New Indian Journal of Surgery
October - December 2010, Volume 1 Number 1

Clinical profile of peritonitis

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IN BRIEF

This study was undertaken as peritonitis is one of the common surgical emergencies all over the world. However the mode of onset, etiological factors, morbidity and mortality will differ; depending upon available facilities for diagnosis, literacy status of the population, socio-economic status and religious notions., India is still developing country. The ignorance, illiteracy still persist all over the country which plays role in everyones life., The S.S.I.M.S & R.C, Davangere has got all kinds of cases of peritonitis presenting the sectional study of this country. All aspects of peritonitis have been considered in detail such as age and sex incidence, mode of onset, etiological factors, morbidity and mortality so as to fullfil all criteries of scientific study.

Key words: Peritonitis, Incidence

Introduction

Peritonitis continues to be one of the major problems confronting surgeons. Despite many advances in antimicrobial agents, early diagnosis, better understanding of fluid and electrolyte imbalance, refined surgical techniques, mortality from diffuse suppurative peritonitis continues to remain high[1].

The resolution or persistence of infection is mainly due to; polymicrobial nature of peritonitis, microbial interaction with host defence, the anatomy and defence capabilities of the peritoneal cavity and possible infection potentiating agents in the peritoneal cavity[2].

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Refreed Paper

Accepted 23 August 2010

This study was undertaken to find out the age and sex incidence, various etiological factors and the outcome of surgery.

Materials and Methods

Clinical profile of peritonitis was studied from January 2009 to January 2010. Total of 50 cases of peritonitis are included in the present study. These patients were admitted and managed in S.S.I M S & R.C Davangere. All cases of peritonitis admitted during above said period were considered and were taken randomally. Every case of peritonitis was examined, investigated and diagnosed as shown in

The erect abdominal X-ray was taken for gas under diaphragm, ground glass appearance and multiple air fluid levels. The ultrasonography abdomen and pelvis was done to reveal type of peritoneal content (fluid or pus) and also to identify biliary conditions like acute cholecystitis which mimic perforated ulcer.

The diagnostic peritoneal tap was done and the fluid was sent for culture sensitivity. CT-scan used in patient with head injuries or on corticosteroids, in whom abdominal examination may be equivocal unreliable, but is not necessary in clearly evident peritonitis.

Table 1

General examination and investigation	Number of cases	
	Present/Positive	Absent/Negative
Fever	24	26
Tachycardia	28	22
Distension (abdomen)	38	12
Guarding	30	20
Rebound tenderness	42	8
Liver dullness	28	22
Peristaltic sound	19	31
Rectal tenderness	26	24
Chest infection	10	40
TC>10,000cells/mm3	30	20
Gas under diaphragm	30	20
Paracentesis(abdomen)	36	14
C/S of peritoneal fluid	34	16

The following graph shows age incidence of peritonitis in 50 cases.

The primary objectives in the treatment of peritonitis are; resuscitation, initiation of antibiotics, elimination of the source of bacterial contamination, reduction of the bacterial inoculums and continued metabolic support.

All patients were kept nil orally and dehydration was corrected by intravenous Ringer lactate and 5% Dextrose saline.

The shock was corrected by Haemaceal or Blood transfusion. To keep stomach empty Ryle's tube aspiration was done second hourly. All patients were given antibiotics pre-operatively.

Table-2 shows aetiology of peritonitis in 50 cases

The patient was taken up for surgery once general condition was improved. All cases were operated by single experienced surgeon.

The patient under general anaesthesia, the abdomen was opened by right or midline incision. The abdominal visceras were inspected, the peritoneal fluid collected, measured and sent for culture and sensitivity. The site of pathology was identified and surgical procedure done accordingly. The peritoneal lavage was given by using normal saline till returning fluid becomes clear. In this

Table 2: Shows aetiology of peritonitis in 50 cases

Aetiology of Peritonitis	Number of cases	Percentage
Primary peritonitis	2	4%
Gastric perforation	3	6%
Duodenal perforation	20	40%
Jejunal perforation	1	2%
Stomal perforation	2	4%
Ileal perforation	12	24%
Appendicular perforation	3	6%
Sigmoid volvulus with perforation	1	2%
Intestinal obstruction with strangulation	3	6%
Uterine perforation	2	4%
Necrotizing enterocolitis	1	2%
TOTAL	50	100%

study no antibiotics were used for peritoneal lavage.

Operative management primarily should be directed towards the control of the source of contamination, which can be achieved by closure of perforation by using No-1 vicryl with omental patch, resection and end to end anastamosis in multiple perforations, removal of organ and peritoneal drains alone in inoperable cases.

The reduction of bacterial inoculums in order to prevent recurrent sepsis can be achieved by swabbing and debriding fibrin, blood and necrotic material from the peritoneum. Peritoneal irrigation to decrease the incidence of wound infection. Following major part of surgery single or double peritoneal drain was kept in all cases by using tube drain.

The abdominal incision was closed by using No-1 vicryl in layers. Tension sutures were used in few cases of diffuse peritonitis. All patients were closely observed post-operatively, mainly for general condition, distension of abdomen, amount of peritoneal fluid drained and Ryle's tube aspiration.

All patients were kept nil orally post-operatively till good peristalitic sounds heard. The antibiotics were continued depending upon the severity mainly cephalosporins.

All complications of a severe bacterial infection and post-operative complications of an abdominal surgery are possible, of those respiratory complications predominate. But the special complications of peritonitis are paralytic ileus, intestinal obstruction due to peritoneal adhesions, residual abscesses and burst abdomen.

Table- 4 shows mortality in different groups.

Table 3: Shows culture sensitivity in 50 cases.

Name of organisms	Number of times grown on culture	Percentage	Antibiotics	Sensitive to number of isolates
. Coli	18	36%	Amikacin	15
K.Pneumoniae	6	12%	Cefotaxim	16
Staph. Aureus	5	10%	Gentamycin	10
Citrobacter	2	4%	Ciprofloxacin	10
Pseudomonas	2	4%	Netromycin	4
Proteus	1	2%	Ampicillin	12
Negative	16	32%	Resistant to all	8

Discussion

The peritonitis is one of the common surgical emergency throughout the world and is also common cause of acute abdomen. It accounts for about 20% of acute abdomen. When the term peritonitis is used without qualification, it always implies bacterial peritonitis, usually both aerobic and anaerobic organisms. The blood borne infection results in primary peritonitis, the incidence of which has decreased from 10% to 2% in children and adults due to early diagnosis, improved antibiotics agents and literacy of the population[3,4].

The incidence of secondary peritonitis is increasing compared to the primary peritonitis due to consumption of spicy food, NSAIDS, alcohol and increased incidence of enteric fever and resistant organisms. The reduction in mortality from 90% to 10%-20% today not only depends upon the surgical intervention, is also due to the armamentarium of effective antibiotics, knowledge regarding fluid and electrolyte balance, pre and post-operative care of the patient[5]. Despite these advances, mortality persists, with patients succumbing to the effects of sepsis and eventual multisystem failure (6). The single most influential factor in the successful management is early, accurate diagnosis and treatment.

Table 4

Cause of peritonitis	Number of cases affected	Number of deaths	Percentage
Primary peritonitis	2	2	100.00%
Gastric perforation	3	1	33.33%
Duodenal perforation	20	2	10.00%
Ileal perforation	12	3	25.00%
Uterine perforation	2	1	50.00%
Jejunal perforation	1	0	------
Stomal perforation	2	0	------
Appendicular perforation	3	0	------
Intestinal obstruction & strangulation	3	1	33.33%
Sigmoid volvulus & perforation	1	0	------
Necrotising enterocolitis	1	1	100.00%

In the present study of 50cases of peritonitis, the maximum incidence was found between 20-40years (58%) of age. The youngest was of 3years and eldest was of 80years, with high incidence in the middle age. In our country the ileal perforation secondary to enteric fever is common in young adults but we have come across the same condition in 3year old child[7].The age incidence of our study fit with age incidence of Illingworth, Glasgow series. Peritonitis can occur at any age group but has different etiological factors.

The present study showed male predominance (74%) with Male: Female ratio of 2.8:1. This is because of increased intake of spicy food, smoking and alcohol consumption in male and stress and strain in female patients [8,11].

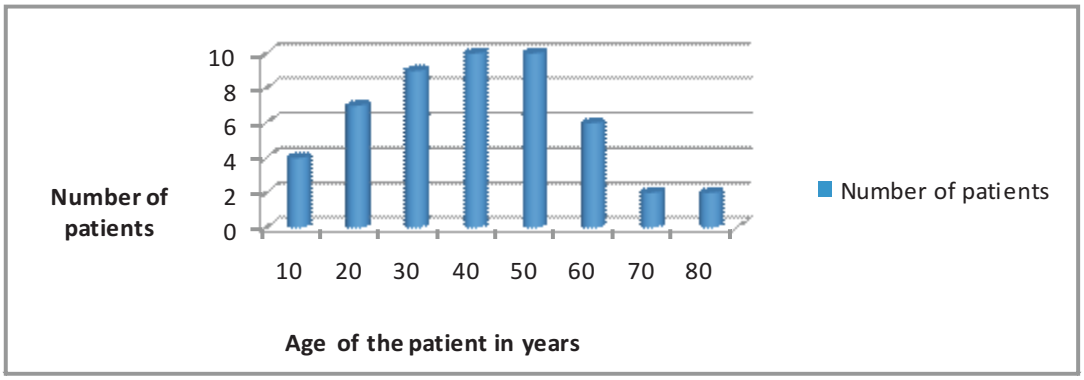
The history of fever in 24patients (48%) and common who presented late in whom ileal perforation was suspected. The history of consumption of NSAID's in 12patients (24%) which plays an important role in peptic ulcer perforation. It is well documented that drugs like aspirin and corticosteroids cause peptic ulceration and also perforation. These drugs damage the mucosal protective mechanisms and are said to possess anti-healing factors[9].

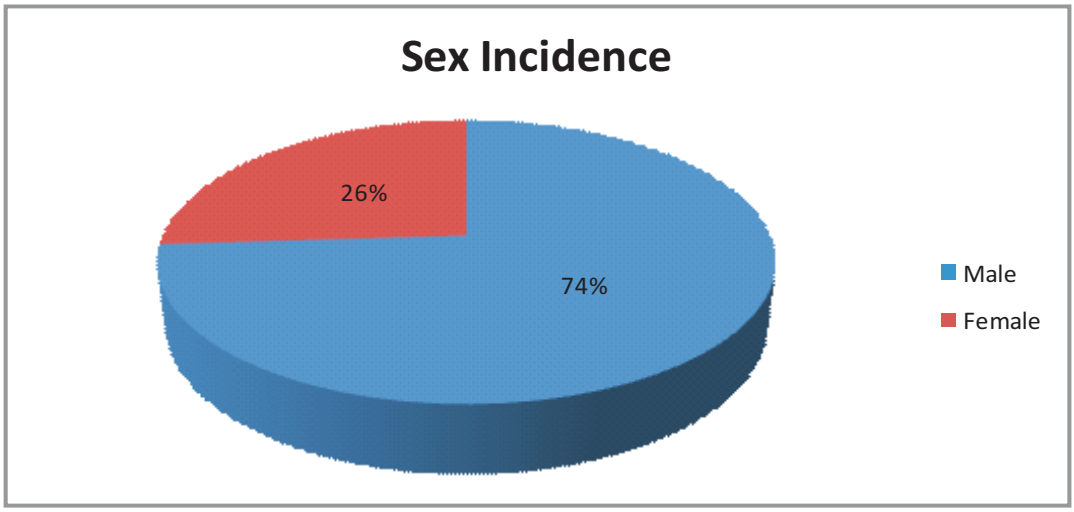
Most of our patients were found anaemic. The total count was ranging from 4,400cells/mm3 to 16,000cells/mm3 with mean of 10,200cells/mm3. The total count was less in gastric and duodenal perforations. After few hours of peritonitis the peritoneal fluid becomes turbid, as it contains leukocytes, proteins, cellular debris, fibrin sheets and blood[10].

The evidence of perforation that is free gas under the diaphragm was present in 30cases (60%), ground glass appearance in 5cases and multiple fluid level in 5cases. No abnormality detected in 10cases on X-ray. The gas under diaphragm is one of the most reliable diagnostic procedure in an acute perforated peptic ulcer[12,13]. However, this investigation may not be possible in patients with poor general condition. This procedure has its own limitation viz absence of gas under diaphragm may be due to dry perforation or absorption of gas. Absence of gas will not rule out perforation[14].

The abdominal paracentesis was performed in all cases, it was positive in 36cases (72%) and negative in 14 cases (28%). The paracentesis may become positive when there is large amount of free fluid in the peritoneum. However negative paracentesis will not rule out the peritonitis[15].

This procedure is done easily and safely with slightest discomfort to the patient and much information is gained. Positive tap is of significance[16]. The aspirate is bile stained in peptic perforation, turbid in ileal and appendicular perforation, blood stained in





blunt trauma abdomen and perforation of malignant growth.

In our study most of the aspirate was turbid, in 3 cases it was blood stained, 2cases of ileal perforation secondary to blunt trauma and one case of perforated uterine growth. Nevertheless nothing much is lost by doing an abdominal paracentesis. In 14cases, it ended in dry tap, could be due to small quantity of fluid or early sealing of perforation by omentum. No complications such as haematoma or injury to bowel in any of the cases following paracentesis.

The biopsy from the ulcer edge was taken in all 3 cases of gastric ulcer perforation, were benign. The biopsy is essential for early diagnosis and treatment of malignancy. Those from ileal perforation; 8 cases were enteric and 4 cases were non-specific.

The peritoneal fluid was sent for culture and sensitivity in all 50 cases. In 34 cases organisms were isolated and in 16 cases no organisms isolated. E.Coli being the commonest in 18 cases(26%) and Klebsiella pneumonia in 6 cases(16%)[17,18].

Conservative treatment in 2 cases and laparotomy in 48 cases, showed improvement in 8-10hrs[19]. The duodenal perforation was common aetiology of peritonitis followed by ileal perforation. The surgical procedure carried out was simple closure in few cases and omental patch in few cases, resection and end to end anastomosis in 4 cases. None of the patient treated with definitive surgery ie vagotomy and drainage procedure.

In our study intra-operative antibiotic lavage was not done in any cases. The peritoneal lavage done with normal saline in all cases which were treated surgically. The single or double peritoneal drain was kept[11, 20,21].

The commonest post-operative complications encountered were superficial gaping in 8cases(16%), pneumonitis in 4

cases(8%), stitch abscess in 3 cases(6%), complete dehiscence in 2 cases(4%)[11,24].

In all cases, history of illness was ranged from 2hours to 4days. 20 cases presented in 0-8hours, 18 cases between 8-48hours and 12 cases 48-96hours. The pain was constant symptom and was confined to upper abdomen in early cases and become generalised later period. The time interval between the symptoms and admission as well as between admission and surgery plays an important role in the management, incidence of morbidity and mortality[22].

It is shown that definitive surgery in cases of more than 12 hours delay carries high mortality rate, not only delay after perforation, but also the poor general condition of the patient and gross contamination of peritoneal cavity.

The overall mortality rate in our study was 22%, it was 16% in operated cases[11,21,23]. The mortality was found to be increased in elderly patient, late presentation, gross peritoneal contamination, assosciated systemic diseases. The reduced mortality rate is due to better availability of antibiotics, better anaesthetic care and better pre and post-operative care.

Conclusion

Peritonitis is a well recognised intra-abdominal infection throughout the history of medicine. It is morbid clinical manifestation which is of concern to both the surgeon and the patient. Peritonitis can occur in all age groups and both sexes. Majority of the cases can be diagnosed with detailed history and clinical examination alone. The abdominal paracentesis as a bed side procedure and plain X-ray abdomen were important diagnostic tools to confirm the diagnosis. The treatment is exclusively exploratory laparotomy. If the condition is diagnosed and treated early, the morbidity and mortality can be reduced to considerable extent.

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