

A Prospective Study on Clinicopathological Correlation of Perforative Peritonitis in a Rural Based Tertiary Care Hospital

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Abstract: Perforative peritonitis is the most common surgical emergency in India. The aim of the study was to highlight the presentation of perforative peritonitis as encountered by us at Bankura Sammilani Medical College and Hospital. In this study, a total of 174 cases of perforative peritonitis were included. Duodenal perforation (63.8%) was the most common cause of perforative peritonitis. Appendicular perforation was the second most common condition. Morbidity and mortality was related to time interval between occurrence and surgical intervention and amount of peritoneal contamination. Other predictors were co-morbid conditions, site of perforation, post operative complications and increasing age of the patient. Mortality overall was 3.4%. Our aim of study is also to know the demographic pattern of patients presenting with perforative peritonitis, to find out the relative frequency of anatomical site of perforation, relative frequency of causes resulting in hollow viscus perforation and to study the outcome of different surgical management.

Keywords: Perforative peritonitis, Duodenal perforation, Surgical management

I. Introduction

Peritonitis is inflammation of the peritoneum. It can be 'primary', in which pure infection with streptococcal or pneumococcal or haemophilus bacteria occur or 'secondary' resulting from contamination of the peritoneum with the contents of hollow viscus it surrounds.[1]The diagnosis is made by clinical signs and symptoms and aided by some radiological methods like Plain Radiograph (X-ray), Ultrasound or Computed tomography scan. Among all causes of peritonitis, perforated peptic ulcer is the commonest cause in our country. Treatment is mainly surgery, aiming at closing the perforation so that to stop further contamination and to clean the peritoneal cavity by peritoneal lavage. [2]

II. Aims And Objectives

The aim of study was to know the demographic pattern of patients presenting with perforative peritonitis, to find out the relative frequency of anatomical site of perforation, to study the outcome of different surgical management and post operative complications.

III. Materials And Methods

This study comprised of 174 cases of perforations admitted in surgical ward of B.S.M. College and Hospital, which is a primary referral government hospital of West Bengal, India in a period of January 2014 to December 2014. Patients selected for this study were those who got admitted at emergency ward with features of perforative peritonitis and after exploratory laparotomy found to have perforation at anywhere in gastrointestinal tract between the age group of 12 to 80 yrs. Initial resuscitation was done in all patients and all of them were given a broad spectrum antibiotic like 3rd generation cephalosporine and i.v infusion of metronidazole for anaerobic coverage pre-operatively. All patients were subjected to a straight x-ray abdomen in erect posture showing both domes of diaphragm, or chest x-ray PA view, or for severely moribund patients xray abdomen in left lateral decubitus was done to detect free gas in peritoneal cavity. Each patient were subjected to emergency laparotomy via standard midline incision and after detection of pathology were dealt with accordingly. Each patients were followed up upto 3 months post-operatively to know about any delayed complications. A total of 174 patients were included in the study.

IV. Results

Figure 01, shows that among 174 no. of patients 143 (82.2%) were male and 31 (17.8%) were female.

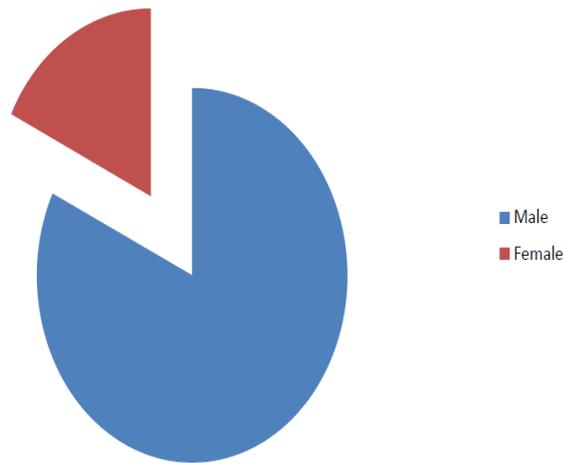


Figure 01: Distribution by sex

Table No.1 shows that mean age of patients with perforative peritonitis found to be 40.1yrs. Most common age group was more than 50 yrs of age, second most common being 20-29 yrs of age

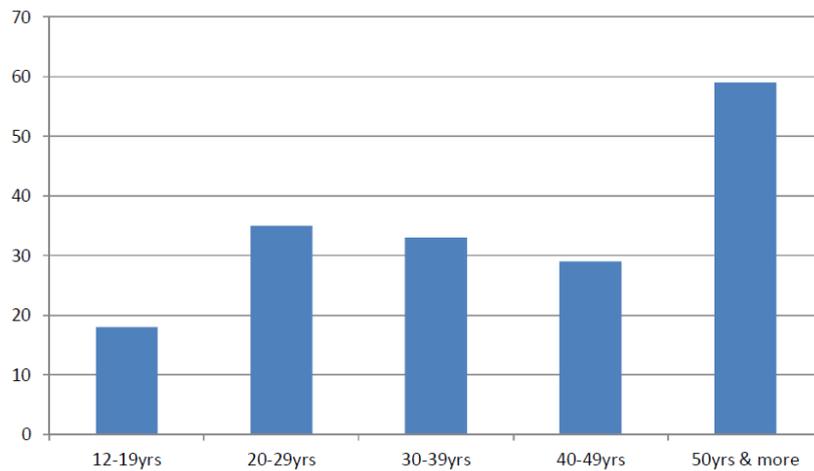


Table No: 1 - Mean age of patients

Table No : 2 shows that 1st part of duodenum found was the commonest site of hollow viscous perforation (63.8%) , followed by appendicular(20.7%) and ileal(10.3%) perforation. Regarding sex distribution of different sites of perforation , duodenal and other major sites of perforation has a strong male predominance .

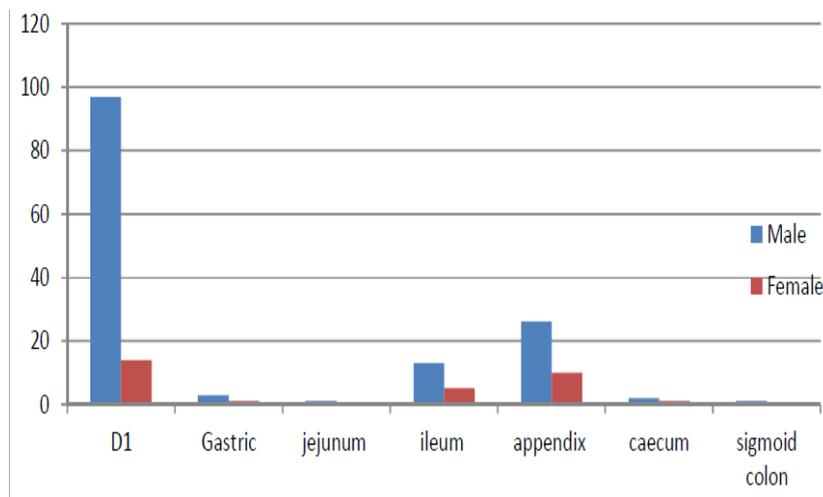


Table No : 2 - Site of hollow viscous perforation

Figure 02 shows that all patients of duodenal and gastric perforation were subjected to omental plug repair (OPR), that sums upto total 115 patients. All but one patient of appendicular perforation undergone emergency appendectomy (Em. App) making it 2nd commonest procedure. Ileal perforations were treated by simple repair (Rep of perf.)(in 5 patients) or repair with proximal stoma (in 5 patients) and resection anastomosis (RA)(in 8 patients).

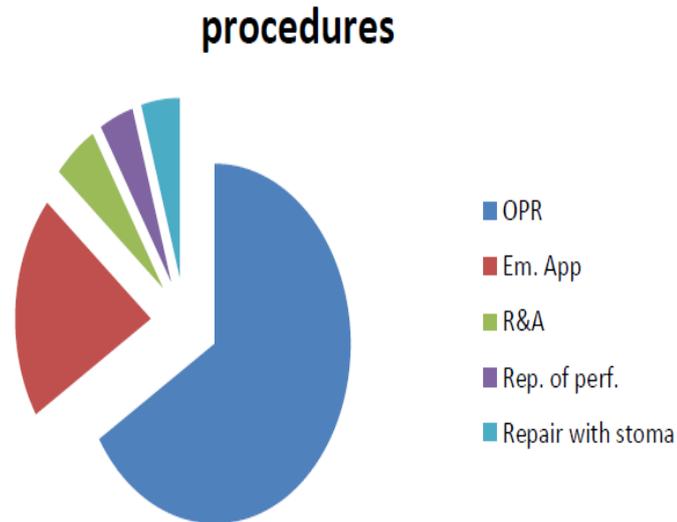


Figure 02 : Frequency of different surgical procedures

Table No: 3 shows that most common complication was lower respiratory tract infection(LRTI) (25.3%). Surgical site infection(SSSI) (20.1%) and electrolyte imbalance (EI) (13.2%) were other two significant complications. Entero cutaneous fistula (ECF) and Sepsis were two most dangerous complications encountered found in 3(i.e 1.7%) and 9(i.e 5.2%) of patients respectively.

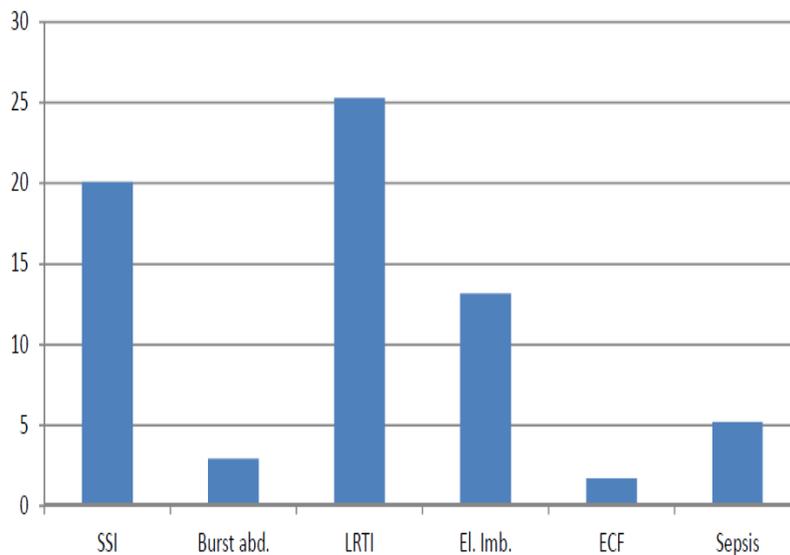


Table No : 3 -Complications in post operative period

Figure 03 shows that 6 of total 174 patients with perforative peritonitis died . Among them 3 were of duodenal perforation, 2 of ileal perforation and one was of caecal perforation. Duration of onset of pain on presenting day found to be an important factor as mean duration of pain in the expired patient found to be 4.2 days which was much higher than the mean duration of pain in overall sample(i.e 1.6 ds).

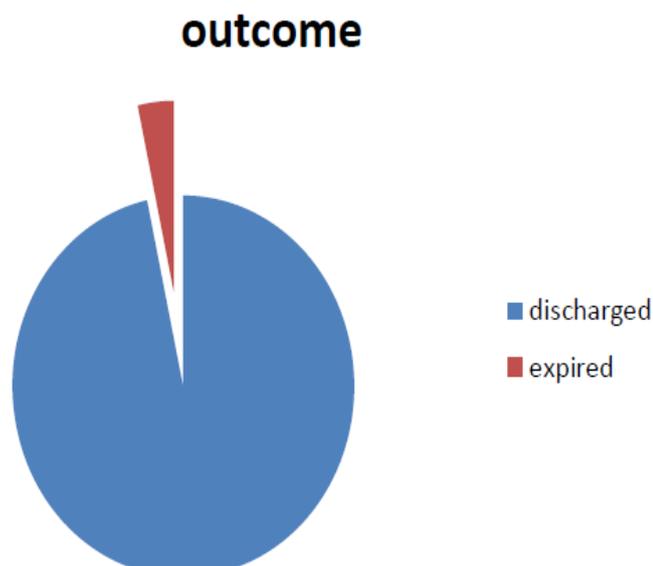


Figure 03: Analysis of mortality

V. Discussion

Regarding sex distribution, in this present study 82.2% of patients were male and 17.8% were female. Similar results found in study conducted by Rajender Singh Jhobta et al [04] published in 2006 , where among 504 patients 84% were male and 16% were female. Mean age of patients in this study was 40.1 years which was more or less comparable with the study by Nitin Agarwal B et al [3] the mean age of patients was 34.2 years. In the present series most common site of perforation was 1st part of duodenum which accounted for 63.8% of cases, followed by appendicular perforation that was found in 20.7% of cases. Ileal perforation was found in 18 (ie 10.3%) of cases. In other similar studies most of them found gastroduodenal perforation to be the commonest site. Rajender Singh jhobta et al [04] found 57% of cases to be due to duodenal perforation, next most common site being ileum constituting 15% of total cases. Appendicular perforation was 3rd most common cause occurring in 12% of all 504 patients. Regarding the site of perforation in respect to different sexes, in present study there is a sex ratio ie male:female of 6.9:1 for duodenal perforation, 2.6:1 for appendicular perforation, 2.6: 1 for ileal perforation. If we look into other studies there is a retrospective study published in Annals of surgery in April 1989 by Cecilie Svanes et al [07] had a Male: Female ratio for perforated gastroduodenal ulcer was 4.7:1.

Most common surgical procedure performed in our series was omental plug repair for stomach and duodenal perforation. For gastric perforation biopsy was taken from ulcer margin (perforated) and sent for histopathology. Next most common procedure was emergency appendectomy done for all but one cases of appendicular perforation. One case of appendicular perforation was treated by resection and end to end anastomosis. Different procedures were done only for ileal perforation. Among 18 ileal perforations 5 were treated by simple repair, 5 by repair with proximal stoma and rest 8 were treated by resection and anastomosis. In a study called ‘ perforative peritonitis and developing world ‘ by Rajandeep Singh Bali et al. published in ISRN surgery in 2014 at Maulana Azad Medical College and Lok Nayak Hospital New Delhi , India, [6] the most common procedure performed was omental patch repair, done for 175 of total 400 patients followed by repair with proximal stoma for 90 patients and 3rd most common procedure was appendectomy done for 68 patients. The most common cause of perforation in our study was peptic ulcer disease found in 65% of patients, followed by acute appendicitis found in 21.3% of cases. Among all cases of ileal perforation 50% found to be due to typhoid ulcer perforation. 2 of our patients had gastric carcinoma and 2 had perforation due to colonic carcinoma. In the study by Rajender Singh Jhobta et al most common cause was acid peptic disorder found in almost 59% of cases followed by acute appendicitis. . in their study almost 41% of all ileal perforations found to be due to typhoid fever.

Among all cases of perforative peritonitis managed surgically 89 patients recovered well with out any complications but among rest 85 patients one or more complications appeared. Most common post operative complication was lower respiratory tract infection found in 25.3% of cases followed by surgical site infection found in 20.1% patients. Entero cutaneous fistula found in 1.7% and sepsis found in 5.2% of all study population. Regarding 3 patients of entero cutaneous fistula 1 was following repair of gastric perforation, 1 was following repair of ileal perforation and 1 was following emergency appendectomy. Sepsis was found in 5 patients of omental plug repair and 3 patients of ileal perforation post operatively. In the study by Rajandeep

Singh Bali et al. 06, of 400 patients developed post operative complications and morbidity rate was high in the patients of intestinal perforation(58%) than those with gastro duodenal perforation as found in our series too.

Total 6 patients out of 174 died in post operative period. The mortality rate was 3.4%. 3 of them had duodenal, 2 had ileal and 1 was of caecal perforation. A comparative table of mortality rate between different similar studies are shown below- Rajandeeep Singh Bali et al 06 - 7% Present series - 3.4% Age and sex had no significant correlation with post operative complications, where as day of presentation had significant correlation with post operative complications, with delay in presentation resulted in significant post operative morbidity. There was also significant positive correlation between delay in presentation with mortality. In the present series 5 out of 6 patients who expired presented after 3 days of onset of symptoms. So early diagnosis and referral with prompt decision making and intervention is an important aspect in management of perforative peritonitis. In a study published in journal of clinical diagnosis and research , in May, 2013 by Sushama Surapneni et al 08 concluded that the perforation – operation time 94 interval appeared to be the single most important mortality and morbidity indicator for peptic ulcer perforation. A study at Meilhati Hospital, Helisinki, Finland, published in 2004 concluded the risk factors for mortality being advanced age, preexisting illness, chronic medication, delay in hospital transfer, non traumatic causes perforation, high Mannheim peritonitis index score and high C- reactive protein level in early post operative phase.[5]

VI. Conclusion

Perforative peritonitis is most common in elderly population (above 50 years) and it commonly affects male population. The diagnosis is clinical and aided by presence of pneumoperitoneum in chest or abdominal radiograph. Duodenal ulcer perforation is the most common cause and 1st part of duodenum is the most common site. Laparotomy with closure of perforation with omental plug is the commonest procedure. Post operative morbidity rate is very high, commonest complication being lower respiratory tract infection and surgical site infection and most dreaded being entero-cutaneous fistula and sepsis. Over all mortality in this study found to be 3.4%. Late presentation was found to be the only factor having significant correlation with morbidity and mortality.

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