non-steroidal anti-inflammatory drugs were advised to stop these drugs.

Patient were called for follow up at 1 week, 1 month, 6 months, 12months and yearly thereafter. They were subjected to upper gastrointestinal endoscopy at 1 month and 6 months and at yearly intervals thereafter.

Results

20 patients were included in our study, 13 male and 7 female. The mean age was 45 years, our

oldest patient was 60 years old and the youngest was 28 years. All patients presented with abdominal pain and distension, three of them had constipation. Seven patients had high-grade temperature and tachycardia and all had diffuse tenderness and board like rigidity. All had leukocytosis with raised serum urea levels. The mean operative time was 75 minutes, ranging between 60 to 90 minutes.

Oral fluid intake was permitted on the second postoperative day in 11 patients and in others on the third and fourth days. Drain tube was removed on the 3rd to 5th postoperative day. There was no mortality. All patients were discharge between the 5th and 7th postoperative days.

Discussion

Management of peptic perforation is controversial [5, 6]. Laparoscopic surgical treatment is attractive due to lower morbidity rate associated with it than with conventional surgery [7]. A recent review compared laparoscopic repair was associated with lesser postoperative analgesic use, decreased hospital stay, lower wound infection rate, and lower mortality rate; vs open repair was associated with reduced operating time and suture- site leakage.

In 2004 Lau published a meta-analysis summarizing the results of 13 trials that were comparing treatment outcomes for open and laparoscopic repairs [8] and concluded that the minimally invasive approach should be the procedure of choice for patients with no risk factors. In meta-analysis by Lau [8] comparing laparoscopic open repair laparoscopy resulted in lower postoperative analgesic use, lower wound infection and mortality, better cosmesis, fewer incisional hernias but longer operating time and higher reoperation rates.

Nowadays laparoscopic repair of duodenal perforation seems to be a useful method for reducing hospital stay, complications and return to normal activity if carried on in proper manner.

With better training in minimal access surgery and better ergonomics now available the time has arrived for it to take its place in the surgeon's repertoire.

Conclusion

Laparoscopic closure of duodenal ulcer perforation is safe and low morbidity. In the presence of adequate surgeon experience and hemodynamically stable patient, it is safe to repair DU perforation laparoscopically. Our three port approach is easier to adapt to for surgeons newly beginning to do laparoscopic DU perforation repair. Laparoscopic repair of perforated peptic ulcer is advantageous to open surgery by less postoperative pain, earlier return to normal diet, and earlier discharge from hospital. It may be considered as a safe treatment option for selected patients in routine clinical practice.

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