ORIGINAL ARTICLE

Graham Patch Vs Modified Graham Patch in Management of Perforated Peptic Ulcer

S O Sankhala[1], D A Baraiya[2], J P Dave[3], I A Juneja[4], J G Bhatt[5], D M Gohil[6]

[1]Assistant Professor, [2]Resident Doctor, [3,4]Associate Professor, [5]Professor & HOD, [6]Professor, Dept. of Gen. Surgery, P.D.U. Govt. Medical College, Rajkot

ABSTRACT

BACKGROUND AND OBJECTIVES: Peptic ulcer remains a relatively common condition worldwide, with annual incidence ranging from 0.10% to 0.19%. Life-threatening condition in perforated peptic ulcer (PPU) is varying from 10% to 40%.To compare outcome and complications in Graham patch and Modified Graham patch repair in perforated peptic ulcer. **METHODS:** A retrospective study was conducted to compare the outcome and complication viz. leakage, obstruction after Graham's patch repair and modified Graham's patch repair undergoing peptic ulcer perforation in various surgical units of P.D.U. Medical College and Hospital Rajkot. The outcome of procedure was measured in terms of complication like leakage, obstruction and mortality. **RESULTS:** Peptic ulcer perforation in group A was more common in male; 19(95%) patients were male & 1 (5%) was female (M: F=19:1). The mean age was 43.45 years. In Group B it was more common in male; 33(82.5%) patients were male 7(17.5%) were female (M: F=4.71:1). The mean age was 40.65 years. The incidence of post-operative leakage was 1(5%) and in Group B were 2(5%). The incidence of burst abdomen was same (5%) in both the groups. **CONCLUSION:** The analysis of results of present study consisting of altogether 60 patients undergoing peptic ulcer perforation repair showed that Graham's patch repair is as effective as modified Graham's patch repair in terms of morbidity and mortality. It is concluded that either procedure can be undertaken depending upon surgeon preference.

Keywords: Burst abdomen, graham patch repair, leakage, modified graham patch repair

INTRODUCTION

Peptic ulcer remains a relatively common condition worldwide, with annual incidence ranging from 0.10% to 0.19%.[1] According to the latest WHO data published in 2014 Peptic Ulcer Disease in India reached 0.96%.[3] Life-threatening condition in perforated peptic ulcer (PPU) is varying from 10% to 40%.[4,5,6,7]A nationwide study observed a decrease in the incidence of PUD diagnosis from 0.07% in 1980 to 0.03% in 2003.[8]Approximately 20-25% of patients with peptic ulcer disease develop complications--bleeding, perforation, or obstruction. Although the majority of patients with complicated ulcers are infected with Helicobacter pylori, the prevalence of infection appears to be lower in these patients compared with patients with uncomplicated ulcers.[23]Management of PUD has improved substantially following the introduction of PPIs and therapy for *H. pylori* eradication.[1]While an overall imbalance between the protective and the ulcerogenic factors is obvious in ulcer formation, it is unclear why some patients perforate and others do not. The ulcerogenesis like infection (*H. pylori*), mucosal barrier injury (e.g. use of drugs) and increased acid-production. Only about a third of patients with PPU have a previous history of or current known peptic ulcer at time of diagnosis. Some patients develop very small (<5 mm) perforations other patients may develop large mucosal defects with perforation of several centimetres. In 1937, Roscoe Graham described method of surgical closure of the perforation which is widely accepted till date. In this method, after laparotomy, perforation is identified and sutures are being placed and then the

Corresponding Author:
Dr S O Sankhala
Plot No. 60
Ashutosh Society,Airport Road
Rajkot 360001
Contact No: 8460998598
Email: drswastikch@gmail.com

omental tongue is brought into position. Three or four sutures are used preferably of non-absorbable material. During closure of duodenum care is taken that posterior wall of duodenum would not be incorporated into the sutures which may obstruct the duodenum. The adjacent omentum is brought up to the perforation and laid out on the anterior surface of the duodenum. To create tampon sutures are tied from the superior to inferior side with the vascularised omental pedicle graft. Care should be exercised to be sure that the suture are tied sufficiently snugly to hold the omentum in place, but the tension exerted by the tied suture on the omentum should be such that the blood supply to the omentum is not impaired. The patch must be a living omental patch, and the omentum should not be strangulated.[9] Some surgeons prefer Modified Graham patch repair (MGPR), in which the three or four sutures are placed as mentioned above for closure of the perforation. Then the omental patch placed on the tied suture, and another set of knots are tied to hold the omentum in place over the duodenal perforation closure. The concern in this method is that the omentum will not perform as a good seal as compared when it is laid directly on the perforation.[10]

MATERIALS AND METHODS

This is a retrospective study design for the period JANUARY 2016 to JUNE 2017 Conducted in P.D.U. Medical College Rajkot. All the patients with only Peptic perforation admitted and treated at our institution were included. Patients with perforation other than peptic site, multiple perforations, poly-trauma and neoplastic conditions were excluded. Patients were randomly subjected for either GO or MGO. Post-operatively, all were followed-up for 3 months at out-patients department. Total 60 patients were taken and divided in two groups. Group A consist of 20 patients and group B consist of 40 patients. Group A underwent Graham patch repair and Group B underwent Modified Graham patch repair. Chi square test was applied to compare two groups by epi info software.

OBSERVATIONS

Table 1: Age

	Group A(GO)	Group B(MGO)
<25	2(10%)	10(25%)
25-50	13(65%)	23(57.5%)
50-75	5(25%)	7(17.5%)
>75	0	0
Total	20	40

Table 2: Gender distribution

	Group A(GO)	Group B(MGO)	Total
Male	19(95%)	33(82.5%)	52
Female	1(5%)	7(17.5%)	8

Table 3: Presence of Pus in peritoneal fluid

	Group A(GO)	Group B(MGO)	Total
YES	13(65%)	24(60%)	37
NO	7(35%)	16(40%)	23

Table 4: Post-operative pyrexia

	Group A(GO)	Group B(MGO)	Total
Present	6(30%)	14(35%)	20
Absent	14(70%)	26(75%)	40

The p value from chi square test came out to be 0.6985 which is non-significant.

Table 5: Surgical site infection

	Group A(GO)	Group B(MGO)	Total
Present	4(20%)	7(17.5%)	11
Absent	16(80%)	33(82.5%)	49

The p value from chi square test came out to be 0.8135 which is non-significant.

Table 6: Presence of leakage

Leakage	Group A(GO)	Group B(MGO)	Total
Present	1(5%)	2(5%)	3
Absent	19(95%)	38(95%)	57

The p value is 1.0 which is non-significant.

Table 7: Burst Abdomen& Wound dehiscence

	Group A(GO)	Group B(MGO)	Total
Present	3(15%)	4(10%)	7
Absent	17(85%)	36(90%)	53

The p value from chi square test came out to be 0.5695 which is non-significant.

DISCUSSION

Age:

The common age group at presentation was 25-50 year with mean age 41.58 year with peak incidence in fifth decade. Study conducted by Dakubo shows age ranged from 4-87 years with mean age of 40.90[12]. Gugulieminotti described age varied from 2011 to 65 years[13]. This is consistent with other studies where mean age was 43.4, 35.3 (ranged 14 to 75), 37.53 and 12-16 45.49. [14-18]while Mehboob described mean age 31.4 years with peak incidence in 3 decade.[19]

Sex:

In group A 19 males and 1 females and in group B 33 males and 7 females. Group A

having m: f ratio 9.5:1. Group B having as compared to study done by Plumer and Ohene in 2004 and 2006 respectively[20]. This can be explained on the basis of dietary habits and consumption of alcohol in this part of world.

Post-operative pyrexia:

In group A and Group B there were 6(30%) and 14(35%) cases of post-operative pyrexia respectively. The p value from chi square test came out to be 0.6985 which is non-significant. In study done by Chalya et al. Post-operative pyrexia was In 9(36%) patients.[22]

Surgical site infection:

In group A and Group B there were 4(20%) and 7(17.5%) cases of surgical site infection respectively. The p value from chi square test came out to be 0.8135 which is non-significant. In study done by Chalya et al. post-operative surgical sites infection was in 12(48%) patients.[22]

Post-operative leakage:

Overall post-operative complication in Graham patch and Modified graham patch repair was low. Postoperative leakage was 5% in both groups. The P value from chi square test came out to be 1.0 which is non-significant. This was similar to the study done by Nuhu et al. in 2009 where only 4 postoperative leakages were present in 55 patients undergoing emergency exploratory laparotomy. The delay in surgical intervention, after the patient present to hospital is usually due to the time taken to resuscitate these very ill patients. The causes of mortality in our study are to septicaemia and electrolytes derangement. The mortality rate in our study was 5%.as compare to study done by Nuhu et al was16.4% .This may be explained by the differences in age composition of the patients and other risk factors of perforation.[21]

Burst abdomen& wound dehiscence:

In group A and Group B there were 3(15%) and 4(10%) cases of burst abdomen & wound dehiscence respectively. The p value from chi square test came out to be 0.5695 which is non-significant.In study done by Chalya et al. ratio 5.80:1. Incidence of male was more Post-operative wound dehiscence and burst abdomen was in 5(20%) patients. This difference in complication can be explained by differences in antibiotic coverage, meticulous pre &post-operative care and proper resuscitation of the patients before operation, improved anaesthesia and somewhat better hospital environment.[22]

CONCLUSION

The analysis of results of present study consisting of altogether 60 patients undergoing peptic ulcer perforation repair showed that Graham's patch repair is as effective as modified Graham's patch repair in terms of morbidity and mortality. Hence there is no statistically significant difference in undergoing either procedure of repair. It is concluded that either procedure can be undertaken depending upon surgeon preference.

REFERENCES

1. SUNG, J. J. Y., KUIPERS, E. J. and EL-SERAG, H. B. (2009), Systematic review: the global incidence and prevalence of peptic ulcer disease. Alimentary Pharmacology & Therapeutics, 29: 938–946. doi:10.1111/j.1365-2036.2009.03960.x
2. Bertleff MJ, Lange JF: Perforated peptic ulcer disease: a review of history and treatment. Dig Surg. 2010, 27: 161-169. [PMID: 20571260 doi:10.1159/00026465
3. http://www.worldlifeexpectancy.com/india-peptic-ulcer-disease
4. Lau JY, Sung J, Hill C, Henderson C, Howden CW, Metz DC: Systematic review of the epidemiology of complicated peptic ulcer disease: incidence, recurrence, risk factors and mortality. Digestion. 2011, 84: 102-113. PMID: 21494041
5. Svanes C: Trends in perforated peptic ulcer: incidence, etiology, treatment, and prognosis. World J Surg. 2000, 24: 277-283. [PMID: 10658061 doi:10.1007/s002689910045
6. Møller MH, Adamsen S, Wøjdemann M, Møller AM: Perforated peptic

ulcer: how to improve outcome? Scand J Gastroenterol. 2009, 44: 15-22. [PMID: 18752147 doi:10.1080/00365520802307997
7. Thorsen K, Glomsaker TB, von Meer A, Søreide K, Søreide JA: Trends in diagnosis and surgical management of patients with perforated peptic ulcer. J Gastrointest Surg. 2011, 15: 1329-1335. [PMID: 21567292 doi:10.1007/s11605-011-1482-1]
8. Post PN, Kuipers EJ, Meijer GA. Declining incidence of peptic ulcer but not of its complications: a nation-wide study in The Netherlands. Aliment Pharmacol Ther 2006; 23: 1587–93.
9. Horowitz J, Kukora JS, Ritchie WP., Jr All perforated ulcers are not alike. Ann Surg.1989; 209(6):693–6. discussion 696–7
10. Graham RR. The treatment of perforated duodenal ulcers. Surg Gynecol Obstet. 1937; 64:235-8.
11. Lau WY, Leung KH, Kwong KH, et al. A randomized study comparing laparoscopic versus open repair of perforated duodenal ulcer using suture or sutureless technique. Ann Surg. 1996; 224:131-8.
12. Manakuru SR.Current management of peptic ulcer perforations. Pak J Med Sci. 2004; 20(2):157-63.
13. Guglieminotti P, Bini R, Fontana D, et al. Laparoscopic repair for perforated peptic ulcer with U-CLIP (R). World J Emerg Surg. 2009; 29(4):28.
14. Arveen S, Jagdish S, Kadambari D. Perforated peptic ulcer in south India: An institutional perspective. World J Surg. 2009; 32(8):1600-4.
15. Torab FC, Amer M, Abu-Zidan FM, et al. Perforated peptic ulcer: different ethnic, climatic and fasting risk factors for morbidity in Al-ain medical district, United Arab Emirates. Asian J Surg. 2009; 32(2):95-101.
16. Bin-Talib AK, Razzaq RA, Al-Kathiri ZO. Management of perforated peptic ulcer in patients at a teaching hospital. Saudi Med J. 2008; 29(2):245-50.
17. Balouch Q. Analysis of peptic ulcer perforation cases at CMC teaching hospital, Larkana. Pak J Surg. 2004; 20(2):79-81.
18. Dakubo JC, Naaeder SB, Clegg Lumptey JN. Gastroduodenal peptic ulcer perforation. East Afr Med J. 2009; 86(3):100-9.
19. Mehboob M, Khan JA, Saleem SM, et al. Peptic duodenal perforation: An audit. J Coll Physcians Surg Pak. 2000;10(£):101-
20. Plummer JM, McFarlane ME, Newnham. Surgical management of perforated duodenal ulcer: the changing scene. West Indian Med J. 2004; 53:378-81.
21. Nuhu. Acute perforated duodenal ulcer in Maiduguri. The internet journal of surgery. 2009; 21:1.
22. Chalya. Clinical profile and outcome of surgical treatment of perforated peptic ulcers in Northwestern Tanzania: A tertiary hospital experience. World journal of emergency surgery. 2011; 6:31. Kidwai et al.: Graham Patch Versus Modified Graham Patch in the Management of Perforated Duodenal Ulcer
23. Am J Med. 1996 May 20; 100(5A):52S-57S; discussion 57S-59S. Helicobacter pylori and complicated ulcer disease. Laine LA.