

Original Research Article

Surgical management and perioperative complications of peritonitis secondary to hollow viscus perforation in a tertiary care centre

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ABSTRACT

Background: High mortality and morbidity is associated with peritonitis secondary to hollow viscus perforation, proving it a most common life threatening condition which needs emergency surgical care. Hence a proper evaluation was needed regarding appropriate management to have a better outcome, which was a challenge to operating surgeon.

Methods: A serial study of 96 cases of peritonitis secondary to hollow viscus perforation was conducted at tertiary care centre, department of general surgery, Mysore medical college and research institute, Mysore, Karnataka from the period of August 2020 to July 2021. Data related to aetiology, surgical intervention and its peri-operative complications were noted. Appropriate statistical analyses were done to draw the inference.

Results: Out of 96 cases studied, 74 were male, 22 were female with mean age of 45.53 years. Most common cause of peritonitis was GU perforation, followed by idiopathic, infective, malignancy, appendicular perforation and Trauma.

Conclusions: Hollow viscus perforation being most common surgical emergencies, surgical outcomes and its related complications depends on age, general condition, site, co-morbidities and aetiologies.

Keywords: Hollow viscus perforation, Peritonitis, Surgical procedures, Peri-operative complications

INTRODUCTION

Worldwide, mortality and morbidity is associated with peritonitis secondary to hollow viscus perforation, proving it a most common life threatening condition which needs emergency surgical care, incidence of which is high in developing countries.¹ Varying degrees of outcome is associated with surgical treatment, procedures involved and associated post-op complications. Hence a proper evaluation is needed regarding appropriate management to have a better outcome, which is a challenge to operating surgeon.² In this study we will be evaluating epidemiology, surgical management and its complications along with outcomes which is different in India compared to western counterparts.^{3,4} Initially increased incidence of acid peptic disease was thought to

be one of the main reason for increased incidence of gastric/duodenal perforations in the western world.^{5,6} But with the advent and judicious use of proton pump inhibitors, incidence of acid peptic disease came down.^{7,8} Still, among the gastro intestinal perforations taken overall, gastric and duodenal perforation is the major cause for peritonitis secondary to hollow viscus perforation.^{1,3,4,7,8}

Objectives

The objectives were to study the etiological profile, surgical management and its peri-operative complications of peritonitis secondary to hollow viscus perforation.⁹

METHODS

Sampling technique

A series study of 96 patients with generalized peritonitis secondary to hollow viscus perforation was done at KR hospital, a tertiary care centre of MMC and RI, Mysore done between August 2020 to July 2021. Data related to their gender, diagnosis, operative procedure they underwent and the peri-operative complications in first 30 days were studied.

Study type

The study was a retrospective observational study.

Inclusion criteria

All the patients presenting to casualty OPD of MMCRI with generalised peritonitis secondary to hollow viscus perforation were included in the study.

Exclusion criteria

Patients with primary bacterial peritonitis, peritonitis due to post-op leak and patients with immuno-deficiency were excluded from the study.

Analysis

Appropriate descriptive statistical analysis done using SPSS software.

Ethical committee approval

The ethical committee approval was taken and study conducted according to the prescribed protocol.

RESULTS

A total 96 patients with generalized peritonitis secondary to hollow viscus perforation were included in the present study. 39.5% patients were in the age group of 20-40 years, with 78% males and 22% females.

Peptic ulcer disease was most common cause with 35% incidence, followed by idiopathic cause with 27.08% incidence, typhoid with 13.54% incidence, malignancy 12.5%, appendicular perforation 7.29%, followed by trauma 4.16% (Table 2).⁸

Commonest site of perforation was found to be gastric 22.91%, followed by duodenal and ileal 14.58% each, large bowel 10.41%, appendicular 7.29%, jejunal 6.25% (Table 3).

After initial resuscitation, primary closure was done in 48 (50%) cases. Resection and anastomoses was done in 18 cases (18.75%). Resection and diversion 24 (25%) cases.

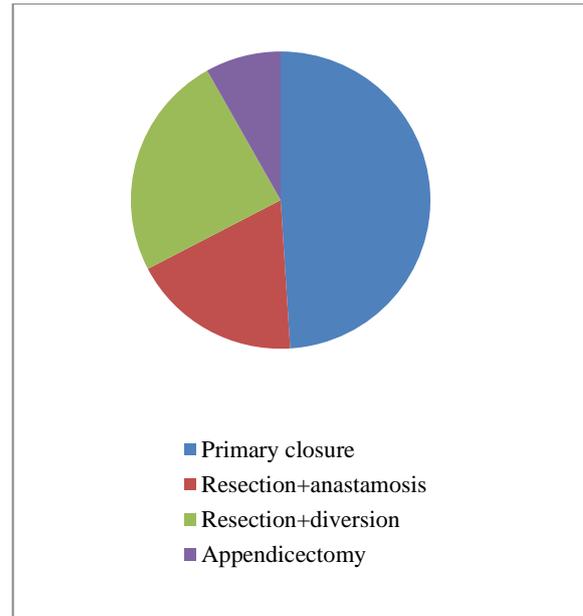


Figure 1: Surgeries conducted.

Table 1: Surgical outcome.

Outcomes	No.	%
Complications	69	71.87
Death	6	6.25
Recovery without complication	21	21.87

Table 2: Etiology.

Etiology	No.	%
Acid peptic disease	34	35
Typhoid	13	13.54
Malignancy	12	12.5
Trauma	4	4.16
Appendicular perforation	7	7.29
Idiopathic	26	27.08

Table 3: Site of perforation.

Site	No.	%
Gastric	22	22.91
Duodenal	14	14.58
Jejunal	6	6.25
Ileal	14	14.58
Appendicular	7	7.29
Large bowel	10	10.41

Appendicectomy done was 8 (8.33%) cases (Figure 1). Patients were followed up for 30 days and assessed with regular follow up.¹⁴

The mortality rate was 6 (6.25%), with complication rate of 69 (71.87%) (Table 1). 21 (21.87%) patients didn't have any complications. Most common complication being wound infection in 28 patients (40.57%), followed

by abdominal dehiscence in 8 (11.59%), paralytic ileus in 8 (11.59%), bronchopneumonia in 13 (18.84%), fecal fistula in 7 (10.14%), abdominal abscess in 5 due to anastomotic leak (7.24%) (Table 4).

Mortality was seen mostly between 50 to 80 (5 deaths=83.3%) years of age. Out of 6 mortalities, 3 had uncontrolled diabetes, 2 had COPD with history of chronic smoking. 1 patient was of 45 years of age had alcoholic liver disease.

Table 4: Complications.

Complications	No.	%
Wound infection	28	40.57
Abdominal dehiscence	8	11.59
Abdominal abscess	5	7.24
Paralytic ileus	8	11.59
Broncho pneumonia	13	18.84
Fecal fistula	7	10.14

Table 5: Comparison with previous study.

Name of series	Common age group in decades	Gender more affected	Common etiology	Common cause of mortality
Ucchedd ⁵	3rd-4th	Male	Peptic ulcer	Delay in treatment
Svanes ¹⁹	3rd-4th	Male	Peptic ulcer	Delay in treatment
Kohli ²⁰	4th-5th	Male	Peptic ulcer	Sepsis
Bhatt ²¹	4th-5th	Male	Peptic ulcer	Respiratory complications
Kapoor ²²	4th-5th	Male	Peptic ulcer	Respiratory complications+sepsis
Kshirsagar ²³	4th-5th	Male	Peptic ulcer	Respiratory complications+sepsis
Present study	4th-5th	Male	Peptic ulcer	Respiratory complications

With comparison of complication with site of perforation, patients with ileal perforation who had diversion stoma had higher rate of wound infection of 56%. Patients with appendicular perforation had least incidence of wound infection 9%. Post operative ileus was common in large bowel perforation.

DISCUSSION

Peptic ulcer disease stands as major cause of perforative peritonitis in India now, compared to previous studies where infection has a major role in aetiology with typhoid as cause in 13.54%.¹⁰⁻¹² Distal gastric perforation was more common followed by duodenal perforation.^{13,14}

Incidence of malignancy presenting as hollow viscus perforation was also increasing with incidence rate of 12.5% in present study.¹⁵ Infective aetiology was more common in female patients.¹⁶

Previous studies in the west showed generalised peritonitis secondary to hollow viscus perforation was common in younger age group.^{17,18} But in studies of tropical countries it was common in 4th-5th decade.^{5,19,22} In this study, mean age group being 45.53 years with incidence more in males than females. All the mortalities had respiratory complications and could not be revived. Comparison given in Table 5.

Limitations

Limited number of cases due to COVID-19 and the time between onset of symptoms to presentation was not

available since it was a retrospective study was the limitation of this study.

CONCLUSION

Hollow viscus perforation being most common surgical emergencies, surgical outcomes and its related complications depends on age, general condition, site, comorbidities and aetiologies with difference in pathophysiology of tropical countries compared to western world. Increase in rate of malignancies is also noted.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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