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Clinico-Etiological Profile and Management Outcome of Peritonitis Secondary to Hollow Viscus Perforation

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Abstract

Aim: The aim of the present study was to assess the etiological profile, surgical management and its peri-operative complications of peritonitis secondary to hollow viscus perforation.

Methods: The present observational study was conducted in the department of general surgery. An analysis of 200 individuals with Generalised peritonitis from hollow viscus perforation was conducted. Gender, diagnosis, operating technique, and first-month peri-operative problems were examined.

Results: 38% patients were in the age group of 20-40 years, with 75% males and 25% females. 73% patients had complications and 6% died. Peptic ulcer disease was most common cause with 36% incidence, followed by idiopathic cause with 28% incidence, typhoid with 12% incidence, malignancy 13%, appendicular perforation 8%, followed by trauma 5%. Commonest site of perforation was found to be gastric 36%, followed by duodenal 19% and ileal 17%, large bowel 11%, appendicular 9%, jejunal 8%. Appendicectomy done was 20 (10%) cases. 44 (22%) patients didn't have any complications. Most common complication being wound infection in 44 patients (22%), followed by abdominal dehiscence in 20 (10%), paralytic ileus in 20 (10%), bronchopneumonia in 38 (19%), fecal fistula in 18 (9%), abdominal abscess in 16 due to anastomotic leak (8%).

Conclusion: The most frequent surgical emergency is hollow viscus perforations. The results of surgery and the associated complications are influenced by factors such as age, overall health, location, co-morbidities, and causes, with variations in the underlying mechanisms between tropical nations and the western world. There is also an observed rise in the incidence of cancers.

Keywords: Hollow viscus perforation, peritonitis, surgical procedures, peri-operative complications

1. Introduction

Perforation peritonitis is the most prevalent surgical emergency in general surgery [1]. This illness is severe, with a death rate reaching 20%, and it ranks as the third most prevalent cause of surgery abdomen, behind appendicitis and intestinal blockage [2]. Etiological conditions include peptic perforation, appendicular perforation, typhoid, intestinal tuberculosis, Meckel's diverticulum, diverticulitis, trauma, gastrointestinal carcinomas, foreign body ingestion, gallbladder perforation secondary to gallstones, perforation due to obstruction, and iatrogenic perforation [3]. A clinical diagnosis of peritonitis is typically feasible due to the characteristic signs and symptoms. The cornerstone of therapy is sufficient resuscitation, administration of antibiotics, and surgical intervention to address the underlying pathological process, eradicate the source of bacterial contamination, diminish the extent of bacterial presence in the peritoneal cavity, and avert recurring or residual infection [4, 5]. The incidence, location of perforation, and age demographics exhibit considerable variation in the developing world, with growing tendencies seen. The etiological spectrum of the developing world contrasts with that of the developed world [6]. Recent research in South Asia, including those from Nepal, have delineated the clinical profile and therapy of perforation peritonitis [7]. Despite advancements in surgical techniques, antimicrobial therapy, and perioperative management, perforated peritonitis continues to exhibit considerable morbidity and mortality rates [8].

Peritonitis has been acknowledged since the era of Hippocrates, who characterized the Hippocratic facies observable in the last stages of diffuse peritonitis, a symptom still regarded today as a significant prognostic indicator [9]. Perforative peritonitis is the predominant surgical emergency seen in routine surgical practice [1]. The Indian aetiological spectrum of perforation remains distinct from that of the Western world, and there is a lack of data concerning its aetiology, prognostic markers, morbidity, and death patterns. In most instances, delayed hospital presentation is associated with established widespread peritonitis and different degrees of septicemia [10, 11]. Multiple etiological factors encompass gastric perforation, appendiceal perforations, typhoid, and intestinal tuberculosis.

Meckel's diverticulum, diverticulitis, trauma, gastrointestinal carcinomas, foreign substance ingestion, gallbladder perforation attributable to gallstones, perforation due to blockage, iatrogenic perforation. Perforation of a hollow organ results in the release of its contents into the peritoneal cavity. While the original substance may be aseptic, it will ultimately become contaminated owing to direct bacterial infiltration. In older women, spontaneous uterine rupture is an uncommon etiology of perforative peritonitis, especially in the absence of a history of abdominal TB or persistent painkiller usage [12].

The objective of this study was to evaluate the etiological profile, surgical intervention, and peri-operative consequences of peritonitis resulting from hollow viscus perforation.

2. Materials and methods

The present observational study was conducted in the department of general surgery. The ethical committee approval was taken and study conducted according to the prescribed protocol.

Inclusion criteria

All the patients presenting to casualty OPD 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 immunodeficiency were excluded from the study.

Methodology

- An analysis of 200 individuals with generalized peritonitis from hollow viscus perforation was conducted.
- Gender, diagnosis, operating technique, and first-month peri-operative problems were examined.
- Appropriate descriptive statistical analysis was done using SPSS software version 22.

3. Results

TABLE 1: DEMOGRAPHIC DATA

Gender	N	%
Male	150	75
Female	50	25
Age groups		

<20 years	44	22
21-40 years	76	38
41-60 years	60	30
>60 years	20	10

38% patients were in the age group of 20-40 years, with 75% males and 25% females.

TABLE 2: SURGICAL OUTCOME

Outcomes	No.	%
Complications	146	73
Death	12	6
Recovery without complication	42	21

73% patients had complications and 6% died.

TABLE 3: ETIOLOGY

Etiology	No.	%
Acid peptic disease	72	36
Typhoid	24	12
Malignancy	26	13
Trauma	10	5
Appendicular perforation	16	8
Idiopathic	56	28

Peptic ulcer disease was most common cause with 36% incidence, followed by idiopathic cause with 28% incidence, typhoid with 12% incidence, malignancy 13%, appendicular perforation 8%, followed by trauma 5%.

TABLE 4: SITE OF PERFORATION

Site	No.	%
Gastric	72	36
Duodenal	38	19
Jejunal	16	8
Ileal	34	17
Appendicular	18	9
Large bowel	22	11

Commonest site of perforation was found to be gastric 36%, followed by duodenal 19% and ileal 17%, large bowel 11%, appendicular 9%, jejunal 8%.

TABLE 5: MANAGEMENT

Surgery	No.	%
Primary closure	114	57
Resection + Anastomosis	36	18
Resection + Diversion	30	15
Appendicectomy	20	10

TABLE 6: COMPLICATIONS

Complications	No.	%
Wound infection	44	22
Abdominal dehiscence	20	10
Abdominal abscess	16	8
Paralytic ileus	20	10
Broncho pneumonia	38	19
Fecal fistula	18	9
No complications	44	22

44 (22%) patients didn't have any complications. Most common complication being wound infection in 44 patients (22%), followed by abdominal dehiscence in 20 (10%), paralytic ileus in 20 (10%), bronchopneumonia in 38 (19%), fecal fistula in 18 (9%), abdominal abscess in 16 due to anastomotic leak (8%).

4. Discussion

Certain diseases still cause morbidity and mortality despite medical advances. Peritonitis. Microbe-contaminated peritoneal sac fluid causes infection and inflammation. Identify primary, secondary, or tertiary microbial contamination. Single-microbial peritoneal fluid infection without visceral perforation is primary peritonitis. Secondary peritonitis is most common once a hollow viscus cracks, especially in underdeveloped countries like India [12, 13]. Tertiary peritonitis occurs after subsequent treatment due to host inflammatory response failure or superinfection [14]. 38% of patients were 20-40 years old, 75% men and 25% women. 73% had problems and 6% died. Peptic, appendicular, typhoid, intestinal tuberculosis, Meckel's diverticulum, diverticulitis, trauma, gastrointestinal carcinomas, foreign body ingestion, gall bladder perforation due to gall stones, obstruction, and iatrogenic perforation are some causes [15]. Clinical diagnosis of peritonitis is generally possible due to characteristic symptoms. Resuscitation, antibiotics, and surgery are the mainstays of treatment to cure the underlying pathologic process, eradicate the source of bacterial contamination, minimize peritoneal bacterial pollution, and avoid recurring or residual infection [16, 17]. Peptic ulcer disease was the most prevalent cause at 36%, followed by idiopathic 28%, typhoid 12%, malignancy 13%, appendicular perforation 8%, and trauma 5%. Most perforations were gastric (36%), duodenal (19%), ileal (17%), large bowel (11%), appendicular (9%), and jejunal (8%). The Government College and Hospital, Chandigarh study found that perforated duodenal ulcer 289 cases (90%) were the most common cause of perforation, followed by appendicitis 59 cases (12%), typhoid fever 41 cases (45%), and tuberculosis 20 cases (22%).11 This study found peptic ulcer perforation more prevalent than Khanna *et al.*'s typhoid perforation [18]. The sequence of perforation in this research is duodenum, stomach, appendix, ileum, which is similar to Agrawal CS *et al.*, where duodenum (37.09%) was highest, followed by appendix and small bowel [19]. Appendicectomy cases: 20 (10%). No problems occurred in 44 (22%) individuals. Wound infection was the most prevalent consequence in 44 (22%), followed by abdominal dehiscence (10%), paralytic ileus (10%), bronchopneumonia (19%), fecal fistula (9%), and abdominal abscess (8%). The current research accepted all patients and treated them with surgery, antimicrobials, and intensive care. All duodenal ulcer perforations were repaired using omentopexy. This is similar to Gupta *et al.* [20], who found that simple closure with omental patch works well except for big duodenal holes (>3 cm). In all seven perforation instances, simple closure was performed, whereas five cases were resected and anastomosed, as in the Journal of gastrointestinal surgery research. The study found that intestinal tubercular perforation is best treated with resection and anastomoses rather than primary closure due to 25% mortality [21].

5. Conclusion

The most common surgical emergency is perforation of hollow viscera. The outcomes of surgery and related complications are affected by factors like age, general health, geographical location, co-morbidities, and etiologies, with differences in underlying processes between tropical countries and the Western world. An increase in cancer incidence has also been noted.

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