ORIGINAL ARTICLE J. Med. Sci. (Peshawar, Print) April-June 2010, Vol. 18, No. 2: 87-90

GRAHM'S OMENTOPEXY IN CLOSURE OF PERFORATED DUODENAL ULCER

Atta-ur-Rehman Khalil, Muhammad Yunas, Qutbe Alam Jan, Wagma Nisar, Muhammad Imran

Department of Surgery, Khyber Teaching Hospital, Peshawar - Pakistan

ABSTRACT

Objectives: The aim of this study was to evaluate the effectiveness of Grahm's Omentopexy in closure of perforated duodenal ulcer.

Material and Methods: In this descriptive study, 98 patients were included who presented to Surgical Units of Khyber Teaching Hospital Peshawar and Medicare Hospital Peshawar from March 2006 to February 2009. Children and patients with Firearm injuries or history of Previous Surgery were excluded from the study.

Results: Out of ninety eight patients, 81(82.65%) were male and 17 (17.34%) were female. Highest incidence was found in patients with > 41years age [46(46.90%) patients]. Twenty three (23.42%) patients reached hospital within 24 hours of developing symptoms while 51.02 % reached within 24-48 hours. Seventy eight (78.57%) patients presented with generalized abdominal pain and vomiting. Nearly 63% patients were having past history of peptic ulcer disease. Around 36.28% patients were smokers and 10.78% were using NSAIDS for various reasons. In 68.36% patients the size of Perforations was < 1cm. The patients were on nasogastric suction for 48 – 72 hours. In 80.65 % patients sips were allowed on third day. The infection rate was found to be 25.56%. Sixty three (63.26%) patients had uneventful recovery. Most of the patients (73.46%) were discharged on 6 th– 9 th day.

Conclusion: Omentopexy (Grahm's patch) is simple , safe and easy procedure which can save the life of patient by minimizing operative time , morbidity and mortality.

Keywords: Omentopexy (Grahm's patch), Perforated duodenal ulcer, NSAIDS.

INTRODUCTION

Peptic ulcer is a common disease in general population. It is estimated that almost 10.5% of the American men suffer from Duodenal ulcer in their life time.[1] Peptic ulcer continues to affect 3.5-7.5 million people in the United States per year.[2] The increase of duodenal ulcer varies in different parts of the world.[3] There is a sharp decrease in the Elective Peptic ulcer surgery but the emergencies such as perforations are on rise in some studies,[4] particularly in older age group.[5] The spillage of Duodenal contents into peritoneal cavity causing abdominal pain, shock, peritonitis, marked tenderness and decreased liver dullness offers little difficulty in diagnosis of perforations.[6] The presence of gas under the diaphragm on plain abdominal erect X-ray is diagnostic in 75% of the cases.[7] Since the first description of surgery for acute perforated peptic ulcer disease, many techniques have been recommended like hand suturing the edges of the wound, stapling, omental patch and closing the perforations with fibrin sealant and gelatin plug products.[4,5] The closure most often consists of plugging the hole with omental patch in place rather than suturing the edges of the perforation.[8] Laparoscopic closure is safe and effective with little morbidity.[9] Simple closure of perforation with omental patch and the use of proton pump inhibitors (PPI) has changed the old trend of truncal vagatomy and drainage procedures.[10] Old age, co-morbid illness, shock and delayed presentation are associated with increased mortality.[11]. Early diagnosis and treatment has reduced mortality from 40% to 10%.[12]

Address for Correspondence:
Dr. Atta-ur-Rehman Khalil
Associate Professor of Surgery,
Khyber Teaching Hospital, Peshawar-Pakistan
Contact: 091-9216340-9

MATERIAL AND METHODS

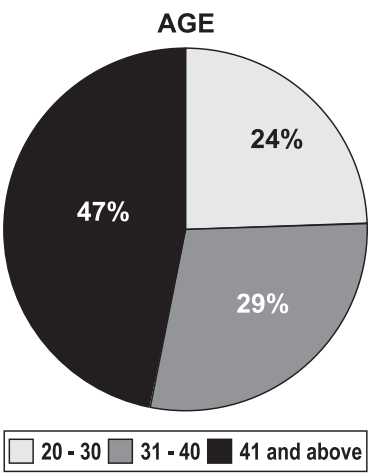
This study was conducted in Khyber Teaching Hospital, Peshawar and Medicare Hospital, Peshawar from March 2006 to February 2009. All the patients presented to surgical department through Accident and Emergency department with acute abdomen. A detailed history and thorough physical examination were followed by investigations like full blood count, blood grouping, serum urea, serum creatinine and random blood sugar. Radiological investigations like X-ray abdomen erect and chest X-ray were done in all patients on the suspicion of diagnosis of perforated duodenal ulcer. Patients were put on intra-venous fluids, nasogastric suction, intravenous antibiotics and intravenous omeprazole. After the haemodynamic

stability, all patients had laparotomy under general anesthesia. Duodenal perforations were closed with omentopexy, followed by washing of the peritoneal cavity with normal saline. Two drains were put in abdominal cavity (right hypochondrium and pelvis).

Intraoperative and post operative complications were recorded on standard proforma. Oral sips were allowed on 3rd to 5th day. Patients were discharged on 6 to 14 post operative day based on recovery and complications.

RESULTS

This study was carried out in Surgical A unit Khyber Teaching Hospital, Peshawar and Medicare Hospital, Peshawar from March 2006 to February 2009. Ninety eight patients of perforated duodenal ulcer were included. Among these patients, 81(82.65%) were males while 17(17.34%) were females. Male to female ratio was 8.8 to 1. The age of patients ranged between 20 to 70 years. Fourty six (46.9%) patients were of > 41 years age (Fig. 1).



Twenty three patients (23.42%) reached hospital within 24 hours while fifty (51.06%) reached within 24 to 48 hours. Twenty six (25.56%) reached hospital after 48 hours of perforation. Seventy seven patients (78.57%) presented with generalized abdominal pain while 21(21.42%) patients were having localized pain in epigastrium and right hypochondrium. Sixty one (59.78%) of the patients were having vomiting while thirty seven (36.26%) had only nausea and retching. Thirty eight patients (37.20%) were in shock and 49 (48.02%) were having dehydration. Fever was recorded in 21(20.58%) and oligurea in 12(11.79%) of the patients.

Previous history of peptic ulcer disease was present in 64(62.72%). In our study 26(25.56%) patients were smokers while 37(36.26%) were using snuff. Regular use of NSAIDS for rheumatoid arthritis and other conditions was found in 11(10.78%) of the patients. Diabetes mellitus was present in 5(5.05%) patient.

Gas under the right dome of the diaphragm was present in 77(76.57%) patients. On Laparotomy, in 90(88.20%) patients, anterior wall of 1st part of the duodenum was perforated. Pre-pyloric perforation was observed in 5(5.10%) and pyloric peforation in 3(3.06%) of the cases. The size of the perforations were less than 1 centimeter in 67(68.36%) and more than 1 centimeter in 31(31.63%).

In our study, purulent peritonitis with 500 to 1000 ml intraperitoneal fluid was present in 50(51.02%) patients while more than 1000ml was found in 21(21.42%). In our study, 95(96.74%) patients underwent simple closure with omental (Graham) patch. Gastrojejunostomy and vagatomy was done in 3(3.06%) patients having pyloric perforations. Operating time ranged from 45 to 90 minutes with a mean duration of 70 minutes. In 81(80.65%) patients oral fluids were started on 5th post operative day while in rest of the cases oral fluids were allowed on 7 to 8 days after surgery.

In our study wound infection was noted in 26(25.56%), burst abdomen in 5(5.05%) and residual collection in 3(3.06%) patients. In 62(63.26%) patients recovery was uneventful. Three (3.06%) patients died post operatively; 2 patients developed septicemia and one patient died of cardiac arrest during second exploration for a leak. Seven-two (73.46%) patients were discharged on 9th to 10th day and 18(18.36%) patients stayed in the hospital for 10 to 20 days. Eight patients (8.16%) were discharged after 20th post operative day.

DISCUSSION

Peptic ulcer disease is a common disease everywhere especially in this part of the world.[1] Perforated duodenal ulcer is a major surgical emergency[6] with no age is exempted. In our study frequency of perforation was higher in 4th & 5th decade. In one study it was 39% between 51-60 years of age.[13] While some studies show more frequency in 3rd decade.[7,15] The age frequency variation is present in various parts of Pakistan.[7,15] In the West there is higher tendency of peptic ulcer to perforate in the elderly.[15] The male to female ratio in our study was 8.8:1 which is similar to Ahmed W et al (7.5:1)[16], Plummer JM et al (8:1)[17] and Taj MH et al (9:1).[18]

In our study 22(21.56%) of the patients reached hospital within 24 hours while 50 (51.02%) reached within 24-48 hours and 26 (25.56%) patients reached hospital after 48 hours. The recovery was good in those patients reaching hospital within 48 hours. But because of delay, shock and septicemia the recovery was not very good in those reaching the hospital after 48 hours.

The delay in reaching hospital was because of referral from far-flung areas. The risk of post operative mortality and morbidity is related to the duration of perforation.[19,20] Kocer in his study showed 20% mortality and 43.8% morbidity in patients reaching hospital after 24 hours.[21] The presentation and complication in our study a similar to as reported by Rajput IA et al.[22] The mortality and morbidity was high in patients with shock and oliguria on admission. In one study shock on admission was present in 16 (5.9%) patients with 93.8% mortality and 68.8% morbidity.[19] The history of duodenal ulcer was found in 61 (59.78%) patients while in a study by Svanes et al 46.7% of patients were having previous history of dyspepsia.[23] In our study smokers were 26 (25.56%) and snuff addicts were 37 (36.26%). In our study diabetics were 5 (5.05%) and regular users of NSAIDS were 11 (10.78%). Smoking has strong association with peptic ulcer.[23] One study reported (11.7%) etiological association by Smett.[22] NSAIDS use was found in 11 (10,78%) patients in our study. NSAIDS use increases the risk of perforation by 5-8 times.[24] In our study 90 (88.20%) patients had perforation in the anterior wall of the first part of duodenum while pre-pyloric perforation was seen in 5 (5.10%) patients and pyloric in 3 (3.06%) patients. Sharma in his study showed 88 of the subjects having perforation in the anterior wall of first part of duodenum.[25]

In our study the size of perforation less than 1cm was found in 67 (65.66%) patients while more than 1cm in 31 (30.36%) patients. Sharma recorded less than 1cm perforation in 55 (60%) patients while more than 1cm in 37 (40%) patients.[25] In one of the local studies 59 (21.9%) patients had perforation of less than 1cm and 19 (7.1%) patients had more than 1cm perforation.[18] The size of perforation more than 1cm had significant association with mortality and morbidity.[26]

The amount of peritoneal spillage varied from 500 to 1000ml. Smitha S in his study showed average of 950 ml of peritoneal spillage.[25] Post operative complications in our study were recorded in 64 (65.30%) patients. In one study the post operative complications were recorded in 54 (38%) patients,[14] while in another study the post operative complications were recorded in 65 (24.2%) patients.[21] A local study showed post operative complications in 15 (50%) patients.[18] Most of the complications were recorded in those patients presenting late to the hospital.[4,19] In our study, the mortality was found to be 3.06% while a local study showed 10% mortality.[18] The hospital stay in our study was found less than 10 days in 72 (73.46%) while in one study the average hospital stay was 8.85 days.[25] The hospital stay varied with the size of perforation, duration of illness and condition of the patient on arrival.

CONCLUSION

Omentopexy (Grham's patch) is simple, easy and life saving procedure with acceptable mortality and morbidity. Early presentation and early intervention reduces mortality and morbidity associated with perforation of peptic ulcer disease.

REFERENCES

1. Sanabria A, Villegas MI, Moralis Uribe CH. Laproscopic repair of perforated peptic ulcer disease (review). Cochrance library issue 1, 2009; 1-15.
2. Dempsey DT, Stomach. In: Brunicardi FC, Anderson DK, Billiar TR, Dunn DL, Hunter JG, Poolock RE, (edi). Schwartz's Principles of surgery. 8th ed. New York: Mc Graw-Hill; 2005: 933-95.
3. Paimela H, Tuompo Pk, Perakyl T, Saario I, Hocherstedt K, Kivilakso E. Peptic ulcer surgery during the H2 recepter antagonist era: A population based epidemiological study of ulcer surgery in Helsinki from 1972 to 1987. BMS. 1991; 78: 28-31.
4. Rajesh V, Chandra SS, Smile SR. Risk factors predicting operative mortality in perforated peptic ulcer disease. Trop Gastroenterol 2003; 24: 148-50.
5. Primrose JN. Stomach and duodinium. In: Russel RCG, Willium NS, Bulls Trode CJK, (edi) Bailey's and Love's short practice. 4th Ed. London: Arnold, 2004; p, 1026-61.
6. Cuschieri A, disorders of stomach and duodenum. In: Cuschieri A, Steel RJC, Moosa AR, (edi) Essential surgical practice. 4th ed. London: Arnold; 2002: 261-319.
7. Mehboob M, Khan JA, Shafiq-ur Rehman, Saleem SM, Abdul Qayyum, et al. Peptic duodenal perforation-an audit. JCPSP. 2000; 10: 101-3.
8. Doherty GM, Way LW, Stomach and duodenum. In: Way LW, Doherty GM, (edi) current surgical diagnosis and treatment. 11th ed, New York; Mcgraw-Hill; 2003: 533-64.
9. Mehendale VG, Shenoy SN, Joshi AM, Chaudhari NC, Laproscopic versus Open surgical closure of perforated duodenal ulcer: a comparative study. Indian J Gastroenterol 2002; 21: 222-24.
10. Kuremu RT. Surgical management of peptic ulcer disease. East Afr Med J 2002; 79: 454-56.
11. Mishra A, Sharma D, Raina VK. A simplified prognostic scoring system for peptic ulcer perforation in developing countries. Indian J Gastroenterol 2003; 22: 49-53.
12. Kwjath P, Schwandner O, Brunch HP. Morbidity and mortality of duodenal ulcer; A ten year experience. Pak J Surg 2001; 17: 25-28.
13. Gupta BS, Talukdar RN, Neupane HC. Cases of perforated duodenal ulcer treated in college of

Medical Sciences, Bharatpur over a period of one year. Katmandu Univ Med J (Kunj) 2003; 1: 166-69.

14. Khan JS, Bhopal FG, Mehmood N, Yousaf A, Iqbal M. Perforated duodenal ulcer: a ten year experience. Pak J Surg 2001; 17: 25-28.

15. Agrez MV, Henry DA, Senthieselvan S, Duggan JM. Changing trends in perforated peptic ulcer during the past 45 years. Aust NZJ Surg 1992; 62: 729-32.

16. Ahmad W, Qureshi H, Alam SE, Zubair JS. Perforated duodenal ulcer a long term fellow-up. J Pak Med Assoc 1990; 40: 258-59.

17. Plummer JM, Mc Farlane ME, Newnham. Surgical Management of perforated duodenal ulcer, the changing scene. West Indian Med J 2004; 53: 378-81.

18. Taj MH, Muhammad D, Qureshi SA. Outcome of omentopexy as primary repair in perforated duodenal ulcer. JCPSP 2007; vol 17(12): 731-735.

19. Testini M, Portencasa P, Piccinni G, Lissidini G, Pelligrini. Greco Surgery of perforated peptic ulcer. World J Gastroenterol 2003; 9: 2338-40.

20. Khoursheed M, Fuad M, Safar H, Dashti H, Belsbihani A. Laproscopic closure of perforated duodenal ulcer. Surg Endosc 2000; 16: 1-5.

21. Kocer B, Surmeli S, Solak C, Unal B, Bozkurt B, Yildirium O, et al. Factors affecting mortality and morbidity in patients with peptic ulcer perforation. J Gastroenterol Hepatol 2007; 22: 565-70.

22. Rajput IA, Munawar I, Manzar S. Comparison of omentopexy techniques of duodenal ulcer perforation. Pak J Surg 2000; 16: 1-5.

23. Svanes C, Soreide JA, Skarstein A, Ferang BT, Bakke P, Vollest SE, et al. Smoking and ulcer perforation. Gut 1997; 41: 177-80.

24. Garcia Redriguez LA, Jick H. Risk of upper Gastrointestinal bleeding and perforation associated with individual non-steroidal anti-inflamatory drugs. Lancet 1994; 343: 769-72.

25. Smita S, Sharma, Manju R, Mamtani, Mamta S, Sharma, Hemant Kulkarni. A prospective cohort study of post operative complications in the management of perforated peptic ulcer. BMC Surg. 2006; Sharma et al; Licencee Bio Med Central Ltd posted 01/12/2007.

26. Gupta S, Kaushik R, Sharma R, Attri A. The management of large perforations of duodenal ulcers. BMC Surg 2005; 5:15.