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CASE STUDY

LAPAROSCOPIC REPAIR OF PERFORATED PEPTIC ULCER WITHOUT DRAIN

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ABSTRACT

Perforated duodenal ulcer is a common surgical emergency and the most common cause of peritonitis. Despite antiulcer medication and Helicobacter eradication, Perforated peptic ulcer (PPU), is still the most common indication for emergency gastric surgery and is associated with high morbidity and mortality. The outcome might be improved by performing this procedure laparoscopically. Laparoscopic omental patch repair of perforated peptic ulcer carries less morbidity and mortality and early return of patients to their normal dailyroutine.

Patient and methods: This study was conducted in Aswan University Hospital on 30 male patients between April 2014 and July 2015 who underwent laparoscopic repair of perforatedpeptic duodenal ulcer. The patients were admitted in urgent setting. A detailed history was taken, all patient past history of gastritis or on medication of NSAID drugs. The patients were examined and showed surgical abdomen with board like rigidity. Main diagnostic procedure we performed was abdominal X-ray in erect position. In 9 cases, additional abdominal ultrasound examination was carried out. A standard work-up was performed. Postoperative data will be recorded including: Operating time, Amount of postoperative analgesia, Duration of hospital stay, Post operative collection, Time needed for returning to work, Low grade fever, Vomiting and Wound infection. All the above data will be collected and analyzed to obtain statistically relevant results.

Results: There were 30 patients who underwent laparoscopic repair of perforatedpeptic duodenal ulcer. No conversion was happened for any of the 30 patient attempted. All patient was male; mean age was 28.5 (range 25–35) years. In all cases close of perforation with omental patch only. Mean duration of the operation was 65 (range 55–80) minutes. Mean postoperative hospital stay was 5 (range 5–7) days. Only one patient (3.3%) developed fever, tachycardia, abdominal pain and leucocytosis, abdominal U/S was done for him, and showed subhepatic collection which was drained by percutaneous drainage. Two patients (6.6%) developed wound infection and treated with local dressing. About eight patients suffered from port site pain post-operative (26%) and treated with single dose of pethidine. All patients return to work within one week after discharge from hospital.

Conclusion: Laparoscopic repair of a perforated peptic ulcer is an amenable and feasible technique within the hands of experienced laparoscopic surgeon. No need to put drain after lap repair of perforated duodenal ulcer provided good wash, suction and movement of patient up and down to suck fluid.

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INTRODUCTION

Duodenal ulcer perforations are most a common cause of peritonitis. The classic, pedicle of mental patch that is performed for the 'plugging' of these perforations was first described by Cellan-Jones in 1929 (Kauffman, 2000), although it is commonly, and wrongly attributed to Graham, who described the use of a free graft of the omentum to repair the perforation in 1937 (Lickstein and Matthews, 1997). In this, a strand of omentum is drawn over the perforation and held in place by full thickness sutures placed on either sides of the perforation, and this procedure has become the "gold standard" for the treatment of such perforations (Chaudhary *et al*., 1991; Karanjia *et al*., 1993). The treatment of perforated peptic ulcer may be:

Non operative management: Conservative treatment is known as the Taylor method and consists of nasogastric aspiration, intravenousantibiotics, and H.pylori triple therapy (Bucher *et*

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al., 2007; Donovan *et al*., 1998). It has been estimated that about 40-80% of the perforations will seal spontaneously (Zittel *et al*., 2000; Bucher *et al*., 2007; Donovan *et al*., 1998; Crofts *et al*., 1989). However, delaying the time of operation beyond 12h after the onset of clinical picture will worsen the outcome in PPU (Conservative management of perforated peptic ulcer, 1989; Zittel *et al*., 2000). Also in patients more than 70 years old conservative treatment is unsuccessful with a failure rate as high as 67% (Conservative management of perforated peptic ulcer, 1989; Crofts *et al*., 1989). The advantages of conservative treatment are avoidance of operation with associated morbidity caused by surgery and anesthesia, and reduction in formation of intra-abdominal adhesion induced by surgery (Truscott and Withycombe, 1950). Disadvantages are the higher mortality rate in case conservative treatment fails and lack of the benefit of laparoscopy or laparotomy as a diagnostic tool in case the patient was misdiagnosed (Crofts *et al*., 1989; Truscott and Withycombe, 1950). Simple suture (Open repair technique): All surgical procedures start by giving prophylactic antibiotics at induction of anesthesia. In conventional surgery where upper midline incision is performed, identification of the site of perforation. In case of a gastric ulcer a biopsy is taken to exclude gastric cancer.

Simple closure of the perforation can be done in different ways: simple closure of the perforation by interrupted sutures without omentoplasty or (free) omental patch, simple closure of the perforation with a pedicle of omentum sutured on top of the repair, representing omentoplasty, a pedicle of omental plug drawn into the perforation after which the sutures are tied over it and finally the free omental patch after Graham. The repair can be tested by either by filling the abdomen with warm saline and inflating some air into the nasogastric tube, if no bubbles appear, the perforation has been sealed appropriate, and also dye can be injected through the nasogastric tube (Schein, 2008)

Laparoscopy: Laparoscopic surgery offers several advantages. First of all alaparoscopic procedure serves as a minimal invasive diagnostic tool postoperative pain reduction, lessconsumption of analgesics, reduction in hospital stay, less wound infections, no burst abdomen and incisional hernia due to shorter scars and lower the incidence of postoperativeileus and chest infections (Ates *et al*., 2008; Lau, 2004). The disadvantage of the laparoscopic approachare a prolonged operating time, higherincidence of re-operations due to leakage at the repair site and a higher incidence ofintra-abdominal collection secondary to inadequate lavage (Lunevicius and Morkevicius, 2005; Ates *et al*., 2008; Lunevicius and Morkevicius, 2005). The higher incidence ofleakage might be caused by the difficulty of the laparoscopic suturing procedure. Firstof all this emphasizes the need for a dedicated laparoscopically trained surgeon toperform this procedure (Lau, 2002). Some laparoscopic surgeons use omentopexyalone (Lagoo *et al*., 2002; Ates *et al*., 2008). Laparoscopic repair of perforated peptic ulcer wasintroduced in 1989 by Mouret who used fibrin glue andomental patch (Karanjia *et al*., 1993). A year later, Nathanson *et al*. describedthe suture repair of perforated peptic ulcer (Bucher *et al*., 2007). Since thenmany efforts have been made to compare laparoscopicand open repair, laparoscopic repair is safe and effective procedurein selected patients, offering shorter operatingtime, less postoperative pain and shorter postoperativehospital stay (Bhogal *et al*., 2008; Ates *et al*., 1989).

MATERIALS AND METHODS

This study was conducted in Aswan University Hospital on 30 male patients

In this prospective study we included first 30 patients who underwent laparoscopic repair of perforated duodenalulcer at our department. The patients were admitted in urgent setting. A detailed history was taken, all patient past history of gastritis or on medication of NSAID drugs. All patients were males. The patients were examined and showed surgical abdomen with board like rigidity. Main diagnostic procedure was chest X-ray in erect position (Fig-1). In 9 cases, additional abdominal ultrasound examination was carried out. A standard work-up was performed, which included complete blood count, randomserum concentrations of glucose, urea, creatinine, protein, albumin and bilirubine. Before the start of the operation, patients received prophylactic antibiotic metronidazol and cefazolin. The patients received proton pump in hibitorpantoprazol (Controloc). Insertion of nasogastric tube and rehydration of patient with IVF started. The operation started with a supraumbilicalincision, through which a Veress needle was inserted, and pneumoperitoneum of 13 mm Hg was achieved. A 10-mm port was inserted, which was used for laparoscope. Under visual control two additional ports were placed, a 5mmport one in Lt Hypochondrium and another in the RT. Exploration of the abdominal cavity was performed and the site of perforation was established (Fig-2). Washing of abdominal cavity with warm normal saline until the fluid became clear;it was then closed with interrupted re-absorbable sutures(polyglactin2/0 – Vicryl) including omental patch. Close the puncture wound without drain. After the operation the patients were transferred to the Department of Abdominal Surgery. A standardized postoperative treatment protocol was carried out. Operative and Postoperative data will be recorded including: Operating time, Amount of postoperative analgesia, Duration of hospital stay. Post operative collection, Time needed for returning to work, Low grade fever, Vomiting and Wound infection. All the above data will be collected and analyzed to obtain statistically relevant results.

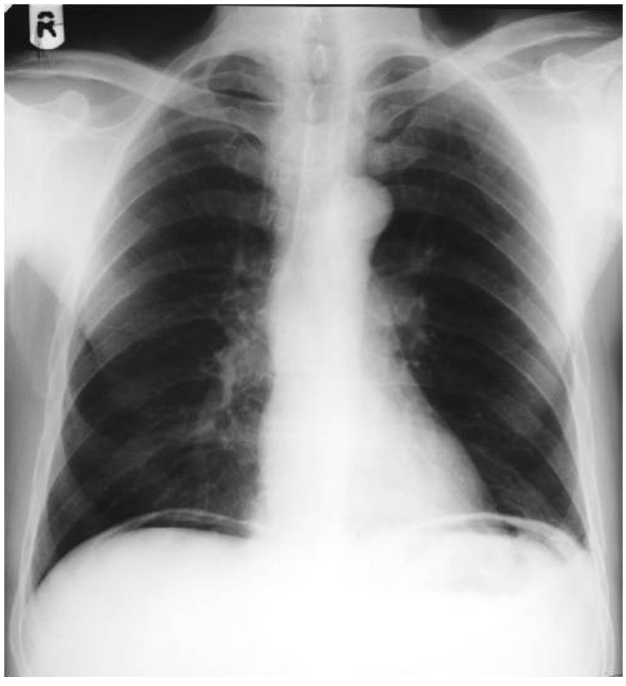

Fig.1. CXR showed air under diaphgram

Fig.2. Perforated deudonal ulcer

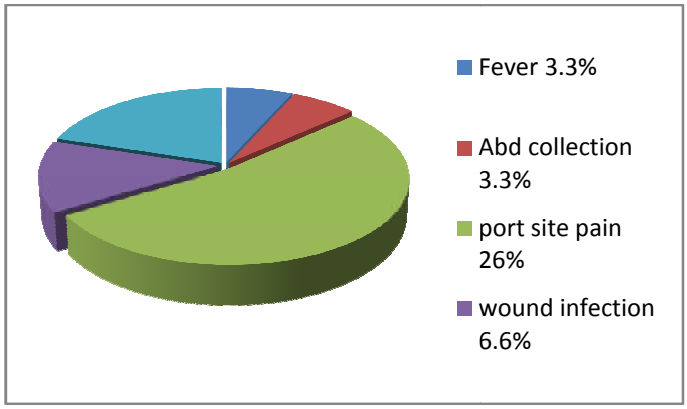

Fig.3. Post operatve follow up

Table 1. Post operative period

Post operative follow up	Number of patients	%
Vomiting	No	0%
Fever	1	3.3%
Port site pain	8	26%
Abdominal collecton	1	3.3%
Wound infection	2	6.6%
Tachycardia	1	3.3%
Leucocytosis	3	9.9%

RESULTS

There were 30 patients between April 2014 and July 2015 who underwent laparoscopic repair of perforatedpeptic duodenal ulcer. Allpatient was male;mean age was 28.5 (range 25–35) years. All the patients had elevated white bloodcount. In 21 cases, operation was indicated on basis of pneumoperitoneum that was evident in abdominal X-raytaken in erect position. In 9 cases, erect abdominalX-ray was negative for pneumoperitoneum, so the operation was started as exploratory laparoscopy for acute abdomen. In all cases close of perforation with omental patch only. Mean duration of the operation was 65 (range 55–80) minutes. Mean postoperative hospital stay was 5 (range 5–7) days. Early postoperative period was observed for following signs fever, tachycardia, vomiting, leucocytosis, abdominal pain, wound infection, use of single dose of pethidine, and abdominal collection. Only one patient (3.3%) developed fever, tachycardia, abdominal pain and leucocytosis, abdominal U/S was done for him, and showed sub hepaticcollection which was drained by percutaneous drainage. Two patients (6.6%) developed wound infection and treated with local dressing. About eight patients suffered from port site pain post-operative (26%) and treated with single dose of pethidine. All patients return to work within one week after discharge from hospital. Table (1), Fig - 3.

DISCUSSION

Laparoscopic repair of perforated peptic ulcer is a safe and reliable procedure. Laparoscopic treatment of perforated duodenal peptic ulcer is another example where laparoscopic approach is replacing traditional operation that has been widely used for decades. The laparoscopic approach reduces the access trauma, can confirm the diagnosis, and can be used to perform the same repair procedure and lavage as open omental patch repair. Lap repair of P U is minimally invasive surgery: low postoperative pain level, as indicated by low analgesic use, reduced chest complications, a shorter postoperative hospital stay, and earlier return to normal daily activities than the conventional open repair. As well as early ambulation and discharge (Lau, 2004). 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 (Paterson-Brown, 1993). The patients in this study were earlier discharged from the hospital than the patients who had their perforatedduodenal ulcer operated using open approach. Another good benefit of the laparoscopic procedure is cosmetic outcome. Nowadays patients are aware of this benefit, and sometimes this is the reason why they demand laparoscopic surgery (Svanes, 2000). The complication rate for laparoscopic repair was low and was associated with fewer chest infections and potentially less wound infection compared with open repair. The only disadvantage of the laparoscopic approach could be the little longer duration of operation (Paterson-Brown, 1993). We concluded her from our study to confirm that laparoscopic is gaining popularity for the treatment of perforated duodenal ulcer and also no need to put drain provided good wash, suction and movement of patient up and down, RT and LT to confirm no collection in the abdominal space.

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