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PERITONITIS: OUTCOME AND TREATMENT BY LAPROTOMY IN CCM MEDICAL COLLEGE AND HOSPITAL

Dr. Yeshwant Ganpatrao Kale*

Professor Dept. of Surgery CCM Medical College Durg, 490024.

***Corresponding Author: Prof. Dr. Yeshwant Ganpatrao Kale**

Professor Dept. of Surgery CCM Medical College Durg, 490024.

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ABSTRACT

Perforation peritonitis is the commonest surgical emergency in Indian subcontinent and still carries considerable morbidity and mortality. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of peritonitis continues to be highly demanding, difficult and complex. The spectrum of aetiology of perforation continues to be different from that of western countries. Severe peritonitis, or abdominal sepsis, is characterized by high mortality and morbidity due to multiple organ failure (MOF) from septic shock. Mortality rates have decreased slightly over the last few decades, and range from 20 to 60 %. Morbidity rates are as high as 50 % with subsequent long hospital and intensive care unit (ICU) stays. Despite modern surgical techniques, recent developments in antimicrobial therapy and supportive care, the treatment and outcome of patients managed for generalized peritonitis remains challenging. Inspite of modern surgical techniques, developments in antimicrobial therapy and supportive care, the treatment and outcome of patients managed for generalized peritonitis still remains a challenge. **Material and Methods**: Admission records in the Emergency Department and surgical wards registers, theatre operation records and unit registers of the general surgery divisions were reviewed and noted. Sociodemographic data was collected from patients who were included in the study. All patients aged 18 years or older admitted with a diagnosis of peritonitis were included in the study. Patients who died before operation were excluded from the study. Informed written consent was obtained from each patient who was ready to participate in the study. Adequate fluid, nil by mouth, nasogastric decompression, administration of broad-spectrum antibiotics and oxygen supplementation prior to surgery was followed. Hydration was continued during and after the surgery. Statistical analysis was done. **Results**: A total of 89 patients were included in the study who were diagnosed of peritonitis and were operated for the same. Out of 89 patients 55 (61.80) were male and 34 (38.20) patients were female. Mean age of the patients was 58±18.4. Most common aetiology for peritonitis was ruptured appendix (56, 62.92%) followed by perforated peptic ulcers (10, 11.24%). In perforated gastric mucosa 6 (6.74%) cases were observed. In gangrenous small bowel and penetrating abdominal injury 5 (5.62%) cases each were operated. 2 (2.25%) patients were observed in partial intestinal obstruction. While 1 (1.12%) case each was observed in Pelvic inflammatory disease, obstructed supra umbilical hernia, ruptured hepatic abscess, perforated typhoid ileitis, cancer of the ascending colon and pancreatitis.8 patients has to shift to surgical intensive care unit for supportive care, mechanical ventilation or inotropic support, 3 of whom were hypotensive postoperatively necessitating inotropic support. One patient with elevated creatinine had haemodialysis. There were 2 mortalities (2.25%) and 8 (8.99%) patients were diagnosed with bacterial infection in microbiology report. **Conclusion**: The spectrum of perforation peritonitis in India continues to be different from its western countries. Multiple relaparotomies increase the systemic inflammatory mediator response resulting in an increased incidence of MOF and mortality.Adequate resuscitation and appropriate surgical intervention, as well as appropriate peri-operative specific organ support should be instituted to improve outcome.

KEYWORDS: Sociodemographic, aetiology, haemodialysis.

INTRODUCTION

Perforation peritonitis is the commonest surgical emergency in Indian subcontinent and still carries considerable morbidity and mortality. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of peritonitis continues to be highly demanding, difficult and complex. The spectrum of aetiology of perforation continues to be different from that of western countries.[1] Primary bacterial peritonitis refers to spontaneous bacterial invasion of the peritoneal cavity. This mainly occurs in infancy and early childhood, in cirrhotic patients and immune compromised hosts.[2] Secondary peritonitis is an acute infection of the peritoneum occurring due to loss of integrity of the gastrointestinal tract or other visceral organ. Various causes of secondary

peritonitis for spontaneous perforations includes diverticulitis, appendicitis, cholecystitis, traumatic perforation of a visceral organ, or iatrogenic causes like perforation, anastomotic leakage.[3] Severe peritonitis, or abdominal sepsis, is characterized by high mortality and morbidity due to multiple organ failure (MOF) from septic shock. Mortality rates have decreased slightly over the last few decades, and range from 20 to 60 %. Morbidity rates are as high as 50 % with subsequent long hospital and intensive care unit (ICU) stays.[4] Tertiary peritonitis, a less well-defined entity, is characterized by persistent or recurrent infections with organisms of low intrinsic virulence or with predisposition for the immune compromised patient. It usually follows operative attempts to treat secondary peritonitis and is almost exclusively associated with a systemic inflammatory response.[2] Despite modern surgical techniques, recent developments in antimicrobial therapy and supportive care, the treatment and outcome of patients managed for generalized peritonitis remains challenging. Inspite of modern surgical techniques, developments in antimicrobial therapy and supportive care, the treatment and outcome of patients managed for generalized peritonitis still remains a challenge.

MATERIAL AND METHODS

This study was conducted in the Dept. of Surgery at a CCM Medical College and tertiary hospital from Jun 214 to April 2016. It has medical and surgical specialties with an Emergency Department and a functional Surgical Intensive Care Unit. Admission records in the Emergency Department and surgical wards registers, theatre operation records and unit registers of the general surgery divisions were reviewed and noted. Sociodemographic data was collected from patients who were included in the study. All patients aged 18years or older admitted with a diagnosis of peritonitis were included in the study. Patients who died before operation were excluded from the study. Informed written consent was obtained from each patient who were ready to participate in the study. Adequate fluid, nil by mouth, nasogastric decompression, administration of broad-spectrum antibiotics and oxygen supplementation prior to surgery was followed. Hydration was continued during and after the surgery. The pre-operative (at presentation) and post-operative clinical and biochemical parameters were recorded. The outcome variables like morbidity or mortality within one month of surgery, and morbidity related to the surgery even after one month of surgery was noted.

Statistical analysis was done with descriptive statistics using SPSS version 21 and level of association between the outcomes and clinical/ laboratory parameters. The level of significance was set at p-value of 0.05.

RESULTS

A total of 89 patients were included in the study who were diagnosed of peritonitis and were operated for the same. Their sociodemographic characteristics of the patients are shown in Table 1.

Table. 1: socio demographic characteristics of the patients.

Variable	Number (n=89	%
Male	55	61.80
Female	34	38.20
urban	31	34.83
Rural	58	65.17
Mean age (range 18 to 82)	58±18.4	

Out of 89 patients 55 (61.80) were male and 34 (38.20) patients were female. 31 (34.83) patients were from the urban area while 58 (65.17) were from rural area. Mean age of the patients was 58±18.4.

Table No. 2: Aetiology and co-morbidity of the patients.

Aetiology	n=89	%
Ruptured appendix	56	62.92
Perforated peptic ulcer	10	11.24
Perforated gastric mucosa	6	6.74
Gangrenous small bowel	5	5.62
Penetrating abdominal injury	5	5.62
Partial intestinal obstruction	2	2.25
Pelvic inflammatory disease	1	1.12
Obstructed supra umbilical hernia	1	1.12
Ruptured hepatic abscess	1	1.12
Perforated typhoid ileitis	1	1.12
Cancer of the ascending colon	1	1.12
Pancreatitis	1	1.12

Most common aetiology for peritonitis was ruptured appendix (56, 62.92%) followed by perforated peptic ulcers (10, 11.24%). In perforated gastric mucosa 6 (6.74%) cases were observed. In gangrenous small bowel and penetrating abdominal injury 5 (5.62%) cases each were operated. 2 (2.25%) patients were observed in partial intestinal obstruction. While 1 (1.12%) case each was observed in Pelvic inflammatory disease, obstructed supra umbilical hernia, ruptured hepatic abscess, perforated typhoid ileitis, cancer of the ascending colon and pancreatitis.

Table. 3: Co morbid conditions associated with peritonitis.

Co morbid conditions	n=89	%
Hypertension	28	31.46
Diabetes	15	16.85
Jaundice	3	3.37
Hypothyroidism	1	1.12

28 (31.46%) cases were associated with hypertension as co morbid condition while 15 (16.85%) were having diabetes. Jaundice was seen in 3 (3.37%) cases while one (1.12%) patient was observed with hypothyroidism.

Table. 4: Postoperative findings.

Postoperative findings	n=89	%
Intensive care treatment	8	8.99
Second exploratory laparotomy	2	2.25
Post-operative infections	8	8.99
Mortality	2	2.25

8 patients has to shift to surgical intensive care unit for supportive care, mechanical ventilation or inotropic support, 3 of whom were hypotensive postoperatively necessitating inotropic support. One patient with elevated creatinine had haemodialysis. There were 2 mortalities (2.25%) and 8 (8.99%) patients were diagnosed with bacterial infection in microbiology report. Post operatively, there was no statistically significant association with any biochemical parameter and outcome.

DISCUSSION

Perforation peritonitis is a frequently encountered surgical emergency in tropical countries like India, most commonly affecting young male population in the prime of life as compared to the studies in the western countries.[5] The diagnosis of peritonitis is supported by clinical signs, i.e. abdominal pain and tenderness, vomiting, nausea, diminished or no intestinal sounds, fever, shock, and can be confirmed by abdominal x-ray, chest x-ray, ultrasound and CT scan. Ultrasound may be positive in up to 72%, CT in up to 82%. Leukocytes and C reactive protein may be altered but are not direct signs of peritonitis. Acceptable antimicrobial regimens for peritonitis are carbapenems and newer chinolones (e.g., Imipenem-cilastin) or combinations, e.g., antianaerobes plus aminoglycoside, antianaerobes plus third generation cephalosporins or chinolones, or clindamycin plus monobactam. Community-acquired infections of mild to moderate severity can be treated with Cefoxitin, Cefotetan, Cefmetazole, Ticarcillin-clavulanic acid.Antibiotics are routinely given for 5–7 days for generalized peritonitis. Antimicrobial agents should be continued until temperature and white blood cell count are within normal limits .The decision on the recommended procedure depends on the grading of the intra-abdominal infection: contamination, infection or sepsis.[2]

In our study male to female rate was 1.62: 1. Which was near about similar with other studies. The male to female ratio of 2:1 is was observed in Azare, Bauchi state, North eastern Nigeria, where males constituted 73.2% of 153 patients with peritonitis over a five year period.[6]

In our study age range was 18 to 82 years it was similar to the study by Srinjar, India in which the age range was 15-90 years.[7]

Most common aetiology for peritonitis was ruptured appendicitis (56, 62.92%) followed by perforated peptic ulcers (10, 11.24%). In perforated gastric mucosa 6 (6.74%) cases were observed. In gangrenous small bowel and penetrating abdominal injury 5 (5.62%) cases each were operated. 2 (2.25%) patients were observed in partial intestinal obstruction. While 1 (1.12%) case each was observed in Pelvic inflammatory disease, obstructed supra umbilical hernia, ruptured hepatic abscess, perforated typhoid ileitis, cancer of the ascending colon and pancreatitis.In a study Khan et al.[7] Of 100 adult patients reported as generalized peritonitis, the most common etiology was peptic ulcer perforation (31%), followed by appendicular perforation (20%) and small gut perforation (10%). In contrast to Western literature, where lower gastrointestinal tract perforation predominates.[8,1] In a study by Jhobta RS Et al. acid peptic disease was the most common cause of gastro duodenal perforation(90%) whereas typhoid fever was the most common cause of small bowel perforation(45%) followed by tuberculosis(22%) and trauma(15%) [1], the reason maybe as a result of the early initiation and fluid resuscitation as well as support of the organ systems where necessary peri-operatively with mechanical ventilation and inotropic support. Also the lower mortality rate in our study may be due to the lower incidence of colonic perforation as the cause of peritonitis. Colonic perforation causes more severe peritonitis because of the higher bacterial load from the gut and causing severe septicaemia with multi-organ failure.

The overall mortality rate in our study was 2 (2.25%) which was due to septisemia and multiorgan failure (MOF) which was quite less than the mortality rate shown by Jhobta RS et al[1] The overall mortality rate in their study was 10% with septicemia associated with MOSF being the most common cause of death in 30 cases(59%) followed by respiratory complications in 12(20%), acute myocardial infarction in 3(6%), pulmonary embolism in 2(4%) and anastomotic leak in 4(8%)cases.The morbidity rate of 9.2% was shown by Ayandipo OO[9] in this study of 302 patients. The mortality rate of 2.5% in the study is lower than that from a study conducted in Malawi which was 15% byShinagawa et al.[10] There is even evidence that multiple relaparotomies actually increase the systemic inflammatory mediator response resulting in an increased incidence of MOF and mortality.[11]

The perforations of proximal gastrointestinal tract were 6 times more common than perforations of distal gastrointestinal tract as shown earlier studies from India.[8] While studies in western countries[12] and in japan[13] it is opposite.

CONCLUSION

To conclude, the spectrum of perforation peritonitis in India continues to be different from its western countries. There is even evidence that multiple relaparotomies actually increase the systemic inflammatory mediator response resulting in an increased incidence of MOF and mortality. Peritonitis is a life threatening surgical emergency with diverse causes which are different in

different geographic situations and conditions. Adequate resuscitation and appropriate surgical intervention, as well as appropriate peri-operative specific organ support should be instituted to improve outcome.

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