International Surgery Journal
Ahmad MM et al. Int Surg J. 2015 Aug;2(3):381-384
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20150504

Research Article

Spectrum of perforation peritonitis in Kashmir: a prospective study at our tertiary care centre

Mir Mujtaba Ahmad*, Mumtazudin Wani, Hanief Mohamed Dar, Sajad A. Thakur, Hilal A. Wani, Irfan Nazir Mir

Department of Surgery, GMC, Srinagar, Jammu & Kashmir, India

Received: 21 June 2015
Accepted: 11 July 2015

***Correspondence:**
Dr. Mir Mujtaba Ahmad,
E-mail: drmirmujtaba1@gmail.com

ABSTRACT

Background: Objective of this study was to study the spectrum of perforation peritonitis in Kashmir. Like all over world, perforation peritonitis is the most prevalent surgical emergency tackled & treated by a surgical team in Kashmir. The etiology leading to peritonitis in tropical countries shows a different spectrum from its western world. This study was conducted at Govt. Medical College & Associated hospitals, Srinagar, Jammu & Kashmir in department of general surgery with aim to highlight the spectrum of perforation peritonitis treated and to improve its outcome thereafter.
Methods: A prospective designed study including 356 patients admitted and diagnosed as perforation peritonitis were studied in terms of clinical presentations, etiology, site of perforation, surgical treatment, post-operative complications and mortality, at GMC Srinagar over a period of two years from Feb 2011 to Jan 2013. All patients were resuscitated, underwent emergency exploratory laparotomy and on laparotomy cause of perforation peritonitis was found and controlled.
Results: The most common cause of perforation in our series was perforated duodenal ulcer (189 cases) followed by perforated appendix (53 cases), ileal perforation (53 cases), gastric perforation (25 cases) and the rest being perforations of large gut, Meckel's diverticulum, jejunal perforation, GB perforation. Traumatic gut perforations generally following blunt trauma seem to be on rise. The mortality rate in our series was 10.2% with a morbidity rate of nearly 28%, wound infection being the commonest.
Conclusions: The etiology of perforation peritonitis in Kashmir continuously differs in spectrum from western country. Largest part of perforations were noticed in the upper part of the gastrointestinal tract contrary to the western countries where the perforations are mostly encountered in the distal part. The commonest cause of perforation peritonitis in our setup is perforated duodenal ulcer, followed by perforated appendix, ileal perforations. Majority of the large bowel perforations are secondary to obstruction with transmural necrosis. Perforations secondary to malignancy are not common in our part.

Keywords: Perforation peritonitis, Laparotomy, Gastrointestional tract

INTRODUCTION

Peritonitis secondary to perforation of the gastrointestinal tract is the most prevalent surgical emergency tackled & treated in Kashmir as it is all over the world.[1,2] The etiology of perforation though differs in spectrum on a look at its western counter-part,[3] partly due to infectious etiology secondary to typhoid, tuberculosis and ascariasis. Most of patients generally present late, with purulent peritonitis and septicemia.[4] Surgical exploration as treatment of perforation peritonitis is gold standard and it is technically complex & highly demanding, with

combination of newer surgical techniques & modalities, anti-microbial therapy and critical care support has changed positively outcome of such cases.[5] The aims & objectives of current study was to study the clinical presentation, etiology of perforations, site in GIT, surgical treatment, postoperative morbidity and mortality at GMC, Srinagar which is a tertiary care hospital in Kashmir.

METHODS

A prospective study was carried out in department of surgery, GMC Srinagar for a period of two years spanning Feb 2011 to Jan 2013 on 356 patients who presented to emergency department of SMHS Hospital and received a diagnosis of perforation peritonitis. Only those patients who underwent exploratory laparotomy for management of perforation peritonitis were included.

Inclusion criterion: All cases found to have peritonitis as a result of perforation in any part of gastrointestinal tract at the time of surgery were included in the study.

Exclusion criterion: All those cases diagnosed as either primary peritonitis or that due to complications arising out of anastomotic leak were excluded from the study.

All patients were evaluated for their presentation to surgeon, radiological/sonological investigations done, etiology of perforation, and site of perforation, postoperative morbidity and mortality. After establishing the clinical diagnosis of peritonitis secondary to perforation, all patients were resuscitated and simultaneously prepared for surgery after a preoperative antibiotic prophylaxis with broad spectrum drug. All patients underwent emergency exploratory laparotomy. After opening the abdomen, source of peritonitis was located and controlled, with adequate procedure. Abdomen was washed with 5 to 8 liters of warm normal saline, drains were placed in the general peritoneal cavity, and abdomen closed with non-absorbable number 1 suture. All Patients were followed in the postoperative ward or ICU (intensive care unit) with the cover of broad-spectrum antibiotic along with fluid and electrolyte balance. Data was collected and was recorded on a proforma designed for the study and SPSS 10 version was used to interpret the data.

RESULTS

A total of 356 patients were studied. Mean age was 38.4 years (range from 5 to 85 years) with majority of patients being males (70%) with a M:F ratio of 2.3:1, 18% were in the age group of more than 50 years and 28% of the patients had at least one pre-existing medical illness. Highest number of patients (19.6%) were in the age group of 51-60 years, with mean age group of 39.8 years. The time elapsed between onset of symptoms and presentation of patient to the hospital for seeking treatment was less than 24 hours in 128 (36%) cases and more than 24 hours in 228 (64%) cases. The time utilized for resuscitation, diagnosis and preoperative preparation of patient for was less than 12 hours in 270 (76%) and more than 12 hours in 86 (24%) patients. The clinical presentation differed in patients in accordance to the site of perforation. Abdominal tenderness was the commonest clinical finding and was present in all patients. Abdominal guarding was present in 96.34% patients followed by diminished or absent bowel sound (57.02%), tachycardia (53.65%), dehydration (53.08%), nausea/vomiting, fever & abdominal distention.

Table 1: Preoperative parameters.

	No. of pts. (%age)
Age	
<50 years	292 (82)
>50 years	64 (18)
Sex	
M	249 (69.9)
F	107 (30.1)
Comorbidity	
Respiratory	56
Diabetes	39
Renal diseases	35
Hypertension	16
Tuberculosis	14
Malignancy	15
Time of presentation	
<24 hours	128 (36)
>24 hours	228 (64)
Signs & symptoms	
Abdominal pain/guarding	342 (96)
Diminished/absent bowel sounds	203 (57)
Nausea/vomiting	160 (45)
Abdominal distension	93 (26.1)
Tachycardia	189 (53)
Dehydration	171 (48)
Fever	75 (21)
H/O NSAID intake	57(16)

The patients of duodenal ulcer perforation had a short history of pain in epigastrium or upper abdomen with clinical examination features of peritonitis.16% of patients had positive history of NSAID intake.

The patients with small bowel perforation had prolonged history of pyrexia preceding the appearance of pain in lower abdomen. Abdominal distention was found in 62% along, vomiting in 58% and constipation in 34% cases. 15% of the patients presented as shock. Only 52% had evidence of gas under right dome of diaphragm on chest X-ray done in erect posture.

Perforated appendix had characteristic pain starting in the periumbilical or epigastric area or right iliac fossa along with nausea/vomiting (62%) and pyrexia (47%). They

had localized guarding (72%) or rebound tenderness in right iliac fossa (64%). 1 of the patients of appendicular perforation showed evidence of pneumoperitoneum erect chest X-ray.

APD was the most common cause of gastro duodenal perforation (82%) whereas typhoid fever was the most common cause of enteric perforation (45%) followed by tuberculosis (22%) and trauma (15%) with iatrogenic perforation following some gynaecological procedure. The peritonitis was generalized in majority of patients nearly 83% and the contamination was either pus or fecal (84%). The other operative findings and surgical procedures performed are as illustrated in Table 2.

All 356 patients were treated surgically. Simple closure repair was done in 59% of the cases, appendicectomy in 14.8%, resection anastomosis in 12.9%, resection without anastomosis in 8.7%. A colostomy was made in 4.2% cases, some as covering stomas for primary closure of colon. A single case of GB perforation was treated by cholecystectomy.

Table 2: Operative parameters.

	No. of pts.
Cause	
APD	174
Appendicitis	53
Typhoid	43
Tuberculosis	28
Trauma	32
Carcinoma	11
Worm obstruction	11
Band obstruction	3
GB perforation	1
Site	
Duodenal	189
Gastric	25
Jejuna	11
Ileal	53
Appendix	53
Colonic	25
Procedure	
Simple sutured closure	210
Resection with anastomosis	46
Resection with stoma	31
Colostomy	15
Appendectomy	53
Cholecystectomy	1

Overall morbidity and mortality recorded in our study were 46.06% and 10.2% respectively. Morbidity and mortality was higher among those who presented late to the hospital and those who were in advanced age group with associated co-morbidities.

164 of 356 cases had some sort of postoperative complications. The complications rate in our study was found significantly higher in the patients with intestinal perforation (62%) than in patients with gastro duodenal perforation (43%). The overall mortality rate in this study was 10.2% with septicemia leading to MODS being the most common mortal cause in 20 cases (55%) followed by respiratory complications in 7 (20%), anastomotic leak in 6 (17%) cases, cardiac complications in 3 (7%), pulmonary embolism in 1 (3.5%), Table 3. Factors contributing to mortality were advanced age, associated co morbidity, perforation presenting after 24 hours and respiratory complications.

Table 3: Postoperative complications.

Complications	%age of pts.
Wound infections	42%
Dyselectrolytemia	29%
Abdominal collections	11%
Respiratory complications	24%
Burst abdomen	22%
Septicemia	18%
Mortality	10.2%

DISCUSSION

Perforation peritonitis is commonest encountered surgical emergency in countries like India.[2] It is common in a younger age group in the tropical countries (mean age in our study was 39.8 years) in comparison to the studies from West.[6-8] Male 69.9%, and female 30.1% were present in our series similar to other studies.[9] Perforation of the proximal part of the gastrointestinal tract were more common,[10] which is in contrast to the studies from western countries where perforations are common in the distal part.[2] Duodenal perforation secondary to ulcer was the most common perforation noticed in our study as supported by other studies in past.[11,12]

Causative factors also show a wide geographical variation. According to a study from India, infections formed the most common cause of perforation peritonitis,[10] around 50% cases in this study were due to typhoid. In our study nearly 35% of the cases were due to appendicitis, typhoid and tuberculosis. In contrast to this, Noon et al.[13] from Texas in their study reported only 2.7% cases due to infections. Also studies from the west have shown that around 15-20% cases are due to malignancy,[14,15] this being in stark contrast to our study where malignancy was ascertained to be the cause of perforation peritonitis in only around 3% of the cases. This shows that malignant perforation is not common in our setup as compared to our western counterparts. In addition, in our study we have found 11 cases of perforation peritonitis which were secondary to worm obstruction caused by ascaris. Intestinal ascarisasis is endemic in Kashmir and its complications are very

known to surgeons in this part of globe. Perforation as a sequelae of worm obstruction is found in our setup, mostly in children, in total contrast. Another highlight of our study was one GB perforation, as our region has high incidence of cholelithiasis.

The mortality rate in our study was 10.2% despite delay in seeking treatment, as per world literature mortality in perforation peritonitis ranges between 6 and 27%.[16] One of the most important factors responsible for mortality in our study was presence of septicemia. Hence, contamination is a crucial in patients with perforation peritonitis and mortality is related to presence of infection. Adequate preoperative resuscitation (with fluids, etc.), correction of electrolyte imbalances followed by an early surgical intervention, to remove the source of infection and stop further contamination, is imperative for good outcomes minimizing morbidity and mortality to western setup. The major cause of postoperative morbidity were wound infections (42%), dyselectrolytemia (29%), complications related to respiratory tract (24%) e.g. pneumonia, basal atelectasis, pleural effusion or ARDS, burst abdomen (22%) & septicemia (18%) and which are preventable and should be detected early and aggressively treated.[11] The presence of high incidence of abdominal wall disruption in the present series was assumed to be multifactorial due to delayed presentation, gross contamination of peritoneal cavity, septicemia and above all the nontechnical methods of closing back abdominal incisions.

CONCLUSION

Perforation peritonitis in Kashmir has a different spectrum as compared to the western countries. Peptic ulcer disease leading to perforation, perforated appendicitis, typhoid, and tubercular perforations are the commonest causes of gastrointestinal perforations; in addition perforation secondary to worm obstruction is peculiar to Kashmir. Early surgical intervention under the cover of broad spectrum antibiotics preceded by adequate aggressive resuscitation and correction of electrolyte imbalances is imperative for good outcomes minimizing morbidity and mortality.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Ramakrishnan K, Salinas RC. Peptic ulcer disease. Am Fam Physician. 2007;1(7697):1005-12.
2. Dorairajan LN, Gupta S, Deo SVS, Chumber S, Sharma L. Peritonitis in India-A decades experience. Trop Gastroenterol. 1995;16(1):33-8.
3. Sharma L, Gupta S, Soin AS, Sikora S, Kapoor V. Generalized peritonitis in India. The Tropical Spectrum. Jpn J Surg. 1991;21(3):272-7.
4. Ersumo T, W/Meskel Y, Kotisso B. Perforated peptic ulcer in Tikur Anbessa Hospital; a review of 74 cases. Ethiop Med J. 2005;43(1):9-13.
5. Bosscha K, van Vroonhoven TJ, Werken C. Surgical management of severe secondary peritonitis. Br J Surg. 1999;86(11):1371-7.
6. Svanes C, Salvesen H, Espehaug B, Soreide O, Svanes K. A multifactorial analysis of factors related to lethality after treatment of perforated gastroduodenal ulcer 1935-1985. Ann Surg. 1989;209(4):418-23.
7. Watkins RM, Dennison AR, Collin J. What has happened to perforated peptic ulcer? Br J Surg. 1984;71(10):774-6.
8. Uccheddu A, Floris G, Altana ML, Pisanu A, Cois A, Farci SLF. Surgery for perforated peptic ulcer in the elderly. Evaluation of factors influencing prognosis. Hepato-Gastroenterology. 2003;50(54):1956-8.
9. Rajandeep Singh Bali, Sushant Verma, P. N. Agarwal, Rajdeep Singh, Nikhil Talwar. Perforation peritonitis and the developing World. ISRN Surg. 2014;2014:105492.
10. Khanna AK, Mishra MK. Typhoid perforation of the gut. Postgrad Med J. 1984;60:523.
11. Jhobta RS, Attri AK, Kaushik R, Sharma R, Jhobta A. Spectrum of perforation peritonitis in India-review of 504 consecutive cases. World J Emerg Surg. 2006;1:26.
12. Afridi SP, Malik F, Rahman S, Shamim S, Samo KA. Spectrum of perforation peritonitis in Pakistan-300 cases eastern experience. World J Emerg Surg. 2008;3:31.
13. Noon GP, Beall AC, Jorden GL. Clinical evaluation of peritoneal irrigation with antibiotic solution. Surgery. 1967;67:73-8.
14. Breitenstein S, Kraus A, Hahnloser D, Decurtins M, Clavien PA, Demartines N. Emergency left colon resection for acute perforation. Primary anastomosis or Hartmann's procedure? A case-matched control study. World J Surg. 2007;31(11):2117-24.
15. Roviello F, Rossi S, Marrelli D, De Manzoni G, Pedrazzani C, Morgagni P, et al. Perforated gastric carcinoma: a report of 10 cases and review of the literature. World J Surg Oncol. 2006;4:19.
16. Oheneh-Yeboah M. Postoperative complications after surgery for typhoid ileal perforation in adults in Kumasi. West Afr J Med. 2007;26(1):32-6.

Cite this article as: Ahmad MM, Wani M, Dar HM, Thakur SA, Wani HA, Mir IN. Spectrum of perforation peritonitis in Kashmir: a prospective study at our tertiary care centre. Int Surg J 2015;2:381-4.