

Secondary Bacterial Peritonitis

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ABSTRACT

Objective To find out frequency, etiology and duration of illness leading to secondary bacterial peritonitis in surgical practice.

Study design Descriptive case series.

Place & Duration of study Department of Surgery Civil Hospital / Dow University of Health Sciences & SMBB Medical College Lyari Karachi, from February 2010 to January 2015.

Methodology All patients above 18 years of age diagnosed as secondary bacterial peritonitis admitted in emergency and underwent exploratory laparotomy were included. All patients with suspected primary bacterial peritonitis, chronic renal failure, nephrotic syndrome, congestive cardiac failure or chronic liver disease, were excluded. The data was collected for demography, clinical features, investigations, duration of illness, and exploratory laparotomy findings.

Results A total of 151 patients underwent exploratory laparotomy. Typhoid gut perforation was the commonest etiology (n= 65 - 43.04%), followed by peptic ulcer perforation (n=47 - 31.11%) and tuberculosis perforation (n=39 - 25.8%). The average duration of illness leading to secondary bacterial peritonitis was 11.6 days in typhoid fever, 20.6 days for duodenal ulcer and 58.34 days in tuberculosis.

Conclusions Secondary bacterial peritonitis was one of the commonest surgical emergencies. Typhoid fever was the commonest cause.

Key words Secondary bacterial peritonitis, Typhoid fever, Duodenal ulcer, Tuberculous peritonitis.

INTRODUCTION:

Secondary bacterial peritonitis is one of the most common surgical emergencies. Pattern of secondary bacterial peritonitis in terms of frequency and etiology is different in different countries.¹ Poverty, overcrowding, lack of clean water supply and malnutrition are predisposing factors for various diseases leading to bacterial peritonitis.² This condition is more prevalent in developing countries. The estimated frequency of gut perforation in western world ranges from 0.6% to 4.9%, but in west Africa

is as high as 33%.³

A study by Jhobta et al, comprising 504 patients in a government sector hospital, the causes of secondary bacterial peritonitis were perforated duodenal ulcer (57%), typhoid fever (45%), and tuberculosis (22%).⁴ Similar results were reported in a study from Pakistan.⁵ The Helicobacter pylori bacterium, use of NSAIDs and smoking all contribute to peptic ulcer disease and its complications. Some religious practices as fasting, has reported to increase the frequency of duodenal perforation in the month of Ramadan.⁶

The duration of illness leading to perforation and peritonitis has also shown varied duration.^{7,8} Although perforation has no seasonal predilection but more cases are reported from Nigeria in dry months, November and December.⁹ Abdominal tuberculosis is still common in developing

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countries, can affect any part of intestine but ileum is commonly affected.¹⁰ Over past two decades incidence of perforation in abdominal tuberculosis is increased from 7.5% to 21%. Bacterial peritonitis leads to significant morbidity and mortality. This study was conducted to document our experience of this condition from a tertiary care set up.

METHODOLOGY:

This was a descriptive case series conducted in Surgical Units of Civil Hospital / Dow University of Health Sciences and Lyari General Hospital Karachi, from February 2010 to January 2015. A total of 151 patients were included in the study after approval from Ethical Board. Patients above 18 years of age attending emergency department with clinical suspicion of secondary bacterial peritonitis were included.

Patients with suspicion of primary bacterial peritonitis, with chronic renal failure, chronic liver disease and congestive heart disease, were excluded. Resuscitation was done in ER with I/V fluids. Blood samples were sent for CBC, urea, creatinine, serum electrolytes. All patients were put on third generation cephalosporin and metronidazole. Written and informed consent was taken for exploratory laparotomy. Variables studied included age, gender, duration of illness, and operative findings. Data was analyzed on SPSS version 15.0 and descriptive statistics were used for presentation.

RESULTS:

A total of 151 patients were included in the study and underwent exploratory laparotomy. There were 117 (77.48%) males and 34 (22.5%) females. The commonest etiology of secondary bacterial peritonitis was typhoid fever (n=65 - 43.2%), followed by duodenal ulcer perforation (n=47 - 31.1%) and tuberculous intestinal perforation (n=39 - 25.8%). Detail of patients with various etiologies is given in table I. In patients with abdominal tuberculosis, small bowel stricture with perforation found in 28 and small bowel stricture alone in 11, while lymph nodes enlargement was noted in 30 subjects.

Typhoid fever was commonest etiology for secondary bacterial peritonitis with male to female ratio of 7.5:1 (Males-57 and females-8). For duodenal ulcer perforation male to female ratio was 4.6:1 (46-males and female-10). For tuberculous perforation sex ratio as 1.16:1 (24 females and males-15).

DISCUSSION:

Secondary bacterial peritonitis is a common surgical emergency other than abdominal trauma. Spectrum is different from developed world where non infectious etiology such as bowel malignancy and inflammatory bowel diseases predominated.^{11,12} A paradigm shift occurred in recent years due to emergence of HIV infection leading to infectious etiology. In developing world secondary bacterial peritonitis as commonest surgical emergency resulted in more than 500,000 deaths annually due to typhoid intestinal perforation in Tanzania.¹² In our study the leading etiology was typhoid fever which is also reported in another national studies.^{13,14}

Ileum remained the commonest site for typhoid perforation as per local and international data. Average duration of illness was also consistent with other studies and varied from 10 to 14 days. In our study males and relatively younger population was affected more in typhoid perforation. Same was observed in a study from Turkey.¹⁵

Duodenal ulcer perforation was second in frequency. Similar results are reported in a local study by Fawaz et al. The frequency of duodenal ulcer perforation was more during the month of Ramadan and winter season.¹⁶ More cases of duodenal ulcer perforation are reported in older age group.¹⁷ We found younger population with duodenal ulcer perforation. Average duration of illness in our study was 22.6 days. Baloch et al found that 50% perforated duodenal ulcer occurred without prior history of dyspepsia and remainder had symptoms for two weeks.¹⁸ Also regional literature showed variable results but none had long history of many years. Eradication therapy for Helicobacter pylori offered to all patients with duodenal ulcer perforation.

Table I: Details of Patients with Secondary Bacterial Peritonitis

Etiology	Mean Age (Year)	Gender		Duration of Illness (Days)
		Male	Female	
Typhoid (n=65)	30.5	57	8	11.66
Duodenal ulcer n=47)	22.5	46	1	58.34
Tuberculosis (n=39)	33	15	24	22.62

WHO has estimated approximately 8.8 million new cases of tuberculosis each year with an annual mortality of over 1.6 million.¹⁹ Intestinal tuberculosis, whether primary or secondary, continued to be a major health issue in under privileged societies. Talwar et al found 19% of non traumatic small bowel perforations due to tuberculosis.¹² Most of them were on antituberculous therapy (ATT). In our study 25 patients were on ATT and remainder left treatment. The average duration of illness in our study was 58.34 days. In literature it varied from 4 to 12 months. In a study of 118 cases who underwent exploratory laparotomy, small bowel stricture perforation found in 6 (5.1%) patients, while small bowel stricture alone found in 86 (72.9%). Our data is in contrast to other studies where 71.7% had stricture perforation.

CONCLUSIONS:

Spectrum of secondary bacterial peritonitis was noted, typhoid fever being the most common etiology with younger population affected more frequently.

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Farhat Bano: Paper designing, literature search, data analysis.

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The authors declare that they have no conflict of interest.

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