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Laparoscopy is an Available Alternative to Open Surgery in the Treatment of Perforated Peptic Ulcers

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Abstract: ***Peptic ulcer disease (PUD), which affects 4 million people worldwide per year, has a perforation incidence of 14 per cent. Perforated gastric ulcers (PPUs) have a high morbidity and mortality. Surgical repair is the standard procedure for PPUs. This literature review provides a comparison of open and laparoscopic procedures as well as the latest updates to laparoscopic repair techniques of PPUs, and their causes, clinical features, clinical examination, laparoscopic and open surgical techniques, complications, and future prospects. is. Extensive literature research is completed and the latest meta-analysis and review on the topic is taken into consideration. There was no significant difference in postoperative mortality between open and laparoscopic treatments in patients with PPU. In addition, laparoscopic repair results in slightly less postoperative pain and less risk of wound infection. Laparoscopic repair may therefore be warranted as the treatment of choice.***

Keywords: laparoscopy, open surgery, perforated peptic ulcers, treatment

1. Introduction

Since the advent of laparoscopic techniques and the confusion about the effect of pneumoperitoneum on peritonitis, laparoscopy has been used primarily for elective surgery. The effect of laparoscopy as a screening instrument in the acute abdomen was soon confirmed, the therapeutic approach was rational and its advantages were demonstrated. Due to the association between Helicobacter pylori and peptic ulcer, H. Pylori combined with the removal of perforated peptic ulcer, accelerated closure therapy has been successful. In laparoscopy of perforated peptic ulcer, it was possible to perform closure and peritoneal lavage to locate the perforated site and avoid large abdominal incisions. Laparoscopic surgery has the same single-ended procedure that is less invasive than open surgery. The age of patients with peptic ulcer perforation is increasing due to advanced surgical antiulcer therapy, as well as the increased use of NSAIDs and aspirin in elderly patients.Literature has demonstrated a substantial decrease in pain, death, morbidity, wound infection, hospital stay, but the laparoscopic technique appears to be more technical and thus involves skilled laparoscopic surgeons. The high cost of laparoscopic devices can be viewed as a significant drawback of the laparoscopic method. Since we used standardized laparoscopic technology, which was already available in the surgery department, without the need for new instruments, we have not detected any new costs. Laparoscopic approach for perforated peptic ulcers, as a diagnostic and therapeutic method, as suggested, should be proposed. The laparoscopic correction of perforated peptic ulcers had a conversion rate of 12%. The key factor for conversion was the diameter of perforation (often greater than 10 mm), insufficient ulcer position and the difficulty of insertion of sutures due to friable edges. Shock at entry is correlated with a higher transfer rate of up to 50%.

2. Materials and Methods

Be using PubMed, Scopus, Scielo and Web of Scientific databases with the following keywords: perforated peptic ulcer; laparoscopic medical procedure; surgical procedure; transfer to open surgery; surgery; laparoscopy. A total of 50 papers were chosen in English and Spanish, published from 2010 to 2020, of which 25 were included in this study, including the most recent meta-analysis on the subject, randomized clinical trials, and Prospective and retrospective research on the subject.

Patient selection

Recommendations are left to determine whether PPU patients are appropriate for the least invasive approach. However, according to the American Society of Anesthesiologists (ASA), patients over the age of 60 are at higher risk of trauma at the end of the diagnosis (the day after the onset of symptoms) and may undergo a laparoscopic procedure. The association between the Boey score and morbidity and mortality was shown in a multi-center retrospective analysis. In their study, patients with a fight score of 0 to 2 had a disability and mortality rate of 4.7% and 0.8%, respectively, while patients with a bowel score of 3 had an epidemic and mortality rate of 21.4% and 10.7%. Respectively these investigators have also decided not to include laparoscopy in the high risk assessment of Boey. However, they proposed that it would be interesting to examine the effectiveness of minimally invasive procedures in high-risk patients in large randomized controlled trials. A retrospective study of 400 patients undergoing PPU surgery using an initial laparoscopic procedure (LFA) was performed. Twenty-five percent of patients had a Boey score ≥ 2. These authors show that there is a substantial increase in the number of LFA's annual operations. Researchers have concluded that LFA intake in patients with PPU is associated with optimal mortality and morbidity. This procedure can be done selectively in patients with Boey

score ≥ 2 because their ASA score is low and they are hemo-dynamically stable.

3. Surgical Technique

The optimal surgical procedure for perforated laparoscopic repair remains unexplained. Laparoscopic repair of the open surgery mirror has been reported to require a longer postoperative period. To prevent this problem, some reports of direct suture without an omentum patch have been reported, which suggests a slight reduction during surgery. Avoiding omentoplasty may shorten the duration of the procedure, but may result in excessive leakage or tightening of the duodenum. In a new study, the effectiveness of the sutureless onlay omental patch after direct perforation in 43 patients was compared to the suture patch. The operation time of sutureless onlay omental patch group was short. There were no statistically significant differences between sutureless and sutured omental patch repair results. This work suggests that both methods for laparoscopic PPU repair may be successful and safe. A sutureless technique involving a gelatin sponge plug and fibrin glue sealing has also been described. However, it has not been widely adopted due to a high rate of repair site leak.

Laparoscopic approach: Placed prophylactic antibiotics and nasogastric tube. The patient was placed in a Lloyd David position. The camera port was introduced into the area of concern by the Hasson method. Pulmonary peritoneum was exhaled through the camera port at a pressure of 12 mmHg. Additional working ports were placed on the left and right abdomen. The patient leaned against the inverted Trendernburg position to ensure adequate space. A sample was obtained for bacterial culture and the abdominal cavity was examined. These sites were identified and washed with isothermal saline solution. The 3/0 suture vicrylwas cut into lengths of 15 to 20 cm and introduced into the abdominal cavity from the port. Free sutures were tied and threads were tied inorganically. The abdominal cavity was washed with isothermal saline solution through a strictly 5 mm or 10 mm stimulation system. Artificial salts are made with 3-7 L of Eric's saliva, although this is described. Up to 10 liters are used. Drainage was the surgeon's priority. The wounds at the port site were healed in a typical mansion.

Conversion: Potential causes for conversion to open surgery include difficulties in finding a perforation location for anatomical reasons, i.e. perforation found in an area other than the anterior duodenal wall, large perforations (described by some writers to be 6 mm in diameter or greater, and by others to be more than 10 mm in diameter), peritoneal adhesion from previous procedures, and ulcers with weak edges. A recent Danish study of 730 patients undergoing perforated PUD surgery reported a laparoscopy rate of 32.8% and a laparoscopy rate of 24.5% was transferred from laparoscopic to open. However, the UK study reported a much lower rate of conversion in their cohort of patients; 13.1 per cent of patients underwent surgery to repair their perforated ulcer using a laparoscopic procedure, of which 6.9 per cent were moved to an open-label approach.

However, a new systematic analysis of 25 studies reported a conversion rate of only 4.9% (34), indicating that (1) laparoscopic surgical preparations are becoming more common in complex gastric surgery. (2) Modified surgical instruments and instruments may play a role. And (3) In these emergencies better surveillance may be more frequent and ultimately it may be more frequent.

4. Results

Open surgery was conducted in 60 per cent of patients, while 30 per cent of patients underwent laparoscopic surgery. Laparoscopic contraindications were Boey's score > 2, repeated laparotomy, and poor surgical abilities. No age limit for Lap was introduced when Lap was done in patients between 30 and 80 years of age. Patients endured an omental patch depending on the diameter of the perforation < 1 cm and the friability of the tissue around the ulcer. The median duration of the surgery was (70–125) minutes for the lap procedure and (40–70) minutes for the ulcer. The exchange rate was 33 per cent which was attributable to adhesions or diffuse peritonitis. ICU admission was required for 25 pts. The mean duration of hospital stay was 9 ± 5 days. The association between Lap and Open to the various Boey scores was evaluated and there was a statistical discrepancy between the two separate binomial proportions being the open methodology used for the low-mid category and the high score ratio.while lap technique was used in 60%.

5. Discussion

The ideal treatment options for patients with peptic ulcer perforation are primary surface and emergency abdominal lavage. However, it is controversial whether to choose between a laparoscopic approach or traditional open surgery. However, laparoscopic surgery has many benefits, including shorter hospital stays, less pain, and improved cosmetic outcomes. Its benefits require a specific learning curve, and experience is required to enjoy the above benefits. The laparoscopic approach is the least invasive treatment of ulcer openings and has been shown to give better results in wound infections and postoperative peritoneal adhesions. Surgery time is a characteristic parameter of studies comparing laparoscopic and open surgery. Conflicting results have been found in the uptime literature. According to the authors of a study comparing laparoscopic and laparotomy for peptic ulcer perforation, it depends on the severity of the position in the body and the need for more time for maximum cleaning with a laparoscopic device.

6. Conclusion

Perforated peptic ulcer is normal in surgical emergencies. Patients with perforated peptic ulcer disease typically need emerging surgery to close the defect and flush the peritoneal cavity. Laparoscopic surgery had an over-open operation, independent of intraoperative blood loss and postoperative discomfort, less postoperative complications, shorter hospital stay, reduced surgical site infection rate and shorter nasogastric tube length.

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