

Original article

Spectrum of Perforation Peritonitis in a Rural Medical College

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Abstract:

AIM: Perforation peritonitis is the most common surgical emergency encountered by surgeons in India. The etiology and sites of perforation shows wide geographical variation. The objective of the study was to find the spectrum of perforation peritonitis & highlight its management at Maharishi Markendeshwar Institute of Medical Sciences & Research, Mullana (MMIMSR). **Methods:** 93 Operated patients of perforation peritonitis were studied retrospectively in terms of clinical presentation, duration, operative findings and postoperative morbidity and mortality over a period of two years between 2011 to 2013 at MMIMSR Mullana. All the patients had undergone emergency laparotomy under general anesthesia and sites of perforation were identified & managed. **Results:** The most common cause of perforation peritonitis noticed in our series was peptic ulcer perforation 43 cases (46%), followed by ileal perforation 30 cases (32%), appendicular perforation 6 cases (6.4%), gallbladder perforation 5 cases (5.3%) and all the jejunal perforation 6 cases (6.4%) was post traumatic. Large bowel and malignant perforation were least common in our series. Highest no. of perforation noticed in upper part of Gastro intestinal tract as compared to western countries where perforations are seen in distal parts. Mortality was of 11 cases (11.8%) & morbidity was noticed in 55 cases (59%). **Conclusion:** Peptic ulcer perforation peritonitis is the leading etiology. Mortality is comparable to that of best centre. Aggressive resuscitation and early minimum surgery are required to avoid the high morbidity and mortality. Major complication noticed was wound infection and dehiscence.

Keywords: Perforative peritonitis; Emergency Surgery; Etiology; Secondary Peritonitis.

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Introduction:

Perforation peritonitis is the most common surgical emergency encountered by surgeons in India. Peritonitis usually presents as acute abdomen. The etiology and site of perforation shows wide geographical variation and the spectrum of perforation peritonitis in our country differs from that of the western world. Despite advancements in surgical techniques, antimicrobial therapy and intensive care, management of peritonitis continues to be highly challenging. Our study was done to highlight the spectrum of perforation peritonitis as encountered by us at Maharishi Markendeshwar Institute of Medical Sciences & Research

(M.M.I.M.S.R), Mullana Ambala.

Material & Methods:

The study was done retrospectively on 93 cases of perforation peritonitis operated at M.M.I.M.S.R, Mullana during the period of 2011 to 2013. All the patients of perforation with secondary peritonitis managed in our institution during the period 2011 - 2013 were included in this retrospective study. All cases with primary peritonitis and anastomotic leaks were excluded from study. All cases were studied in term of clinical presentation, radiological investigations, operative findings and postoperative course. Data was collected from indoor patient records, operation theatre records and outpatient

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department follow up of cases. All the cases diagnosed as perforation with secondary peritonitis was aggressively resuscitated and built up for surgery. In all the cases exploratory laparotomy was done with vertical midline incision, site of perforation was seen and adequately managed and peritoneal cavity irrigated with warm normal saline till the returns were clear. The abdomen was closed with continuous, number one non-absorbable suture material after inserting two drains one subhepatic & other pelvic. Postoperatively all patients received antibiotics initially empirically than according to the culture sensitivity reports of the peritoneal fluid. This study was approved by the ethical committee of M.M.I.M.S.R, Mullana.

Results:

A total of 93 cases were studied. Majority of patients were male (80%) belonging to middle age group. The time taken by the patient between onset of symptoms and presentation to the hospital was less than 24 hours in 31(33%) cases and more than 24 hours in 62(67%) cases. The time taken for resuscitation, diagnosis and preparation of patient for surgery was less than less than 8 hrs in 51(55%) cases, 8-12hrs in 26(28%) cases & >12hrs in 16(17%) cases. The clinical presentation of the patients varied according to the site of perforation (table 1).

Table 1.

1.1) Pre operative Data

Age(yrs)	No. of cases	%
0-15		
16-30	18	19
31-45	40	43
>45	35	38

Sex Distribution

Sex	No. of Cases	% of cases
Male	74	80
Female	19	20

1.2) Clinical Presentation

Clinical Presentation:	No. of Cases	% of cases
Abdominal Pain	93	100
Abdominal Distension	31	33
Nausea & Vomiting	50	54
Constipation	32	34
Fever	37	40
Shock	07	08

(Pulse > 110/Min, S.B.P < 80mmhg, U/O < 0.5ml/kg/hr, Tachypnea > 30/min.)

1.3) Time of Presentation

Time of Presentation:	No of cases	% of cases
<24 hrs	31	33.3
24-72 hrs	46	49.4
>72hrs	16	17.2

1.4) Positive Finding:

Finding	No of Cases	% of cases
Gas under Diaphragm (Pnemo-peritoneum)	67	72
Ultrasound (free fluid in abdomen)	93	100
Deranged R.F.T's	17	18
Metabolic Disturbances	42	45

1.5) Time of Resuscitation:

Less than 8 hrs	51	54.8
8-12hrs	26	27.9
>12hrs	16	17.2

1.6) Co-Morbidities

Co-Morbidities:		
Respiratory Distress	48	51
Renal Problem	17	18
H/o of Hypertension	04	4.3
Diabetes Mellitus	03	3.6
Tuberculosis evidence	07	7.5

The most common cause of perforation peritonitis noticed in our series was peptic ulcer perforation 43 cases (46%), followed by ileal perforation 30 cases (32%), appendicular perforation 6 cases (6.4%), gallbladder perforation 5 cases (5.3%) and all the jejunal perforation 6cases (6.4%) was post traumatic. Large bowel and malignant perforation were least common in our series (Table 2).

TABLE 2:

2.1) Operative Data:

Cause of Perforation	No. of cases	%
Peptic Ulcer Disease	43	46
Enteric Fever	27	29
Tubercular Perforation	03	3.2
Acute Appendicitis	06	6.4
Acute Cholecystitis	05	5.3
Traumatic	06	6.4
Volvulus	03	3.2

2.2) Site of Perforation

Site of Perforation:	No of cases	% of cases
Duodenum	22	51
Gastric	21	45
Ileum	30	32
Gall Bladder	05	5.3
Appendix	06	6.4
Jejunum	06	6.4
Large Bowel	03	3.2

2.3) Surgical Procedure

Surgical Procedure:	No of cases	% of cases
Primary Repair	49	54.8
Resection & Anastomosis	07	7.5
Appendicectomy	06	6.4
Stoma	23	24.7
Hartmann's Procedure	03	3.2
Cholecystectomy	05	5.0

Highest no. of perforation noticed in upper part of Gastro intestinal tract. Major complication noticed was wound infection 33(36%) cases, dehiscence 15(16%) cases and respiratory distress 32(35%) cases. Mortality was of 11 cases (11.8%) & morbidity was noticed in 55 (59%) cases (Table 3).

TABLE 3:

Post Operative Complication:

Parameters	No. of cases	%
Wound Infection	33	36
Wound Dehiscence	15	16
Respiratory Complications	32	35
Renal Complications	13	14
Septicaemia	23	25
Anastomotic leak	01	1
Abdominal Collection	12	12.9
Mortality	11	11.8

Discussion:

Perforation peritonitis is a frequently encountered surgical emergency in and is most prevalent in younger age group in India^{1,2}. In majority of cases the presentation to the hospital is late with well established generalized peritonitis with purulent/faecal contamination and varying degree of septicaemia. The signs and symptoms are typical

and it is possible to make a clinical diagnosis of peritonitis in all patients. The perforations of proximal gastrointestinal tract were six times as common as perforations of distal gastrointestinal tract as has been noted in earlier studies from India^{2,3} which is in sharp contrast to studies from developed countries which revealed that distal gastrointestinal tract perforations were more common⁴⁻⁷. In our study the most common cause of perforation were peptic ulcer perforation (46%) which was similar to profile of perforation peritonitis found in study conducted in Hindu Rao Hospital, New Delhi by Yadav et al². Not only the site but the etiological factors also show a wide geographical variation. Other previous studies from India showed infection as the most common cause of perforation peritonitis and about 50% of the cases in these studies were due to typhoid. In our study typhoid perforations were (32%). In contrast to this, study from Texas conducted by Noon et al⁹ reported infection in only 2.7% cases. Review of literature from the western countries have shown that malignancy as cause of perforation peritonitis in around 15–20% cases this being in stark contrast to our study where not a single case of malignancy was ascertained to be the cause of perforation peritonitis. The incidence of gastrointestinal perforations due to blunt trauma in the present series (6.4%) but 21% in another study by Bose et al¹⁰ from PGIMER Chandigarh, may be due to high speed road traffic accidents on national highway near Chandigarh. Traumatic perforation is less in developing country while incidences of traumatic perforation are very high in developed countries. But the incidences of traumatic perforation are increasing in our country. Colorectal perforation is a rare cause of perforation peritonitis seen in 3.2 % patients which were comparable to 3.9% as reported by Yadav et al². The overall mortality in perforative peritonitis ranges between 6 and 27 %^{11,12}. High mortality depends on the site and cause of perforation. The death rate from perforated duodenal ulcer was 32.2 % and from perforated gastric ulcer was 20.1 %.^{13, 19} Mortality in gastric perforation 36 %¹⁴, enteric perforation 17.7 %¹⁵ and colorectal perforation 17.5 %¹⁶. Our mortality was comparatively low (11 %), this might be as most of the patient presented within 72 hrs of onset of symptoms and policy of aggressive resuscitation and minimal intervention. Factors contributing to the high mortality and postoperative complications are advanced age, late presentation, delay in the treatment, septicemia, and associated

co morbidity. Respiratory complications are the known risk factors for the high mortality. The main cause of death in the present series of patients was septicemia (25%) leading to multi organ failure. Therefore contamination is a crucial consideration in patients with peritonitis and problem of mortality is a problem of infection. So by early surgical intervention, we succeed in preventing further contamination by removing the source of infection though the end result will also depend upon the

general host resistance and the antibiotic sensitivity of the organism^{11, 20, 21}.

Conclusion:

Peptic ulcer perforation peritonitis is the leading etiology in our series. Aggressive resuscitation and early minimum surgery are required to avoid the high morbidity and mortality.

Conflict of Interest: All authors declare that there is no conflict of interests or any financial relation with the commercial identities.

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