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LAPAROSCOPIC VERSUS OPEN REPAIR IN MANAGEMENT OF PEPTIC PERFORATION PERITONITIS: A COMPARATIVE ANALYSIS

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Abstract

Introduction: Despite the widespread use of antisecretory agents and eradication therapy, the incidence of perforated peptic ulcer has changed little. Since the initial reports of successful laparoscopic management of perforated duodenal ulcers and perforation peritonitis several larger comparative series have been published confirming the technical feasibility and advantages of laparoscopic approach.

Objectives: The aim is to compare the outcome and efficacy of laparoscopic repair with conventional laparotomy in the management of peptic perforation. **Methods:** The study was conducted on patients with diagnosis of peptic perforation in V.S. Hospital, Ahmedabad. It is a retrospective study from August 2014 to November 2016. **Result:** 50 patients of perforation peritonitis were operated randomly by laparoscopic repair and laparotomy. It was found that the laparoscopic repair of perforated peptic ulcer was associated with less intra operative blood loss, no intraoperative and postoperative complications, minimum postoperative pain which was significant as compared to laparotomy repair. **Conclusion:** Laparoscopic repair of perforated peptic ulcer could be considered as a good alternative for open repair in routine clinical practice in the management of peptic perforation peritonitis as less intraoperative blood loss, less postoperative pain and better cosmesis.

Key words: Laparoscopy,laparotomy, peptic ulcer, perforation.

Introduction

Peptic ulcer perforation is the common complication of peptic ulcer disease it presents as a perforated peritonitis and represents 3% of all abdominal emergency. It occurs in 5-10% of patients of peptic ulcer. There is increased incidence of perforated peptic ulcer because of smoking, alcoholism and use of NSAIDS. 75% of patients of perforated peptic ulcers are helicobacter pylori positive. During the past decade the need for elective operation for peptic perforation has decreased due to proton pump inhibitors. However, emergency operations for acute complications such as perforation or bleeding remain constant. Surgical repair is the treatment of choice. The traditional approach is closure of perforation with an omental patch i.e. Graham patch described in 1937.In 1989 Mouret performed first laparoscopic repair of perforated duodenal ulcer[1]. Mouret was soon followed by Nathanson who in 1990 performed laparoscopic repair and peritoneal toilet [2]. In 1991 Costalet described laparoscopic repair of perforated gastroduodenal ulcer by using ligamentum teres. Laparoscopic repair of peptic perforation is well accepted management at present and associated with less operative time,pain,post operative infection, morbidity, mortality and better cosmetic outcome.

Materials and methods

The study was conducted at department of general surgery, Sheth V.S.Hospital, Ahmedabad and include total of 50 patients with 25 patients in open and 25 for laparoscopic approach after taking consent from patient and relative.

Inclusion criteria

1. Patients with clinical diagnosis and radiological evidence of perforated peptic ulcer.
2. Patients of both sex with age 15 to 70 years.
3. No medical or surgical contraindication to general anaesthesia and laparoscopic surgery.

Exclusion criteria

1. Complicated ulcers like bleeding ulcer, ulcer situated over posterior wall.
2. Clinically sealed perforation.
3. Patients with abdominal malignancy.
4. Patients with COPD, heart disease, coagulopathy, obesity, cirrhosis, advanced pregnancy.

Statistical analysis

The results were interpreted as mean value. The parameters in both the groups were compared by unpaired t-test. Values were considered significant if $p > 0.05$.

Result

Table: 1. Comparison of blood loss, operating time and complications.

	Group 1 (Laparoscopy)	Group 2 (Laparotomy)	P value
Operating Time	106	60	0.0021
Blood loss	60	90	0.0009
Complications	2	6	

Operating time was 106 minutes in laparoscopy group 1 and 60 minutes in laparotomy group 2. Blood loss was 90 ml in group 2 and 60 ml in group 1.

Table: 2. Comparison of various parameters between Group 1 and Group 2

No. of days	Group 1(Laparoscopic)	Group 2(Laparotomy)	P Value
Analgesic use	1.2	3.8	<0.0001
Resumption of food	2.4	3.6	0.0391
Hospital stay	9.4	9.8	0.7252
Nasogastric tube	3.2	3.2	1.0000
Ambulation	2.4	3.4	0.0009
Drain in situ	2.2	3.8	0.0068

Parenteral analgesic requirement was 3.8 days in group 2 and 1.2 days in group 1 ($p > 0.05$). duration of nasogastric tube aspiration was 3.2 days with group 1 and was 3.2 days in group 2. Resumption of normal diet was 2.4 days with group 1 and 3.6 days with group 2. Ambulation in group 1 is 2.4 days and in group 2 was 3.6 days. Duration of intraabdominal drain in situ in group 1 was 2.2 days and in group 2

was 3.8 days. Duration of hospital stay for laparoscopic repair was 9.4 days as compared to 9.8 days with laparotomy

Discussion

There were 50 patients recruited, ages 16 to 70 years. The two groups were compared. Operating time was significantly longer in laparoscopy group (106 versus 60 minutes), which is comparable to other studies. A possible explanation for longer operative time is that laparoscopic suturing is more demanding especially if the edges of the perforation are infiltrated and friable and lengthy irrigation procedure. But the estimated blood loss is more in open surgeries 90 ml vs 60 ml in laparoscopic repair. This is because of the length of incisions, handling of tissues in contrast to minimal handling in laparoscopic repair. After surgery patients in laparoscopic group required significantly less parenteral analgesics than those who underwent open repair (1.2 days in group 1 vs 3.8 in Group 2, $p > 0.05$) which is statistically significant. The Meta analysis published by Lau showed that eight out of 10 studies showed significant reduction in dosage of analgesics required in laparoscopic group [3,5]. Mean duration of resumption of normal diet was 2.4 with laparoscopic repair and 3.6 with laparotomy. The reason for that is minimal bowel handling in laparoscopy produces less postoperative ileus. Mean duration of ambulation was 2.4 with laparoscopic repair and 3.6 with laparotomy. The reason for early ambulation is less postoperative pain in patients with laparoscopic repair as compared to the large abdominal incisions employed in laparotomy [6]. Mean duration of intra abdominal drain in situ in patients with laparoscopic repair was 2.2 days and in patients with laparotomy was 3.8 days. Mean duration of hospital stay for laparoscopic repair was 9.4 days compared to 9.8 days for patients with laparotomy. There was one conversion from laparoscopic repair to laparotomy in a 70 year old male due to large size perforation and unusual nature of the perforated ulcer and need for biopsy. European Association of Endoscopic Surgeons consensus statement states that Laparoscopy is clearly superior for patients with perforated peptic ulcer disease [4].

Conclusion

We concluded that Laparoscopic repair of perforated peptic ulcer could be considered as a good alternative for open repair in routine clinical practice in the management of peptic perforation peritonitis if no contraindication of laparoscopy.

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