

Managing Perforated Peptic Ulcer- A comparison between different approaches

SAFDAR BHATTI, NAVEED MUZAFFAR, HEBA JALLOUN, ABDULLAH ALAWI, MOHAMMAD ALGARI

ABSTRACT

Aim: To compare different treatment options for perforated peptic ulcer.

Methods: This study was carried out in General Surgical department of Armed Forces Hospital, Jeddah, Saudi Arabia. It included patients from Jan 1, 2001 to Feb 28, 2014. All the patients diagnosed with perforated peptic ulcer either clinically or radiologically were included in the study. These patients were divided into three groups depending on the treatment option chosen which included, open and laparoscopic repair of perforation, and conservative management. All three approaches were compared in terms of morbidity, mortality, hospital stay and operating time.

Results: A total of 50 patients were diagnosed with perforated peptic ulcer. Open repair was done for 30 patients. Laparoscopic repair was opted in 10 patients with 3 converted to open repair due to different reasons. The remaining 10 were tried for conservative treatment with success in 8 patients, while two had to undergo surgery. The laparoscopic repair group had significant advantage over the open and conservative group in terms of rate of morbidity (11% against 22% & 25%), mortality (9% against 15% & 12%) and mean hospital stay (8 days against 11 days & 12 days). However the operating time in laparoscopic repair group was more than the open repair group

Conclusion: Although open repair is the conventional and most adopted approach in our study, the laparoscopic repair is superior in terms of morbidity, mortality and hospital stay. Conservative approach is also proved successful in selected cases and controlled settings.

Keywords: Perforated, peptic, ulcer

INTRODUCTION

Peptic ulcer disease (PUD), once very common on hospital floors has shown a decline of about 30% in incidence of hospitalization since end of twentieth century¹. This decline can be attributed to potent anti gastric secretory agents (H2 receptor blockers and Proton pump inhibitors) and helicobacter pylori eradication. Major complications like hemorrhage and perforation still occur and account for 73.3% and 10.6% of complications respectively¹. However Peptic ulcer perforation remains a major cause of death in elderly patients.

Numerous treatment options are available ranging from conservative treatment to operative treatment by different approaches. Open repair has been the standard option by the most but there have been strong advocates of laparoscopic repair^{2,3} and conservative approach in selected cases⁴. Our study was designed to compare all three approaches in terms of morbidity, mortality, hospital stay and operating time in surgical approaches, retrospectively.

Department of General Surgery, King Fahd Armed Forces Hospital, Jeddah, Saudi Arabia.

Correspondence to Dr Naveed Muzaffar, Email: naveed@themuzaffars.com Cell: +966 581338581

MATERIALS AND METHODS

Our study was carried out in the General Surgical department of King Fahd Armed Forces Hospital, Jeddah, Saudi Arabia. Our study included all patients diagnosed as perforated peptic ulcer during Jan 1, 2001 till Feb 28, 2014. Patients were assessed clinically and with routine blood tests, plain chest and abdominal erect radiography. Computed tomography (CT) was performed in patients with less obvious findings. Selective criteria for conservative management were mild symptoms and signs, stable haemodynamically, high risk patients for surgery due to co morbidities and documented contrast study confirming a completely sealed perforation.

Other patients were surgically treated either by open or laparoscopic approach. Open approach was through a mid line laparotomy incision where as laparoscopic repair was through one 10 mm and two or three 5mm ports. Closure of the perforation was carried out with Omental patch secured with vicryl or PDS stitches. Peritoneal lavage was carried out and abdominal drains were inserted in all our patients.

RESULTS

Total of 50 patients were diagnosed as perforated peptic ulcer and were included in the study. It included 42 males and 8 females with male to female

ratio of 5.25:1. The age range was 15-81 years with mean age of 55 years. Open repair was done for 30 out of these 50 patients (60%). Laparoscopic repair was performed for 10 patients (20%), with 3 had to be converted to open due to big perforation in one case and adhesions in other two. The remaining 10 patients out of 50(20%) were tried conservatively. Eight patients (80%) had successful recovery while two patients out of these 10(20%) did not respond to the conservative treatment and had to undergo

surgery, one open and other laparoscopic repair. The one who underwent open repair died post operatively due to chest infection, sepsis and multi organ failure. Reviewing the results (Table 1) the patients who had successful laparoscopic repair had significant advantage over the other two groups in terms of morbidity, mortality and hospital stay. However the operating time for the laparoscopic repair was longer as compared to open group.

Table1: Results of various treatment approaches.

	Conservative	Open	Laparoscopic
Age (Mean)	40-80 (57) Years	22-81 (52) Years	15-71 (56) Years
Operating Time	NA *	74 Min	130 Min
Hospital Stay	12 Days	11 Days	8 Days
Morbidity	25%**	22%***	11%****
Mortality	12%	15%	9%

* Not Applicable

** Pneumonia, acute kidney injury and sepsis,

***Wound infection, chest Infection, intestinal Obstruction, sepsis, burst abdomen and incisional hernia.

****Intra abdominal Collection, Pleural effusion and sepsis.

DISCUSSION

Advancement in the medical treatment of PUD with anti gastric secretory agents and helicobacter eradication has reduced the number of patients going for elective surgery. However the number of patients requiring surgical intervention for complications including perforation does not show much change^{5,6,7}.

Different treatment options are available for treating perforated peptic ulcer. These options range from conservative treatment in selected patients and in controlled settings⁴ to surgical intervention either open or by minimal access surgery. Different techniques have been used for closure of perforation like single stitch technique, multiple stitch technique, or with fibrin glue. Endoscopic aided insertion of ligament teres or Omental patch has been reported^{8,9}.

We analyzed three approaches including conservative, open and laparoscopic repair. Conservative group showed a success rate of 80% with comparable morbidity (25%) and hospital stay (12 days), but less mortality (12%) to the open surgery group. These results showed higher mortality than average found in the literature⁴. The increased mortality rate can be attributed to higher mean age (57) with co morbid conditions like CVA, Cirrhosis, hypertension and diabetes in our patients. Our study showed a clear benefit of laparoscopic repair over open repair in terms of morbidity, mortality and hospital stay. Our hospital stay for laparoscopic repair was higher than that found in few studies in recent literature, where about 75±12 hours have been documented³. The mean longer length of stay is due to one patient who stayed over three weeks due

to postoperative abdominal collection and sepsis. Our operating time of 130 min in laparoscopic repair is comparable with some studies with similar technique². Shorter operating time has been reported in literature but with single stitch or suture less repair^{3,10,11,12}, and without lavage³. Our mean operating time of 130 min is much shorter if we exclude three patients having operating time of 198, 163 and 160 min due to adhesions because of previous surgeries.

CONCLUSION

Conservative treatment of perforated peptic ulcer is an accepted modality of treatment in selected patients and controlled settings. Laparoscopic repair has significant advantage over open repair in experienced hands.

REFERENCES

1. Wang Y Richard, Richter Joel E, Dempsy Daniel T. Trends and Outcomes of Hospitalizations for Peptic ulcer Disease in United States, 1993 to 2006. *Ann Surgery*. Jan 2010; 251 (1): 51-58.
2. Wing T Siu, Heng T Leong, Bonita K B Law, Chun H Chau, Anthony C N Li, Kai H Fung et al. Laparoscopic Repair for Perforated Peptic Ulcer. *Ann Surg*. Mar 2002; 235 (3): 313-319.
3. Hamed Al Wadaani, World Journal of Emergency Surgery 2013, 8: 10
4. Trevor J Crofts, Kenneth G M Park, Robert J C Steele, Sydney S C Chung, Arthur K C Li. A Randomized Trial of non-operative treatment for

- Perforated Peptic Ulcer. *N Engl J Med* 1989; 320:970-973.
5. Hopkins RJ, Girardi LS, Turney EA. Relationship between *Helicobacter pylori* eradication and reduced duodenal and gastric ulcer recurrence: A review. *Gastroenterology* 1996, 110:1244-1252.
 6. Gunshefski L, Flancbaum L, Brolin RE, Frankel A. Changing pattern in perforated peptic ulcer disease. *Am Surg* 1990, 56:270-274.
 7. Kulber DA, Hartunian S, Schiller D, Morgenstern L. The current spectrum of Peptic ulcer disease in the older age groups. *Am Surg* 1990, 69:569-572.
 8. Costalat G, Dravet F, Noel P. Coelioscopic treatment of perforated gastro duodenal ulcer using the ligamentum teres hepatis. *Surg Endosc* 1991, 5:154-155
 9. Pescatore P, Halkic N, Calmes JM. Combined Laparoscopic-Endoscopic method using an Omental plug for therapy of gastro duodenal ulcer perforation. *Gastrointest Endosc* 1998, 48:411-414.
 10. Lunevicius R, Morkevicius M. Management strategies, early results, benefits and risk factors of laparoscopic repair of perforated peptic ulcer, *World J Surg* 2005, 29: 1299-1310.
 11. Lunevicius R, Morkevicius M. Comparison of laparoscopic vs. open repair of perforated duodenal ulcers. *Surg Endosc* 2005, 19: 1565: 1571.
 12. Bertleff MJ, Halm JA, Bemelman Wa, Van der Ham AC. Randomized clinical trial of laparoscopic versus open repair of perforated peptic ulcer: the LAMA trial. *World J Surg* 2009, 33:1368-1373.