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CLINICAL EVALUATION AND MANAGEMENT OF PERITONITIS SECONDARY TO HOLLOW VISCUS PERFORATION

General Surgery

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ABSTRACT

This was a study done in SRMS IMS over a period of one and a half year presenting to the casualty with peritonitis secondary to hollow viscus perforation. The patients were diagnosed clinically supported by a relevant history and X Ray abdomen (erect). These patients upon resuscitation were taken up for explorative laparotomy and dealt with according to the site of perforation. The patients were followed up for any post operative complications they developed and upon discharge on OPD basis for morbidity. This study focuses on the etiology of perforation peritonitis and the operative procedures undertaken to deal with them as well as post operative complications.

KEYWORDS

INTRODUCTION

Peritonitis is defined as inflammation of the peritoneal cavity. Peritonitis secondary to perforated hollow viscous is a common surgical emergency and is still a severe disease with high mortality and mandates timely surgical intervention. Secondary peritonitis, the most common form of peritonitis can occur due to spontaneous perforation of the gastrointestinal tract, intestinal ischemia or following any operation.

The spectrum of etiology of perforation in developing countries continues to be different from developed countries where blunt injury of the abdomen and gastrointestinal malignancies are the predominant causes of hollow viscous perforation. There is paucity of data from India regarding its etiology, prognostic indicators, morbidity and mortality pattern.[1] Typhoid fever is the commonest cause of ileal perforation in India. Other causes of perforation include perforation of peptic ulcers which are usually encountered along the first part of the duodenum and in the pylorus of the stomach. Nonspecific ileal perforations caused due to acute or chronic ischemia, ischemia due to arteritis or drugs such as enteric coated potassium tablets, These 'nonspecific' ileal perforations are closely followed by small bowel perforations occurring in intestinal tuberculosis.

Recognition of signs and symptoms, immediate diagnostic measures, correction of fluid and electrolyte imbalance, administration of proper antibiotics and immediate surgical management of perforation peritonitis definitely brings down morbidity and mortality associated with this condition. Emergency laparotomy is performed to either do peritoneal toileting or repair or resect and anastomose the perforated segment or exteriorize the bowel segment bearing the perforation. An exploratory laparotomy is associated with many complications that arise in the postoperative period. These complications are divided into:
·Immediate complications
·Late complications

This study will focus on epidemiology, etiology, morbidity and mortality patterns of perforation peritonitis

The different ways of presentation of cases can cause difficulty in establishing the source. The spectrum of the etiology of perforation in developing countries is different from developed countries. In comparision to the developed countries where lower gastro-intestinal tract perforations predominate, upper gastro intestinal tract perforations establish the majority of cases in developing countries [2]

Smoking and use of non-steroidal and anti-inflammatory drugs are important risk factors for perforation.[3] Diagnosis is usually made clinically and confirmed by the presence of pneumoperitoneum on the radiographs .secondary to hollow viscous perforation. It is important to classify the location and cause of the perforation properly for appropriate management and surgical preparation. The clinical diagnosis of the site of gastrointestinal perforation is difficult as the symptoms may be non-specific. An intestinal perforation is a major life-threatening situation with high morbidity and mortality that needs emergency surgery. The incidence of postoperative complications, such as complex infective fluid collection, anastomotic leak, wound dehiscence, surgical site infection, and other systemic infections, is higher than for patients getting the elective abdominal surgeries.

MATERIAL & METHODS

STUDY GROUP- 100 patients admitted to SRMS IMS with perforation peritonitis between November 2017 to May 2019 over a period of 18 months were included in this study.

STUDY DURATION- 1 year 6 months

STUDY DESIGN- Prospective cohort study

Inclusion Criteria:
1.All patients having peritonitis secondary to hollow viscus perforation.

Exclusion Criteria:
1.Primary peritonitis
2.Any case of perforation peritonitis due to penetrating trauma.
3.Any perforation of genitourinary tract.
4.Any perforation due to surgical intervention or instrumentation.
5.Liver, splenic or retroperitoneal abscess rupture.

RESULTS

Age distribution-

In our study, 84% patients were males with maximum in 30-50 age groups. This is the young and working population which is subjected to stress and lifestyle changes and hence probably higher incidence. Perforations occur more frequently among men than women. This is believed to be due to the lifestyles and risk factors that contribute to the ulceration and later perforation of the gastrointestinal tract. These factors included cigarette smoking, consumption of foods and beverages containing caffeine, alcohol abuse, and physical stress. Patil et al studied that men are more prone to these effects, and so the ratio favors men in our study as is supported by various other studies on perforation peritonitis.[4]

Table 1- Age Distribution

AGEDISTRIBUTION	NUMBER	PERCENTAGE(%)
≤20	10	10
21-30	15	15
31-40	20	20
41-50	25	25
51-60	15	15
61-70	10	10
>70	5	5
TOTAL	**100**	**100**

Symptomatology

In our study diagnosis was supported by radiological investigation such as X Ray abdomen -erect but primarily the diagnosis was concluded based on clinical assessment. All of the patients presented

with pain abdomen, while a majority(85%) also had distension of abdomen with constipation being the next common complaint(75%) while only 8% had presenting complaint of vomiting. The symptoms combined with clinical signs helped in reaching a provisional diagnosis. 100% of the patients had tenderness while the next most common sign present was guarding in 97% of the patients. Bowel sounds were absent in 75% patients which coincides with the number of patients presenting with chief complaint of constipation. The less common signs were distension (53%) and rigidity(45%). Similar to our study VR Thirumalagiri and et al found in their study that pain abdomen and tenderness was present in all cases while majority presented with guarding and rigidity.[5]

Table 2- Clinical Symptom

Presentingsymptom	Number	Percentage
Painabdomen	**100**	**100%**
Distension	**85**	**85%**
Constipation	**75**	**75%**
Vomiting	**8**	**8%**

Clinical signs –

Table 3- Clinical Signs

Clinicalsigns	Number	Percentage(%)
Tenderness	100	100
Guarding	97	97
Rigidity	45	45
Bowelsoundsabsent/sluggish	75	75
Distension	53	53

Investigation-

72% of patients had gas under right dome of diaphragm on x ray-abdomen erect. Patients were diagnosed mostly on basis of clinical examination and x ray abdomen erect, since its an emergency condition and fast determination of diagnosis is essential. USG whole abdomen had to be done only in 2 patients in whom suspicion of perforation peritonitis was high but there was no air under right dome of diaphragm on X ray abdomen erect as well as clinically the presentation was atypical for peritonitis secondary to hollow viscus perforation

Sites of perforation-

There definitely is a regional bias in the frequency and incidence of intestinal perforations, with enteric perforations being encountered more frequently in the developing countries of South East Asia, and colonic perforations in the Far East. In India, peptic ulcer perforation is the commonest followed by enteric, tubercular, appendicular, traumatic and malignant perforations.[5,6,7,8]

Most common site of perforation in our study was duodenum in 57% patients , stomach in 10%, terminal ileum in 16%, caecum in 5%, appendix 9% and 1% both in jejunum ,gall bladder and colon

Table 4 – Site of Perforation

Siteofperforation	Number	Percentage(%)
Duodenum	57	57
Stomach	10	10
Jejunum	1	1
Terminalileum	16	16
Caecum	5	5
Appendix	9	9
Gallbladder	1	1
Colon	1	1
Total	100	100

Etiology-

According to etiology of perforation; 67% patient had peptic ulcer ,6% had enteric fever,9% had blunt abdominal trauma,9% had tubercular,7% had appendicular and 2% had perforation following intestinal obstruction.

In our study the most common cause of perforation was duodenal ulcer. This observations is in line with other observations in this field.[9,10] Chakma et al noted an occurrence of 54.29% as far as perforation of duodenal ulcer was concerned.Similar results were shown by other studies.[11,12]

Table 5- Etiology

Etiology	Yes	Total
Pepticulcer	67	67
Entericfever	6	6
Trauma	9	9
Tubercular	9	9
Appendicular	7	7
Intestinalobstruction	2	2

Operative procedure-

All the patients of peptic ulcer perforations(67%) were managed by Grahm's omental patch repair. All patients did well post operatively. Ileocecal tuberculosis(9%) was managed by right hemicolectomy with or without stoma, perforation along with multiple stricture resection anastomosis with a covering stoma or only stoma.[13,14]

Typhoid enteric perforations were managed by either primary repair or only stoma, depending on the condition of the gut and general condition of the patient and can also be managed laparoscopically.[62] Primary repair of the typhoid perforation is a safe and effective treatment,[63] in our study, 4% patients out of 6% who presented with enteric perforations were managed by primary repair.19% patients were managed with a resection and anastomoses and ileostomy while 2% were simply managed with resection and anastomoses.

Of the 7 cases of perforation of appendix open appendicectomy was done with peritoneal toileting in all the cases. The mortality rate in appendicular perforation was zero. **Dandapat MC et al**, reported zero mortality rate in their study of 12 cases.[6]

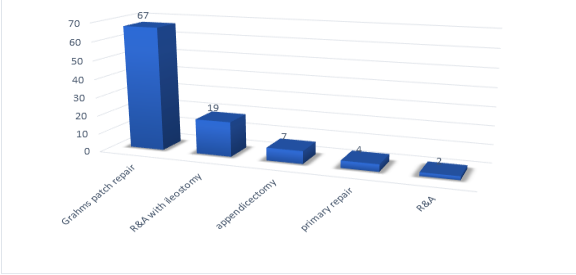

Figure 1- Surgical Procedure

Post Op Complications And Mortality-

Overall mortality has now decreased due to better understanding of pathophysiology, wide use of better pre operative resuscitation measures, better antibiotics, safer anaesthesia, early patient reporting and better post operative management in intensive care set up as required.[52] Factors contributing to the high mortality and postoperative complications are advanced age, late presentation, delay in the treatment, septicemia, and associated comorbidity. There are a number of risk factors which can be pre operative , intra operative or post operative. Pre operative risk factors are smoking history, pre-existing lung disease, cardiac dysfunction. Intra operative factors are long duration of surgery, midline incision while post operative factors are predominantly immobilization or pneumonia secondary to aspiration. Respiratory complications are the known risk factors for the high mortality.[64] In our study most common post operative complication was pulmonary complications (49%) followed by anastomotic leak in 7% and 6% developing wound dehiscence while 3% developed intestinal obstruction and 2% landed up with burst abdomen.

The overall mortality rate was 7%. Factors involved in death included septicemia due to fecal peritonitis, respiratory complications ,pulmonary embolism ,and late presentation.[15]

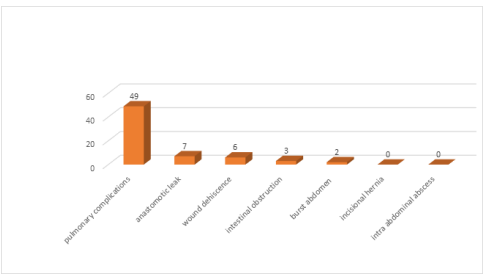

Figure 2- Post-operative Complications

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