ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 05 | May - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

COMPARATIVE STUDY BETWEEN GRAHAM'S OMENTOPEXY AND MODIFIED-GRAHAM'S OMENTOPEXY IN TREATMENT OF PERFORATED DUODENAL ULCERS

General Surgery

Dr. Sudhanshu Sharma MS General Surgery, Assistant Prof., Dept. of General Surgery, Rajkiya Medical College, Orai, Jalaun UP

Dr. Amal Mariyadas K. Boobily MBBS, PG Resident, General Surgery, Rajkiya Medical College, Orai, Jalaun, UP

Dr. Arbab Zaman MBBS, PG Resident, General Surgery, Rajkiya Medical College, Orai, Jalaun, UP.

ABSTRACT

Background- Peptic ulcer perforation is an emergency and requires urgent surgical treatment. Due to in aberrant use of NSAID and high smoking habits among the Indian population, frequency of peptic perforation is on the rise. **Objective-** This study is aimed at comparing success rate between Graham's omentopexy (GO) and modified - Graham's omentopexy (MGO) as an emergency management technique for duodenal perforation. Patients and methods- A prospective study was carried out for 1 year with 90 patients. GO was done in 50 patients and 40 patients underwent MGO between January 2023 and January 2024 in the Department of Surgery, Rajkiya Medical college Orai, Jalaun UP. Data regarding age, sex, time elapsed between onset of symptoms and hospital admission, comorbid diseases, morbidity, and mortality were recorded. **Results-** MGO was associated with longer operative time. Mean hospital stay in GO group is higher than MGO group. **Conclusion-** Graham's patch repair is as effective as modified- Graham's patch repair in terms of morbidity and mortality. There is no statistically significant difference in undergoing either procedure for repair.

KEYWORDS

Graham's Omentopexy, Modified Graham's Omentopexy, Peptic Perforation

INTRODUCTION

Peptic ulcer perforation is a frequent cause of hospitalization, which affects 5–10% of patients with peptic ulcer. Peptic ulcer perforation presents with an overall mortality of 10%, although various authors have reported incidences between 2 -20%, so selection of the most appropriate operative approach becomes an important issue for surgeons. Several surgical procedures have been devised to treat complicated peptic ulcer. Omentopexy is commonly used in emergency management of duodenal ulcer perforation. Omentopexy was first described by Cellen Jones in 1929. In 1937 GRAHAM modified this repair. Various complex procedures have been described for treatment of duodenal perforations. These include resection of the perforation bearing duodenum and gastric antrum in the form of a partial gastrectomy, conversion of the perforation into a pyloroplasty, or the closure of the perforation using a jejunal serosal patch or jejunal pedicle. In patients who present with unstable hemodynamics, these procedures may neither be feasible nor desirable because each of the above-mentioned options not only prolongs the surgical time but also requires a high degree of surgical expertise and facilities, which may not be available in the emergency setting. To date, there are still some debatable issues on treatment of perforated duodenal ulcer. Options exist in this situation, which include conservative treatment, omental plugging, closure of ulcer with free omentum, closure of perforation with use of pedicled omentum, control tube, definitive treatment with truncal vagotomy and drainage procedures, or proximal gastric vagotomy. Modifications came with the principal aim to close the perforation, keeping the omentum sandwiched between two layers of knots in an effort to prevent leaking (the major concern with Graham's technique) . In the patients with duodenal perforation who present with unstable hemodynamics and gross peritoneal contamination, it may be more prudent to close the perforation with a Graham's patch using omentum. This Graham's patch is still relevant and useful in emergency surgery for perforated peptic ulcer in selected patients.

AIM:

The aim of this study was to assess whether there is a direct benefit associated with modified Graham's omentopexy (MGO), above and beyond the benefit associated with Graham's omentopexy (GO) in the treatment of perforated duodenal ulcers. We attempted to answer the question whether primary closure of the perforation in MGO will affect the outcome of surgery. Complication rates were compared for the two alternative surgical procedures.

MATERIALAND METHODS:

The study included 90 cases of perforated chronic duodenal ulcer. They were treated in the Department of Surgery in Rajkiya Medical college Orai, Jalaun from January 2023 to January 2024. The criteria of case selection were thorough history, clinical examination, and radiological findings with diagnosis of perforation of chronic duodenal ulcer, and having undergone operative treatment. Data on patient comorbidities, presenting symptoms, vital signs, laboratory studies, and diagnostic procedures were documented. All patients, on hospitalization, received intravenous fluids, antibiotics, nasogastric aspirations, and timely monitoring of vitals until surgical intervention. Good urinary output and stable hemodynamics were ensured in all the patients before being taken for surgery. Data on patients' profile were collected, which included age, sex, socioeconomic status, risk factors (smoking, alcohol, tobacco chewing, use of ulcerogenic drugs, and history of acid peptic disease), symptoms, signs, chest radiography findings, ultrasonography abdomen findings, day of presentation, presence of shock at presentation, chest condition, and laboratory investigations (hemoglobin concentration). The patients were divided into two groups, based on the technique of simple randomization. Patients were allotted to groups A and B.

Group A:

Graham's omentopexy Grahm's technique of omentopexy was performed by closing the perforation by placing interrupted full thickness 2-0 silk sutures along the margins of the ulcer with a patch of pedicled omentum laid over these sutures, which are then tied (without any attempt for primary closure of the perforation before placing the omentum as a plug).

Group B:

Modified-Graham's omentopexy The modification of the Graham's patch has been used in this group, where 2-0 silk sutures are passed between the edges of perforation and tied to close the perforation. A pedicle of omentum based on right omental artery is brought between these sutures, and these sutures are tied again with pedicle of omentum between knots over the perforation (thus the omentum remains sandwiched between the two levels of secured knots) Both groups were compared in terms of postoperative complications and surgical outcome.

Postoperatively, all patients were prescribed for 2- week treatment of standard triple drugs therapy to eradicate Helicobacter pylori. All patients were followed-up on an outpatient basis. Outcome was compared based on mean operative time, intraoperative and postoperative mortality within 30 days, development of bile leak,

septicemia, intra-abdominal abscess, wound infection, burst abdomen and lung complications, commencement of oral feeding from day of surgery, and duration of hospital stay.

RESULTS

Of 90 cases, 71 were males and 19 were females. Data revealed that 50 patients (40 males and 10 females) had undergone GO and 40 patients (31 males and 9 females) had undergone MGO technique. Most of the perforations were in the range of 0.6–1 cm. Comparison between the two groups was made in terms of mean operative time, intraoperative, and postoperative mortality within 30 days, development of bile leak, intra-abdominal abscess, wound infection, paralytic ileus, burst abdomen and lung complications, commencement of oral feeding from day of surgery, duration of hospital stay, and necessity of reoperation.

The postoperative complications in group A (GO) were- wound infection in 10 (20%) cases, biliary leakage in two (4%) cases, and two deaths (those who had bile leakage 4%), rest all were discharged in due course. In group B (MGO), wound infection was noted in 9 (22.5%) patients, 2 patients (5%) had biliary leakage who died later on. There were two (5%) mortality in group B. The hospital stay in group A was 14 days and in group B 10 days approx.

AGE	Number of patients
<30 years	09
30-39 years	36
40-49 years	25
50-59 years	09
>60 years	11
SEX	
Male	71
Female	19
TIME BETWEEN ONSET OF SYMPTOMS AND OPERATION (in Hours)	
<24 hours	28
>24hours	62
SIZE OF PERFORATION (in cm)	
<0.5 cm	19
0.6-01cm	49
>1cm	22
PREOPERATIVE SHOCK	
Present	32
Absent	58
COMORBIDITIES (DM, HTN, COPD)	
Present	34
Absent	56

COMPLICATIONS:

OUTCOMES	GRAHM'S REPAIR (n= 50)	MODIFIED GRAHM'S REPAIR (n=40)
Mean operative time (min.)	~70 min	~90 min
Bile leakage	02	02
Wound infection	10	09
Wound dehiscence	07	06
Paralytic ileus	02	01
Mean hospital stay (days)	~14 days	~10 days
Orally allowed	~7 POD	~5 POD
Re-exploration	00	00
Abdominal abscess	00	00
Death	02	02

DISCUSSION:

In modified-Graham's technique, a segment of omentum is brought on top of the already approximated perforation with second level of knots. The use of vascularized pedicled omentum besides reducing the risk of cutting through the sutures used for perforation closure also induces neovascularization, which accelerates ulcer healing. In the treatment of perforated duodenal ulcer, a minimum of two are required: one to ensure adequate closure of perforation and the other to control acid production. Although the control of acid production is recommended, acid-reducing procedure like vagotomy and gastrojejunostomy/ pyloroplasty in the emergency setting is never safe. In such situation, it may be more prudent to control acid production with proton pump inhibitors [7].

High intragastric pressure, the tendency of duodenal mucosa to extrude through the suture line, and autodigestive enzymes of pancreas and bile are factors contributing to leakage. Thus, active gastric emptying using nasogastric tube is recommended in both types of repair.

Various experimental studies have shown that pedicled omentoplasty is being replaced by use of a glued patch of biodegradable material to be applied on outer surface of peptic perforation. The application of patch avoids suturing of friable edges of peptic perforation, thus saving valuable operative time. In MGO, we followed the principle of indirect omentopexy keeping the omentum sandwiched between the two layers of knots. The incidence of wound infection was closely comparable in both groups, that is, 10 patients in GO group and nine in MGO group. Complications are slightly higher in GO group. Leaking is postulated to result from incomplete and insecure sealing of the perforation by the omentum. Postoperative wound infection was the major complication seen in our cases, which is comparable to few studies.

In the present study, mortality rate ranges from 4.0 to 5.0%, which varies as compared with the mortality rate in other literatures (6.5 to 20%). In the present study, the mean hospital stay was 14 days in GO group and 10 days in MGO group, which is similar to another study. The MGO focuses on primary closure of the perforation. The applied tension to the sutures should be strong enough to stabilize the omentum in place, but loose enough to preserve the omental blood supply, provided the ligature is neither too tight to cause tissue damage nor too loose to have recurrence with the goal to secure the omentum that enables sealing of the perforation. If the omental patch is strangulated owing to increased tension on the knots, then the chances of the suture line giving away increases.

Many surgeons have felt that if patients could be brought to medical attention earlier in the course of their condition, the morbidity and mortality would be substantially reduced. There are multiple important factors jeopardizing the outcome. Delay in presenting to the Emergency Department, concomitant diseases, and preoperative shock are some of them. This necessitates early admission, adequate resuscitation, and treatment of concomitant diseases and early surgical intervention. The shortcoming of this study is the small sample size. Further study with more cases is needed on the question of GO versus MGO to evaluate and apply a suitable method for treating this acute catastrophe.

CONCLUSION:

Based on our results, it seems that Graham's patch repair is as effective as modified-Graham's patch repair in terms of morbidity and mortality with an early enteral feeding and shorter hospital stay noted in patients who underwent MGO.

Although widely practiced, MGO remains a treatment with appreciable complications whose potential benefits above and beyond the benefit associated with GO have not been clearly demonstrated. There is no statistically significant difference in undergoing either procedure of repair. Failure to prove significant difference may reflect the small number of patients randomized within this study. The choice between GO or MGO is based on surgeon preference.