



RESEARCH ARTICLE

LAPROSCOPIC CLOSURE OF DUODENAL ULCER PERFORATION IN PERIPHERAL SET UP IN WESTERN MAHARASHTRA

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ABSTRACT

Laparoscopic surgery has become popular during the last decade, mainly because it is associated with fewer postoperative complications than the conventional open approach. The goal of the present study is to evaluate whether laparoscopic closure of perforated peptic ulcer is as safe as conventional open correction in peripheral setup. The study is based on retrospective analysis of cases of duodenal ulcer perforation operated laparoscopically in peripheral set up. Cases of early duodenal perforation with ASA (American standards for Anaesthesia) grade I and II are included in this study (n = 50). All cases were operated with simple closure of perforated ulcer. Mean Hospital stay was 6 days. All patients ambulated early and pain killer requirement was less.

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INTRODUCTION

The incidence of perforated peptic ulcer (PPU) has declined over the past several years because of the introduction of anti-ulcer medication (PPIs) and Helicobacter eradication therapy (Behrman, 2005; Svanes, 2000). The role of surgery has been limited to complicated disease. Nevertheless the rate of peptic ulcer perforation has remained stable and continues to represent a major cause of mortality especially in elderly patients with peptic ulcer disease (PUD) (Cao *et al.*, 2014; Soreide *et al.*, 2015). Laparoscopic as compared to open repair of perforated peptic ulcer (PPU) has been associated with more favorable outcome in several trials (Karydakos, 2010; Potashov *et al.*, 2005). The aim of this study is to present our experience in laparoscopic treatment of PPU using simple closure of duodenal ulcer in peripheral set up. Mouret *et al.* published the first results of laparoscopic repair in 1990 (Mouret *et al.*, 1990). He concluded that it was a good method that probably reduced postoperative wound problems and adhesions with use of a single-stitch method described by Siu *et al.* (2002), nevertheless the incidence and mortality of PPU is 5–10%.

The mortality will increase up to 50% if the perforation exists for more than 24 h (Lunevicius, 2005; Seelig *et al.*, 2003). Various studies showed incidence of shorter hospital stay after laparoscopic correction of PPU (Sanabria *et al.*, 2005; Kohler, 1999)

MATERIALS AND METHODS

This is retrospective study From January 2014 to January 2017. 50 out of 120 patients with a clinical diagnosis of perforated peptic ulcer were studied which underwent laparoscopic closure of duodenal ulcer perforation. Patients selected for this study are ASA I And ASAII without co morbidities and cases of early perforation. Patients were excluded for a history of upper abdominal surgery, concomitant evidence of bleeding from the ulcer, gastric outlet obstruction. Patients with clinically sealed-off perforations without signs of peritonitis or sepsis were treated without surgery. All patients underwent nasogastric aspiration and received injection cefoperazone with sulbactam and omeprazole preoperatively. Data regarding clinical history, demographics, timing of surgery, type of procedure, operating time, perioperative complications, reason for conversion, analgesic requirements, timing of introduction and transition to oral feeding and duration of postoperative hospitalization was collected in a retrospective manner from patients' records.

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Follow-up on OPD basis. The primary objective is to see perioperative parenteral analgesic requirement. Secondary objective is to see w operative time, postoperative pain-score, length of postoperative hospital stay, complications and deaths, and the date of return to normal daily activities

RESULTS

All patients underwent nasogastric aspiration for 1 to 3 days (mean, 2 days). Patients resumed liquid diet in 2 - 4 days and solid diet in 3 - 5 days. Median postoperative parenteral analgesic requirements were 3 doses of pethidine 1mg/kg intramuscularly (range 1 - 8 doses). Postoperative hospital stay was 3 - 6 days; patients returned to full activity within 15 - 25 days postoperatively. 4 patients developed early complications. Wound related complications occurred in 4 patients. Average operating time is 1 hour. Analgesic requirements is only for 36 hours. Patients were ambulatory within 48 hours and started liquids orally after 72 hrs. Mean hospital stay was only 6 days.

DISCUSSION

Advances in the medical treatment of peptic ulcer disease have led to a dramatic decrease in the number of elective ulcer surgeries performed. Nonetheless, the number of patients requiring surgical intervention for complications such as perforations remains relatively unchanged (Koo *et al.*, 1983; Gunsheski *et al.*, 1990; Walt, 1986; Kulber *et al.*, 1996) Minimal access surgery has assumed an ever-expanding role in gastrointestinal surgery since the introduction of laparoscopic cholecystectomy. Laparoscopic cholecystectomy has rapidly become a standard practice in most parts of the world for elective cholecystectomy, but the role of laparoscopic surgery for perforated peptic ulcer WAS not well defined (Siu *et al.*, 1997) but many studies have shown advantage of laproscopy in perforated peptic ulcer. The laparoscopic approach reduces the access trauma, can confirm or refute the diagnosis, and can be used to perform the same repair procedure and lavage as open mental patch repair (Tate *et al.*, 1993; Cuschieri, 1995; Katkhouda *et al.*, 1999). It has been advocated by others as a way of performing diagnostic laparoscopy to confirm or disprove the diagnosis, and if the perforation is already sealed off by omentum, it is left alone and peritoneal lavage is performed laparoscopically (Walsh *et al.*, 1993; Schein, 1993). After the initial reports (Mouret *et al.*, 1993; Nathanson, surgical endoscopy) of laparoscopic treatment of perforated peptic ulcer, different techniques of ulcer closure had been tried; suturing gelatin sponge (Sunderland, 1992) and fibringlue, (tate JJ,, Dawson JW, Lau WY, Li AKC Br J Surg 1993, 127), stapled omental patch repair (Darzi, 1993; Nassar, 1990) and gastroscopy-aided insertion of the ligamentum teres hepatis (Costalat *et al.*, 1991) Other workers advocated the use of a gastroscopic-guided omental plug to close the perforation (Pescatore *et al.*, 1998). In our series of laparoscopic repairs, we adopted the suture closure method because it is based on the principle of conventional open repair and does not require additional foreign bodies. However some studies have suggested that laparoscopy is not safe in the presence of prolonged peritonitis, due to higher incidence of postoperative septic complications. These include: postoperative suture leak, pneumonia, intrabdominal abscess formation and external fistula (Siu *et al.*, 1997). In this study, we did not encounter major procedures. The short operative time in the laparoscopic repair was largely related to our modification of the laparoscopic closure technique. By applying one single stitch

across the perforation and using the same suture to anchor the omentum, cumbersome multiple interrupted suturing is avoided (Cuschieri, 1995). The majority of the ulcer perforations were small, and we found this single-suture closure technique safe in such circumstances. Laparoscopic repair is, however, technically more demanding, and surgeons need specific training in laparoscopic suturing technique (Paterson-Brown, 1993). The results of study 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. The role of laparoscopic surgery in emergencies is well documented (World journal of surgery Nov 2008, Vol 32 pp 2371-2374) The change of disease pattern in perforated peptic ulcer favors a simple repair procedure. With the demonstrated benefit in our cases laparoscopic repair of perforated peptic ulcers should be the procedure of choice. Laparoscopy should be incorporated into the peripheral hospital surgeon's armamentarium for the management of patients with peritonitis. 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 (Siu WT, Leong HT, Bonita KB *et al.* 2002 Annals of surgery Vol 235,313-319).Laparoscopic repair is a viable and safe surgical option for patients with perforated peptic ulcer disease and should be considered for all patients, providing that the necessary expertise is available (Wong, 2009). Although the incidence of peptic ulcer disease is decreasing, it appears that among our patients, the incidence of complication is rising. Laparoscopic approach offers an alternative treatment with less pain, shorter hospital stay, and improved complications rate. (Song, 2008) Perforated duodenal ulcer can be closed laparoscopically by many methods. Conventional single stitch method with omental patch or can be closed without omental patch (Siu WT, Leong HT, Bonita KB *et al.* 2002 Annals of surgery Vol 235,313-319)

Conclusion

Laparoscopic repair of perforated peptic ulcer is a safe and reliable procedure. It was associated with a shorter operating time, less postoperative pain, reduced chest complications, a shorter postoperative hospital stay, and earlier return to normal daily activities than the conventional open repair. Laparoscopic treatment of PPU is technically feasible and safe even in peripheral set up when performed by a surgeon well experienced in laparoscopy.

REFERENCES

- A 10-Year Review of Surgical Management of Complicated Peptic Ulcer Disease From a Single Center: Is Laparoscopic Approach the Future? *World Journal of Surgery*, November 2008, Volume 32, Issue 11, pp 2371-2374

- Behrman SW. 2005. Management of complicated peptic ulcer disease. *Arch Surg.*, 140:201–208
- Cao, F., Li, J., Li, A., Fang, Y., Wang, Y.J. and Li, F. 2014. Nonoperative Management for
- Costalat G, Dravet F, Noel P, *et al.* 1991. Coelioscopic treatment of perforated gastroduodenal ulcer using the ligamentumtereshepatis. *Surg Endosc.*, 5:154–155.
- Cuschieri A. 1995. Whither minimal access surgery: tribulations and expectations. *Am J Surg.*, 169:9–19.
- Darzi A, Cheshire NJ, Somers SS. 1993. Laparoscopic omental patch repair with an automated stapler. *Br J Surg.*, 80:1552.
- Gunsheski L, Flancbaum L, Broolin RE, Frankei A. 1990. Changing patternsin perforated peptic ulcer disease. *Am Surg* 1990; 56:270–274. .
- Karydakias, P.K.A., Svoronos, G., *et al.* 2010. Laparoscopic Management of Perforated Peptic Ulcer with Single Suture or Single Suture and Modified Taylor Procedure. *Hellenic Journal of Surgery*, 82, 325-329.
- Katkhouda N, Mavor E, Mason R, *et al.* 1999. Laparoscopic repair of perforated duodenal ulcers. Outcome and efficacy in 30 consecutive patients. *Arch Surg.*, 134:845–850.
- Koehler L 1999. Endoscopic surgery: what has passed the test? *World J Surg.*, 23:816–824
- Koo J, Ngan YK, Lam SK. 1983. Trends in hospital admissions, perforationand mortality of pep tic ulcer in Hong Kong from 1970 to 1980. *Gastroenterology*, 84:1558–1562.
- Kulber DA, Hartunian S, Schiller D, Morgenstern L. 1990. The currentspectrum of peptic ulcer disease in the older age groups. *Am Surg.*, 1990; 56:737.
- Laparoscopic Repair for Perforated Peptic UlcerA Randomized Controlled Trial Wing T. Siu, Heng T. Leong, FRCSEd, Bonita K. B. Law, MBChB (HK), FRCSEd (Gen), Chun H. Chau, MBBS (Jinan), LMCHK (HK), FRCSEd (Gen),* Anthony C. N. Li, MBBS (HK), FRCSEd,Kai H. Fung, MBBS (HK), FRCR (UK),† Yuk P. Tai, MBBS (Lond), FRCSEd, and * Michael K. W. Li, MBBS (Lond), MRCS (Eng.), LRCP (Eng.), FRCS (Eng.), FRCSEd* *Annals of Surgery* Vol. 235, No. 3, 313–319
- Lunevicius R, Morkevicius M 2005. Management strategies, early results, benefits and risk factors of laparoscopic repair of perforated peptic ulcer. *World J Surg.*, 29:1299–1310
- Mouret P, Francois Y, Vagnal J, *et al.* 1990. Laparoscopic treatment of perforated peptic ulcer. *Br J Surg.*, 77:1006.
- Mouret P, Francois Y, Vignal J *et al.* 1990. Laparoscopic treatment of perforated peptic ulcer. *Br J Surg.*, 77:1006
- Nassar A. 1990. Laparoscopic omental patch repair of perforated duodenalulcer with automated stapler (letter). *Br J Surg.*, 81:1393.toilet of perforated duodenal ulcer. *Surg Endosc.*, 1990; 4:232–233.
- Nathanson, L.K., Easter, D.W. and Cuschieri, A. 1990. Laparoscopic Repair/Peritoneal Toilet of Perforated Duodenal Ulcer. *Surgical Endoscopy*, 4, 232-233. <http://dx.doi.org/10.1007/BF00316801>
- Paterson-Brown S. 1993. Emergency laparoscopic surgery. *Br J Surg.*, 80:279–283.
- Perforated Peptic Ulcer: Who Can Benefit? *Asian Journal of Surgery*, 37, 148-153.
- Pescatore P, Halkic N, Calmes JM, *et al.* 1998. Combined laparoscopicendoscopic method using an omental plug for therapy of gastroduodenalulcer perforation. *Gastrointest Endosc.*, 48:411–414.
- Potashov, L.V., Semenov, D., Ushveridze, D.G., Osmanov, Z., ChekmasovIu, S. and Panina, A.V. 2005. Long-Term Results of Closure of Perforated Pyloro-Duodenal Ulcers. *Vestnikkhirurgiiimeni I. I. Grekova*, 164, 40-42.
- Sanabria AE, Morales CH, Villegas MI 2005. Laparoscopicrepair for perforated peptic ulcer disease. *Cochrane Database Syst Rev* (4):CD004778
- Schein M. 1993. Laparoscopic repair of perforated peptic ulcer (letter). *Br J Surg.*, 80:1212.
- Seelig MH, Seelig SK, Behr C *et al.* 2003. Comparison betweenopen and laparoscopic technique in the management of perforatedgastroduodenal ulcers. *J Clin Gastroenterol.*, 3:226–229
- Siu WT, Leong HT, Bonita KB *et al.* 2002. Laparoscopic repairfor perforated peptic ulcer. A randomized controlled trial. *Ann Surg.*, 235:313–319
- Siu WT, Leong HT, Li MKW. 1997. Single stitch laparoscopic omentalpatch repair of perforaed peptic ulcers. *J R CollSurg Edinb.*, 42:92–94.
- Siu WT, Leong HT, Li MKW. 1997. Single stitch laparoscopic omental patch repair of perforated peptic ulcers. *J R CollSurg Edinb.*, 42:92–94.0)
- Song KY, Kim TH, Kim SN *et al.* 2008. Laparoscopic repair of perforated duodenal ulcers: the simple “one-stitch” suture with omental patch technique. *Surg Endosc.*, 22:1632 1635.
- Soreide, K., Thorsen, K., Harrison, E.M., Bingener, J., Moller, M.H., Ohene-Yeboah, M., *et al.* 2015. Perforated Peptic Ulcer. *Lancet*, 386, 1288-1298.
- Sunderland GT, Chisholm EM, Lau WY, *et al.*1992. Laparoscopic repair of perforated peptic ulcer. *Br J Surg.*, 79:785.
- Svanes C 2000. Trends in perforated peptic ulcer: incidence, etiology, treatment, and prognosis. *World J Surg.*, 24:277–283)
- Tate JJ, Dawson JW, Lau WY, Li AKC. 1993. Sutureless laparoscopic treatment of perforated duodenal ulcer. *Br J Surg.*, 80:235.
- Walsh CJ, Khoo DE, Motson RW. 1993. Laparoscopic repair of perforatedpeptic ulcer (letter). *Br J Surg.*, 80:127.
- Walt R, Katschinski B, Logan R, *et al.* Rising frequency of ulcerperforation in the United Kingdom. *Lancet* 1986; 3:489.
- Wong DCT, Siu WT, Wong SKH *et al.* 2009. Routine laparoscopic single-stitch omental patch repair for perforated peptic ulcer: experience from 338 cases. *Surg Endosc.*, 23:457 45.
