



LAPAROSCOPIC OMENTAL PATCH REPAIR FOR DUODENAL ULCER PERFORATION – A SINGLE INSTITUTION EXPERIENCE OF 12 CASES

General Surgery

Dr Naman Singhal MS Surgery resident

Dr Sanjay Singhal PHOD Department General Surgery

Dr Prashant Jain MS Surgery resident

Dr Deepak Bishnoi MS Surgery resident

Dr Bharat Bhushan Sharma MS Surgery resident

ABSTRACT

Introduction: Duodenal ulcers are defined as mucosal breaks of 3 mm or greater and account for about two thirds of all peptic ulcers. Perforation of ulcer is one of the known complications seen in such a patient presenting in emergency ward of a hospital. In spite of great advances in Laparoscopic surgery nowadays, most of the general surgeons are not well versed with laparoscopic repair of duodenal ulcer perforation. **Aim:** To check the efficacy of laparoscopic repair of duodenal ulcer perforation in terms of various patient parameters. **Materials and Methods:** This is a prospective randomised hospital based study. The procedure was performed in 12 patients from March 2017 to April 2018 presenting to emergency department with features of peritonitis as a result of peptic ulcer perforation. The procedure for laparoscopic primary repair with omental flap consisted of peritoneal lavage, primary suture of perforation, and omentopexy. **Results:** The median operation time was 56.0 minutes (20–80 minutes). Median day of commencement of a soft diet was day 5 (3–14 days). After surgery, the median hospital stay was 7.0 days (5–20 days). Postoperative complications occurred in one patient, which included mild acute pancreatitis. This complication was resolved by conservative management. During the operation, no conversion to open surgery or intra-operative events occurred. **Conclusion:** Although our study was carried out on a small number of patients at a single institution, from the study we can conclude that laparoscopic repair of duodenal ulcer perforation can be an effective surgical method in the treatment of duodenal ulcer perforation if there is no absolute contraindication to laparoscopic surgery.

KEYWORDS

Duodenal Ulcer, Laparoscopy, Primary Repair, Peritonitis

INTRODUCTION

In case of duodenal ulcer perforations, primary repair is one of the most common methods used by general surgeons in emergency because of the convenience of the surgical technique and advances in medical treatment. Many surgeons tried to perform the technique and they reported their surgical outcomes and experiences after the introduction of laparoscopic repair of duodenal ulcer perforation (1,2). There appears to be no significant difference between laparoscopic primary repair group and open primary repair group according to some surgeons (3,4) while others suggested that the best way to improve early surgical outcomes is the laparoscopic primary repair (5–7). The laparoscopic duodenal perforation repair gives benefit as compared to open surgery in terms of less post-operative pain, less bleeding, cosmetically better, early return to normal work and less wound infection but at the same time laparoscopic procedure has large learning curve and lacks tactile sensation.

MATERIALS AND METHODS

Laparoscopic repair of duodenal ulcer perforation patient was done in 12 patients in almost a year presenting with features of peritonitis.

Procedure

In our method we used one umbilical 10 mm (camera port), and three 5mm port, one in right hypocondrium (left hand working port), another in left hypocondrium (right hand working port) and third one in right anterior axillary line (for gall bladder retraction). After insertion of the ports peritoneal lavage is done using normal saline till the affluent is clear. Perforation site on duodenum is visualized and flakes around the perforation is cleared. Gall bladder is retracted using right anterior axillary line port with a grasper. Vicryl 3-0 thread on round bodied needle is used for the perforation closure and is introduced via 10 mm camera port.

An intra corporeal suture is taken at the upper margin of perforation and needle end of thread is cut and needle is parked in the anterior abdominal wall. Now using the transfacial suture passer both ends of the thread are taken out of anterior abdominal wall and little tension is given so that the anterior wall of the duodenum is pulled up and the perforation is visualized. Posterior wall of the duodenum can be easily observed after lifting the duodenum up. Under the vision the next two parallel sutures are passed. This suture can be taken under vision, thus avoiding the posterior duodenal wall incorporation. The free omentum

available is used for the closure over the perforation.. This omental patch is applied in between the stay sutures. The hanging sutures are released and utilized to tie the upper margin of omental patch. Drain was placed in all cases. We have performed 12 cases by this method and detail statistical data of all the patients is given in.

RESULTS

A total of 12 out of 36 patients who presented with duodenal perforation in emergency underwent laparoscopic repair of perforation the other 24 patients were excluded from the study because laparoscopy was a contraindication in them or they presented in later stages of peritonitis with shock. About 14 patients were smokers, 16 patients gave a history of prolonged use of NSAIDS for joint pains or low back pain. 10 patients were taking tea and coffee chronically (Table no.1).

Table no.1 showing various risk factors in patients presenting with peptic ulcer perforation.

Risk Factors	Number Of Patients
Smoking	14
Prolonged use of NSAIDS	16
Coffee and Tea Ingestion	10
Family history OF PUD	8
Total number of patients	36

The median operation time was 56.0 minutes (20–80 minutes). Median day of commencement of a soft diet was day 5 (3–14 days). After surgery, the median hospital stay was 7.0 days (5–20 days). (table no. 2)

Table no.2 showing operative time, median hospital stay and day of commencement of oral

Diet	Time	Range
Median operation time (minutes)	56	20-80
Median day of commencement of soft diet orally (days)	5	3-14
Median hospital stay (days)	7	5-20

Postoperative complications occurred in two patients, which included mild acute pancreatitis and wound infection. These were managed and patient recovered well in postoperative period. (table no. 3)

Table no. 3 showing postoperative complications in patients who underwent laparoscopic duodenal perforation repair.

Postoperative complications	Number of patients
Wound infection	1
Bleeding	0
Pancreatitis	1
Wound dehiscence	0
Intra abdominal collection	0
Chest complications	2
Mortality	0

During the operation, no conversion to open surgery or intra-operative events occurred.

DISCUSSION

Recent advances in the medical management of peptic ulcer disease have resulted in a dramatic decline in the number of elective ulcer surgeries performed. The statistical data shows that despite the advances in the medical management, the number of patients requiring surgery for complications such as perforations remains relatively constant(8). Laparoscopy has assumed an important role in general surgery since the introduction of laparoscopic cholecystectomy, however, the role of laparoscopic surgery for perforated peptic ulcer is not well defined. The laparoscopic approach helps in confirmation of the diagnosis, reduces the access trauma, and can be used to perform the same repair procedure and lavage as open omental patch repair(9). It can be used by some as a way of performing diagnostic laparoscopy, and if the perforation is already sealed off by the omentum, it is left undisturbed and laparoscopic peritoneal lavage done(10-11). After the initial reports of laparoscopic management of perforated peptic ulcer, different techniques of ulcer closure, namely suturing, gelatin sponge and fibrin glue, stapled omental patch repair, have been tried(12-13). In our series of laparoscopic repairs, we adopted the suture closure method because it is based on the principle of classical open repair. Laparoscopic repair is, however, technically more demanding, and surgeons need specific training in laparoscopic suturing technique. The results of our randomized controlled study in a large group of patients showed that when compared with open repair, laparoscopic repair is associated with a shorter operative time, reduced postoperative pain and analgesic requirements, a shorter hospital stay, and earlier return to normal daily activities. The complication rate for laparoscopic repair was low; the laparoscopic procedure was associated with fewer chest infections and potentially less wound infection compared with open repair. Laparoscopic surgery minimizes postoperative wound pain and encourages early mobilization and return to normal daily activities. The benefit of early discharge and early return to work may outweigh the consumable cost incurred in the execution of the laparoscopic procedures.

CONCLUSION

In conclusion, this study has shown that laparoscopic suture omental patch repair confers benefits on patients in the form of reduced postoperative pain, less chest infection, a shorter hospital stay, and an earlier return to normal activities.

REFERENCES

- Lam PW, Lam MC, Hui EK, Sun YW, Mok FP. Laparoscopic repair of perforated duodenal ulcers: the "three-stitch" Graham patch technique. *Surg Endosc*. 2005; 19:1627–1630.
- Song KY, Kim TH, Kim SN, Park CH. Laparoscopic repair of perforated duodenal ulcers: the simple "one-stitch" suture with omental patch technique. *Surg Endosc*. 2008;22:1632–1635.
- Robertson GS, Wemyss-Holden SA, Maddern GJ. Laparoscopic repair of perforated peptic ulcers. The role of laparoscopy in generalised peritonitis. *Ann R Coll Surg Engl*. 2000;82:6–10.
- Bergamaschi R, Mårvik R, Johnsen G, Thoresen JE, Ystgaard B, Myrvold HE. Open vs laparoscopic repair of perforated peptic ulcer. *Surg Endosc*. 1999;13:679–682.
- Siu WT, Leong HT, Law BK, Chau CH, Li AC, Fung KH, et al. Laparoscopic repair for perforated peptic ulcer: a randomized controlled trial. *Ann Surg*. 2002;235:313–319.
- Lau WY, Leung KL, Kwong KH, Davey IC, Rovertson C, Dawson JJ, et al. A randomized study comparing laparoscopic versus open repair of perforated peptic ulcer using suture or sutureless technique. *Ann Surg*. 1996;224:131–138.
- Seelig MH, Seelig SK, Behr C, Schönleben K. Comparison between open and laparoscopic technique in the management of perforated gastroduodenal ulcers. *J Clin Gastroenterol*. 2003;37:226–229.
- Koo J, Ngan YK, Lam SK. Trends in hospital admissions, perforation and mortality of peptic ulcer in Hong Kong from 1970 to 1980. *Gastroenterology* 1983; 84: 1558–1562
- Siu WT, Leong HT, Li MKW. Single stitch laparoscopic omental patch repair of perforated peptic ulcers. *J R Coll Surg Edinb* 1997; 42: 92–94.
- Walsh CJ, Khoo DE, Motson RW. Laparoscopic repair of perforated peptic ulcer. *Br J Surg* 1993; 80: 127.
- Schein M. Laparoscopic repair of perforated peptic ulcer. *Br J Surg* 1993; 80: 1212.
- Darzi A, Cheshire NJ, Somers SS. Laparoscopic omental patch repair with an automated stapler. *Br J Surg* 1993; 80: 1552.
- Nassar A. Laparoscopic omental patch repair of perforated duodenal ulcer with automated stapler. *Br J Surg* 1994; 81: 1393.