Research Article

Laparoscopic repair of peptic ulcer perforation: Our experience

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Abstract

Aim: To assess the feasibility of laparoscopic repair of peptic ulcer perforation and toanalyse the complications related to laparoscopic repair of peptic ulcer perforation. **Material and Method**: This was a Prospective, Observational study done in Department of Surgery, N.S.C.B. Medical College, Jabalpur from October 2013 to October 2014. The aim of study is found outcome and complications of laparoscopic repair of peptic ulcer perforation. **Observation**s: A total of 13 cases were included under study criteria which were repaired with laparoscopic technique. There was good success rate with this technique. Intraoperative difficulties like technical difficulties in stabilization of stomach for localization of ulcer and hemodynamic instability for which conversion to open done with a conversion rate of 3 cases out of 13. These difficulties were later rectified. There was postoperative complicationseen with appearance of bilateral mild pleural effusion in single case. There were no postoperative complication like surgical site Infection, wound dehiscence, leak or fistula and no mortality. **Conclusion**: We concluded that laparoscopic repair of peptic ulcer perforation is a good alternative for open with early to normal life, less hospital stay and no postoperative wound infections

Keywords: Peptic Ulcer, Laparoscopic repair, Postoperative Complications

Introduction

Peptic ulcer perforation is the common complication of peptic ulcer disease it presents as Perforation peritonitis. It is having highest number of mortality among all complications (≈15%). Crisp had first described the symptomatology of a perforated ulcer (1843) [1]. Emergency surgery for complication associated with this is required in 7% of hospitalized peptic ulcer disease patients [2]. Factors such as more than 24 hours history, concomitant disease, shock, post operated wound infections; all are associated with increase in mortality and morbidity [3]. Conventional surgical technique of repair of gastric perforation is by Laparotomy with omental patch technique i. e. G patch omentopexy (Graham-Steel method). Laparoscopic repair of prepyloric perforation is well accepted management at present and having better future prospectives. [4]. Nathanson, Easter, Cuscheri and Mauret and colleagues were among the first to report the successful laparoscopic closure of perforated peptic ulcer [5,6]. The advantages of laparoscopic repair of perforated peptic ulcer are-less operating time, pain, post-operative infections, morbidity and mortality and better cosmetic results.

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Materials and Methods

A total of numbers of 13 cases on the basis of selection are included under the study.

Study Design: Prospective, Observational.
Study Period: from October 2013 to October 2014.
Study Place: Department of Surgery, Netaji Subhash Chandra Bose Medical College, Jabalpur, M.P.

Selection Criteria: All patients presenting with peptic ulcer perforation peritonitis and who are documented radiologically and vitally stable were included in the study. Patients diagnosed to have Giant peptic peptic ulcer perforation were managed laparoscopically if technically feasible. All patients who were not suitable from anesthesia point of view in relation to not with

standing pneumoperitoneum were excluded for laparoscopic repair and were undertaken for open repair. Patients diagnosed to have any other site of peptic ulcer perforation were excluded from the outcome analysis.

Exclusion Criteria : Contraindications of Pnuemoperitoneum, Congestive cardiac failure, Acid Base disturbance, Metabolic Acidosis.

Operating technique: After full preparation patient was shifted to Operation theater with valid consent. In all cases General Anesthesia was given. Patient was carefully positioned supine with both arms and legs close to midline of body and secured over operation table. The surgeon and first assistant stood on the left side of patient. Second assistant stood by right side of patient with monitor besides him. The instrument table was easily accommodated at foot of table and scrub nurse was on left side of patient beside first assistant (Fig 1). Operating table was taken in Reverse Trendelenburg position (tilted head up by 10^0 to 15^0) during surgery to make stomach and greater omentum to hang freely downwards for easy localization of perforations

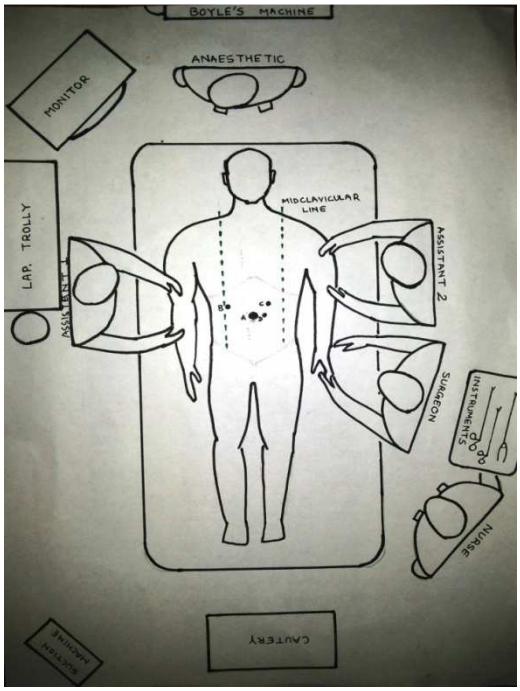

Figure 1: Patient position and Room set up

Figure 2: Port Placement

After making incision over umblicus 10mm trocar with sheath was pushed inside gently under direct visualization to avoid any viscus injury (Hassan technique). Possible suction and drainage was done. Now CO_2 Insufflator is connected to 10mm port and Pnuemoperitoneum is created with a flow rate of 4-6 L/min for an intra abdominal pressure of about 8-12 mmHg. Insertion of Ports- Right subcostal 5mm port in right mid clavicular line two finger breath above umblicus. Another Left subcostal 5mm port was put medial to left mid clavicular line which was also two finger breath above umblicus to make "Diamond of success" for working port. An extra 5mm port inserted at umbilical region, between umbilical and left port to provide traction over stomach (Fig 2). Sometime Panliver retractor may passed for providing traction over liver from this port. After peritoneal lavage localization of peptic ulcer perforation and all accessible solid and hollow (Gut Walk) organ was done. A suitable patch of omentum with fair vascularity identified and was placed in right paracolic gutter for ongoing peptic ulcer perforation repair.After accessing the size of peptic ulcer perforation and freshening of ulcer margins done. Alternate Silk 2-0 and Vicryl 2-0 round body suture passed (Fig 3). For easy identification of suture, first suture is kept over anterior liver surface (Fig 4). Subsequently further suture passed and spatially arranged. Now the omentum was placed in right paracolic gutter taken out and passed under these sutures (Fig 5) and tied (G patch Omentopexy; Fig 6).

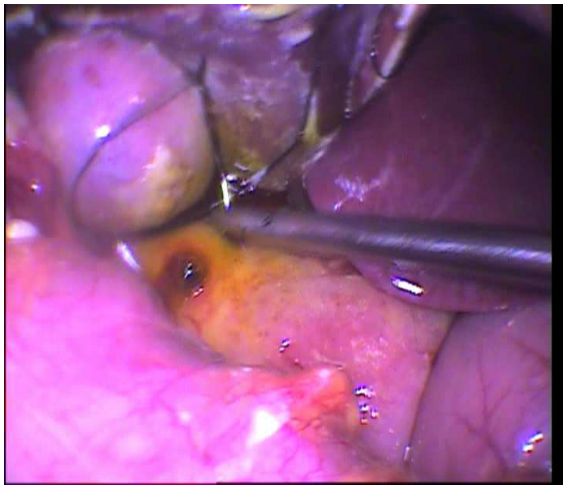

Figure 3: Suturing

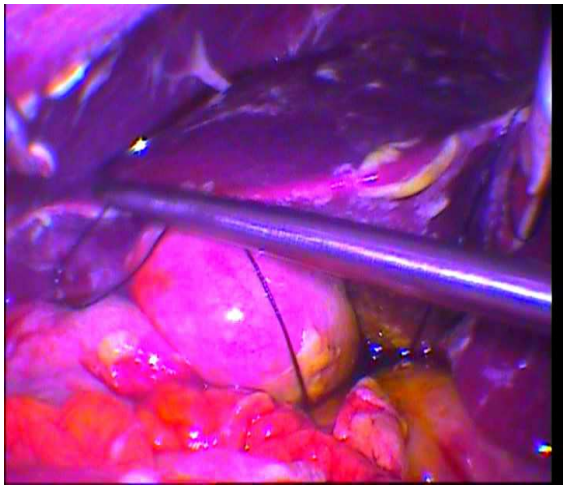

Figure 4: Spatial suture arrangement

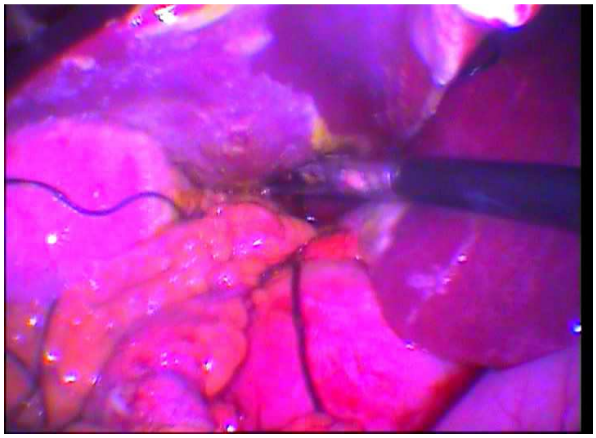

Figure 5: Placement of omentum

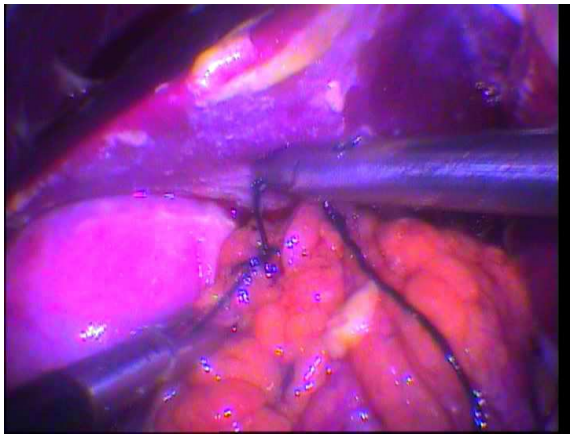

Figure 6: Omentopexy

Peritoneal lavage was repeated. Single Subhepatic abdominal drainwas passed from right port(subcostal) entry. Occasionally a second Pelvic abdominal drain was passed through left port entry and fixed to skin by Silk 2-0 cutting body.

Result

Sex ratio: Among the 13 selected patient 12 were Male and 1 was Female
Age Distribution: In 13 cases Maximum numbers of patients are in 20-29 year age group. Mean age of presentation is 34.62 ± 13.93 years.

Table 1: Showing Age distribution of patients in study

<20	1
20-29	5
30-39	1
40-49	4
50-59	1
>60	1

Table 2: Showing presentation with respect to history

H/o presentation	Cases
Smoking alone	1
Alcoholism alone	0
Smoke+Alcohol	2
NSAIDs use	7
Previous Peptic ulcer H/o	NIL
No significant H/o	3

Of all 13 patients, 7(53.8%) are chronic NSAIDs user for one or another cause. 01(7.7%) patient is smoker and 02(15.4%) were having history of both smoking and alcohol. Among them 03(23.1%) were having no significant history.

Table 3: Intra Operative Complications

	Respiratory	00
	Cardiovascular	01
Total 10	**Total**	**01**

Among the 13 cases the procedure was successful in 10 patients. There were difficulty is attaining stabilizing traction over stomach for perforation repair in 02 cases. In single case there was intraoperative fluctuation of blood pressure. For both intraoperative complications conversion of laparoscopic repair to Conventional Open repair done. Mean Conversion rate is 23.1%.

No Complication		**Complications**		**Total**
9(90%)		Respiratory		01(10%)
		Cardiovascular		00
		SSI		00
		Wound dehiscene		00
		Leak / Fistula		00
Total	**09(90%)**	**Total**	**01(10%)**	

On 7th day post operative sonography among the 10 laparoscopic repair of prepyloric perforation, only a single patient develop bilateral mild pleural effusion (L>R). There were no or mild intraperitoneal collection among all. There were no cases with observation of any Surgical Site Infection, Wound Dehiscence, or Leak.

Discussion

On the basis of selection patient underwent laparoscopic repair. Out 13 there were 10 successful repairs. In a study done by Hamed al Wadaani et al [7] laparoscopic repair of peptic ulcer perforation is an amenable and feasible technique within the hands of experienced surgeon when the cases are early and properly diagnosed. Another study by Schirru A.et al [8] found laparoscopic repair of perforated ulcer is technically feasible in abdominal emergencies also but require sound experience. According to Matsuda et al [9] after a little expertise laparoscopic repair of peptic ulcer perforation is an attractive alternative to open surgery. In our study we found there are low intraoperative difficulties (3 cases). There is difficulty in attaining traction over stomach to localize perforation in first 2 cases and a single case with intraoperative hemodynamic instability. Among all 3 cases there is conversion to open repair with a Conversion rate of 23.1%. With previous incidences in one case stabilization of stomach done by applying suture traction over antrum and tied to anterior abdominal wall. In two cases Panliver retractor is applied for traction over liver to localize perforation. In rest of cases traction over antrum with atraumatic bowel grasper is sufficient. Procedure was associated with early mobilization of cases 6.8 ± 1.7 hours after surgery, Early feeding in 4.3 ± 0.7 days, Early drain out on 6.0 ± 1.2 days. There were post operative complications in a single case in which bilateral mild pleural effusion (L>R) appear on 7th postoperative day

ultrasonography. The case shifted to higher antibiotics and chest physiotherapy. Later on, on 12th postoperative day ultrasonography repeated which clarify resolution of pleural effusion. There were less post operative stay of about mean 8.4 ± 2.0 days. There was no postoperative complication like surgical site Infection, wound dehiscence, leak or fistula. A study by M.E. AbdEl latif et al [10] also says early resume to oral intake, less hospital stay, less postoperative complications. But there were no conversion to open. In a study by Hamed al Wadaani et al there were mean hospital stay is 75 ± 12.6 hours. Conversion rate = 4.3%. Study by Vaidya BB et al [11] shows there were conversion to open due to technical difficulties. In a study by Schirru A et al there was mean hospital stay 9 days comparable to our results. In study conducted by Lunevicius R, MorkeviciusM et al there were 23.3% have converted to open, post operative complication in 13.3%. And there were no mortality which was similar to our results [12,13].

Conclusion

We concluded that laparoscopic repair of peptic ulcer perforation is a good alternative for open with advantages like early to normal life, less hospital stay and no postoperative wound infections.

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Conflict of interest: None.
Permission of IRB: Yes

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