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Research Article

**STUDY TO DETERMINE THE OUTCOME AND EFFICACY OF
LAPAROSCOPIC REPAIR IN PERFORATED PEPTIC ULCER****Dr Momina Habib¹, Adnan Arshad Waraich², Dr Tayyiba Zia³**¹King Edward Medical University, Lahore, ²Sargodha medical college, ³Azad Jammu and Kashmir Medical College Muzaffarabad, AJK**Article Received:** November 2020 **Accepted:** December 2020 **Published:** January 2021**Abstract:*****Objectives:** To evaluate the efficacy and outcome of laparoscopic approach in the perforated peptic ulcer (PPU).****Design:** A Prospective and observational study.****Setting and Duration:** In the Department of Surgery of Mayo Hospital, Lahore for one-year duration from June 2019 to June 2020.****Methodology:** A total of 25 patients diagnosed with PPU were included in the study. Patients with extensive peritonitis, upper abdominal incision, in shock, or presenting 24 hours after the onset of perforation were excluded. Patients were monitored for complications.****Results:** Duration of the procedure: 75 minutes, patients took analgesics parenterally for 2 days, hospital stay was 5.5 days. 4 patients required conversion to the open procedure, postoperative complications were noted in 6 patients.****Conclusion:** Laparoscopic PPU closure is safe and has the advantages of no midline incision, little post-operative pain and a short stay in the hospital. To achieve desirable results, it is essential that Laparoscopic procedure should be done by expert surgeon or under his supervision and Careful selection of patients is crucial in curtailing conversion and complication rate.****Keywords:** peptic ulcer, perforated peptic ulcer, laparoscopic closure***Corresponding author:****Dr. Momina Habib,**

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INTRODUCTION:

With the advent of proton pump inhibitors, the need for gastric ulcer surgery (PUD) has significantly decreased. However, the incidence of peptic ulcer perforation (PPU) has not changed much. PPU mainly occurs due to an imbalance between acid secretion and mucosal defense mechanisms that are resistant to acid digestion. Most PUD patients are infected with *H pylori* [1-2]. However, NSAIDs, steroid use, cigarette smoking, alcoholism, and defective immune mechanisms are also involved in the pathophysiology of PUD. Due to the recognition of the role of *Helicobacter pylori* in PUD and combating it with effective pharmacotherapy, complicated peptic ulcer has become a rarity [3-4]. Therefore, most of the PPU seen recently are of the acute type associated with NSAIDs and stress conditions. Complications of gastric and duodenal perforation culminating in peritonitis occur in as many as 10% of patients with gastric ulcers. A delay in diagnosis may result in life-threatening complications, including death. It has been observed that often these patients have comorbid factors that can affect the final outcome of the disease. Boey *et al.* In their series reported that severe comorbidities, pre-operative hemodynamic instability, and perforation lasting more than 48 hours at the time the patient introduced themselves as a patient were a factor associated with high morbidity and mortality rates. The traditional treatment of PPU is urgent surgical repair with or without final surgery, depending on the patient's condition. Surgical acid reduction is rarely indicated given the changing pattern of PPU [5-6]. In the open procedure, after thorough peritoneal lavage, the perforation is closed with or without reinforcement of the lattice. Few of the surgeons in emergency ulcer surgery have sufficient experience in performing selective vagotomy, so it is recommended that after suturing or mesh flap treatment, including elimination of *H pylori*, if present, should be used, otherwise a proton pump inhibitor should be used [5-6]. Laparoscopic treatment of PPU was first described by Mouret *et al.* In 1989, and shortly thereafter by Nathanson *et al.* The recognized advantages of laparoscopy are the reduction of postoperative pain, early mobilization, early return to work and a lower complication rate, the method of treatment is attractive to many surgeons around the world. Nevertheless, there are relative contraindications that include elderly patients, cardiac pathologies, chronic respiratory

failure, obesity, cirrhosis, and severe thrombotic diseases [7-8]. There are many techniques for laparoscopic closure of perforation, such as nodes inside and outside the body, retaining the net pathway with fibrin glue or sealing with gelatin, etc. The purpose of this study was to evaluate the efficacy and safety of laparoscopic PPU closure, and to identify those patients who are unsuitable for this treatment methods.

MATERIALS AND METHODS:

This study was held in the Department of Surgery of Mayo Hospital, Lahore for one-year duration from June 2019 to June 2020. A total of 25 patients were recruited for this prospective study. This study was conducted in all patients underwent a laparoscopic PPU closure. The diagnosis was based on the sudden onset of severe acute abdominal pain in the upper abdomen or generalized pain accompanied by nausea and vomiting. During the examination, visible signs of discomfort, tachycardia, tachypnoea along with symptoms of reducing abdominal tenderness and stiffness. Patients were also asked about their history of PUD, NSAID use, alcohol and smoking. Routine tests such as blood CP, serum amylase, blood urea, chest x-ray in an upright position and ultrasound were also performed to make the diagnosis. Exclusion criteria for this procedure were extensive peritonitis, an incision in the upper abdomen, patients reported 24 hours after perforation, and shock. The parameters observed were: operation time, intraoperative and postoperative complications, pain management, hospital stay, and the rate of conversion to open surgery. After the diagnosis of PPU was established, the patient was aggressively resuscitated before surgery. Laparoscopy performed through 4 ports, one navel port for apparatus, 2 working ports on the right and left upper abdomen, and one epigastric port to withdraw the square lobe of the liver. 2-0 vicryl used to close the perforation and the net patch anchored on the perforation with the vicryl stitch in order to completely seal the perforation, thoroughly rinsing the abdominal cavity with saline.

RESULTS:

Laparoscopic closure of a perforated peptic ulcer (PPU) was performed in 25 consecutive patients. There were 20 (80%) male patients and 5 (20%) female patients (Fig. 1). The mean age was 42.2 (22-75) years (Figure 2).

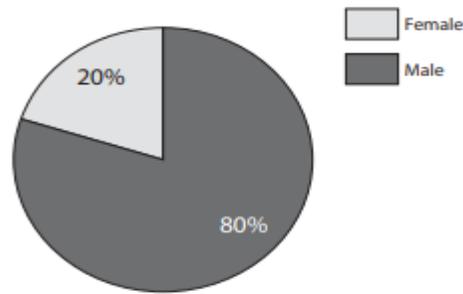


Figure 1: Sex Distribution (n= 25)

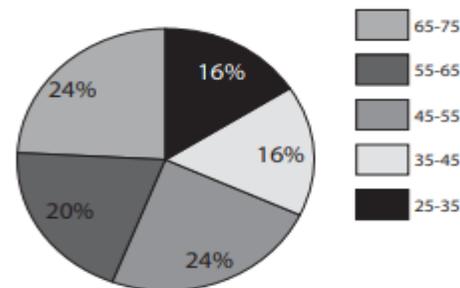


Figure 2: Age Distribution (n= 25)

The mean operative time was 75 (55 to 110) minutes. Patients started oral dosing from day three. The average hospital stay after surgery was 5-8 days. Conversion to the open procedure was necessary in 5 (16%) patients for the following reasons, i.e., large ulcer size, suspicion of cancer in a gastric ulcer, and the presence of a local abscess (Table 1).

Table 1: Reasons for Conversion (n=25)

Reasons	Number of Patients (%)
Large size of Perforation (>1cm)	02 (33%)
Local Abscess	02 (33%)
Gastric Cancer	01 (16%)

Postoperative complications were recurrent perforation in the chest infection, infection of the umbilical port and subphrenic abscess (Table 2).

Table 2: Post Operative Complication (n=25)

Complication	Number of Patients (%)
Recurrent Perforation	02 (08%)
Chest Infection	02 (08%)
Port Infection	01 (04%)
Subphrenic Abscess	01 (04%)

DISCUSSION:

Advances in PUD treatment have radically reduced the number of elective procedures performed in this disease. Nevertheless, the complication rate seems

unchanged. PPU is a known complication of PUD, often leading to peritonitis. Initial treatment aimed at correcting hypovolemia and any electrolyte imbalance. Oliguria and poor peripheral perfusion are

a contraindication to immediate surgical treatment, and their correction should take priority even over radiological examinations. There is no doubt that some patients with a perforated ulcer may be treated un-surgically with a successful outcome. A problem with this approach, reserved for low-risk elderly patients, is the frequent occurrence of a residual abscess, especially in the sub-breast area, which will then require drainage [9-11]. A frequently raised issue is whether a patient with a perforated peptic ulcer needs to undergo open surgery or laparoscopic surgery. The simple closure of the net patch is not a demanding procedure for the surgeon who is able to make intracorporeal knots [12]. The choice between a combination of final treatment and a simple closure of the perforation is still controversial. This choice depends on certain factors, including the age and condition of the patient and the condition of the peritoneal cavity. Laparoscopy has a significant advantage as it allows a more accurate visualization of the peritoneal cavity and can drain the accumulating fluid that may be far from the perforation [13]. Other established advantages are reduced postoperative pain, which is favored by a significant reduction in the need for analgesics in the postoperative period, avoiding excessive bowel manipulation translates into a short period of intestinal obstruction, early oral food intake. Early mobilization, a short stay in hospital, and early resumption of work make this technique an attractive alternative to laparotomy. However, this approach is not as popular as laparoscopic cholecystectomy due to the disadvantages of significantly prolonging surgery time and high rates of suture leakage requiring repeated operations. During the 2 years of the study, only 25 patients were selected due to the strict criteria in which patients with any risk factors were excluded, patients reported 24 hours after perforation and due to the inability to perform urgent laparoscopy, only a few underwent surgery in scheduled mode. list, but most patients were operated on in a private hospital. In our study, operating times averaged 75 (65 to 110) minutes, which is in line with studies by Schirus et al, but is different from Mastuda. One of the disadvantages of this technique is that it takes much longer than the open procedure, but as expertise increases, the duration of laparoscopic surgery is reduced. In our series, the painkillers were administered parenterally for the first 2 days. The average hospital stay was 6.5 (5 to 8) days, which was also observed by Arnaude al. 4 (5.7%) patients required conversion to open, the most common causes were large sizes (greater than 1 cm), gastric cancer, and the presence of an abscess. Postoperative complications included chest infections, subcutaneous abscess, and reoperation for

suture leakage [14-15]. The abscess was emptied by ultrasound and the leakage required a repeat procedure. Siuet al found that laparoscopic PPU repair was a safe and reliable procedure, associated with shorter operative times, less post-operative pain, fewer chest complications, shorter hospital stay after surgery, and return to normal daily activities than conventional surgery.

CONCLUSION:

Our study showed that laparoscopic PPU closure is not a difficult technique that can replace the open procedure due to its advantages of less pain medication, a short stay in hospital, and an early return to work with a cosmetically acceptable scar.

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