TYPHOID AND NON-TYPHOID ILEAL PERFORATION: SURGICAL EXPERIENCE OF 50 CASES

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ABSTRACT

Objective: The objective of the study was, to find out the frequency of typhoid and non typhoid ileal perforation, to observe the association of various epidemiological factors in causation of disease and to note surgical, clinical, and laboratory findings along with mortality.

Study Design: A comparative descriptive study.

Place and Duration of the study: The study was conducted in the department of surgery Civil Hospital Karachi from June 1997 to August 1998.

Patients and Methods: Fifty consecutive patients of non – traumatic ileal perforation managed surgically were observed by making two groups of typhoid and non typhoid ileal perforation.

Results: Out of 50 (n=50) 32(Group –A) patients (26 male and 6 female) had typhoid while18 (Group -B) patients (15 male and 3 female) had non-typhoid ileal perforation. There were 41 (82%) male and 09 (18 %) female. In-group A age range was 16- 50 years and a mean of ± SD of 25 ± 10 while in group B age range was12– 60 years and a mean of ± SD of 26±11.65.In group A 90.6% while in group B 100 % patients had a single perforation. Wound infection was the most common complication. Mortality was 6.25 % and 5.5 % in group A and B respectively. There was no significant association ($P<0.05$) of gender, seasonal and living conditions.

Conclusion: Surgical cum Epidemiological findings point out to the need of distinguishing between different types of non traumatic ileal perforation, and having check on the related causative factors leading to their occurrences.

Keywords: Non traumatic, Ileal perforation, Typhoid & non typhoid infection

INTRODUCTION

Various causes of non traumatic ileal perforation include bacterial infections (Salmonella, Yersinia, Tuberculosis), Viral infections (Cytomegalovirus, Human immunodeficiency Virus) Fungal infection(Histoplasma), Parasitic infections (A. Lumbricoides, E. Vermicularisis and E. Histolytica), others (Wagener's Granulomatous, and drugs [Non steroidal anti inflammatory drugs e.g. Aspirin, Paracetamol, Mefenamic acid, Ibuprofen etc.]). In a significant number of cases the causes of perforation is not known and called as non specific ileal perforation. The perforation causes gram negative aerobic and anaerobic infection leading to peritonitis[1]. After repair of ileal perforation, the most common complication is the wound infection[2-10]. Typhoid ileal perforation is very common in our country besides other causes. 3-5% typhoid patients develop intestinal perforation[11,12]. The overall survival of patients undergoing surgery for perforation is 70-75 % but is as high as 97 % in the best services[13]. WHO recent estimates of relapse is 3-4% of cases[14], however even after correct antibiotic treatment, 15% of cases develop septicemia[15]. Typhoid and Paratyphoid fever are systematic bacterial diseases (caused by Salmonella enterica serovar Typhi and Salmonella Paratyphi) of worldwide occurrence with an estimated 600,000 deaths and 17 million cases each year[14]. Known hotspots for typhoid are Peru, Egypt, Indonesia, India, Pakistan and Nepal[16]. Salmonella enterica serovar Typhi causes infection ten times more common than to Salmonella Paratyphi. Infection is transmitted through ingestion of food and water contaminated by faeces and urine of patients and carriers[14].

The aims of the study was, to find out the frequency of typhoid and non typhoid ileal

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perforation, to observe the association of various epidemiological factors in causation of disease, to note surgical, clinical, and laboratory findings along with mortality and to compare these study variables in both groups to establish any statistical significance.

PATIENTS AND METHOD

This was a comparative descriptive study expanded over 15 months (June 1997 to August 1998) conducted at department of surgery Civil Hospital Karachi. Frequency of acute ileal perforation in a total of 50 patients from all six surgical units of the hospital was observed in the study.

Inclusion criteria:

All patients suspected as non-traumatic ileal perforation on the basis of history and operative findings were included. The age range of the patients was decided to be from 12 to 60 years.

Exclusion criteria:

Patients of traumatic ileal perforation and population < 12 and > 60 years were excluded.

All patients were received in the casualty department and operated as an emergency under similar pre, per, and postoperative care facilities. They underwent full history and physical examination. Besides routine investigations all patients also had investigations of, mesenteric lymph node culture and sensitivity, culture and sensitivity of margin of perforation, and Typhi-DOT (DOT EIA) test. A Performa was drafted to note essential bio data of patients, short history, physical examination (only positive findings), investigations, operative and postoperative findings and operation performed.

A study protocol was made to divide the patients into two groups A and B on the basis of investigation of Typhi-DOT test. Group A comprised of patients having positive Typhi-DOT test while group B with negative Typhi-DOT test. The assessment was done in relation to age, gender, seasonal variations (rainy season included the months of July to September), living conditions, number of perforation, surgical technique, postoperative complications, clinical features, laboratory findings (Typhi-DOT test and blood TLC) and mortality.

RESULTS

Out of 50, (n= 50) 32(64%) patients (group A) had salmonella infection (typhoid perforation) while 18 (36%) patients (group B) had no definite cause (Fig.1).

Age:- Overall the age range was 12 – 60 years. In group A the age range was 16-50 years and a mean +/- SD of 25 ±10 while in group B the age range was 12-60 years and a mean +/- SD of 26 ±11.65 ($p>0.05$). In group A there were 16 patients (12 male and 4 female) of the age up to 20 years, 13 of 21-40 years (11 male and 2 female) while there were three male patients of > 40 years. In group B there were six male patients ≤ 20 years, ten of 21 – 30 years (7 male and 3 female) and two male patients of 60 years ($P>0.05$).

Gender: Out of 50 perforation cases, 41 (82%) were male and 09(18 %) were female. In group A there were twenty six male and six female patients in a ratio of 4.3:1 while in group B there were fifteen male and three female in a ratio of 5:1. Gender difference between two groups were not significant ($P>0.05$).

Seasonal variation: In group A seventeen male and five female patients while in group B seven male and three female patients reported with symptoms in hospital during rainy season ($P>0.05$). Monthly presentation of cases is (figure. 2 and 3) for group A and group B respectively.

Living condition: 44 (n=50) patients belong to densely populated areas of Karachi city, two from Thatta, one each patient from Hyderabad and Khairpur. In group A, 29 patients (23 male and 6 female) come from Karachi while three male patients reported from district Thatta. In group B 15 patients (13 male and 2 female) were from Karachi, two (male) from Hyderabad and one (female) from Khairpur ($p>0.05$).

Perforation: At laparotomy in Group A, 29 (24 male and 5 female) patients had single perforation while remaining 3 (2 male and 1 female) patients had two perforations. In group B, all patients had single perforation ($P>0.05$) In both groups, all perforations were within 2 feet from ileocaecal junction and were 3-5 mm in

diameter on the antimesenteric border of the ileum.

Single surgical technique: In group A, on 29 (24 male and 5 female) patients, after freshening of margins primary repair was done with vicryl 2/0 or chromic catgut and silk and , in 3 (male) patients ileostomy was made. In group B, 15 (12 male and 3 female) patients had primary closure of perforation while in three male patients ileostomy was done (P>0.05).

Post Operative Complications: Wound infection was the most common complication. In group A, 29 (24 male and 5 female) patients, while in group B, 13 (10 male and 3 female) patients had this complication (P>0.05). Chest infection was the second common complication noted in 5 (male) in group A and 2 (1male and 1 female) patients in group B (P>0.05).

Clinical features: These are shown in table. None of the clinical feature between two groups showed significant result.

Laboratory finding: Typhi-DOT test:- It was positive in 32 patients but specimen from perforated margins and mesenteric lymph nodes failed to grow Salmonella in all specimens even in selenium media (P<0.05).

Blood TLC: Group A 20 (15 male and 5 female) patients had TLC 5400- <10000/cmm of blood, 11 patients (10 male and 1 female) had TLC range between 10,000-15,000 while one male patient had TLC>15,000. In group B 3 male patients had TLC>10,000, 8 patients (5 male and 3 female) had TLC 10,000–15, 000 while seven male patients had TLC>15,000 (P<0.05).

Mortality:- Mortality in group A, was 6.2% (02 patients , one died due to septicemia and other from renal failure because of acute tubular necrosis) while in group B one patient died due to myocardial infarction. All patients in both groups were male (P>0.05).

DISCUSSION

The epidemiological factors i.e age, gender, seasonal and living conditions were not significantly associated with ileal perforation in our study. In our study male to female ratio was nearer the study[17] while in another study[18] in Nigeria it was found equal. In studies[4,6,8], same results were found but in the studies[2] and[19], male to female ratio was 2.35:1.

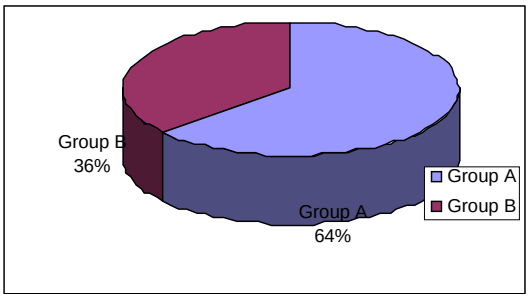

Figure-1 Typhoid (Group A) and Non-Typhoid (Group B) Perforation%

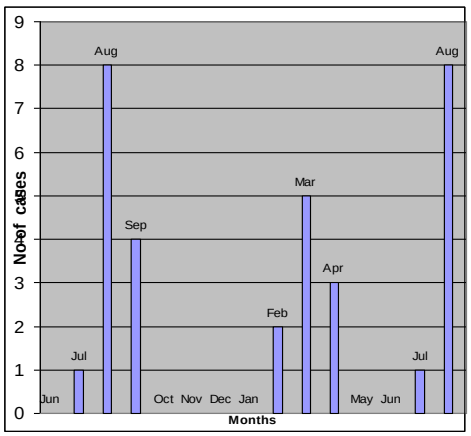

Figure-2: Monthly presentation of Typhoid perforation cases

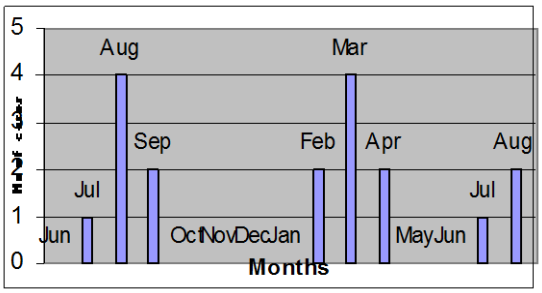

Figure-3: Monthly presentation of Non Typhoid perforation cases.

In our study in Group A, no growth of Salmonella was obtained i.e. from lymph node or perforated margins. While in study carried out in Thailand[20], Salmonella was cultured in 71% of lymph nodes samples. Leukocytosis was more marked in group B. Group A patients had abdominal pain for 1-15 days at the time of admission, same result was found in other study[6]. Vomiting was not a regular feature. Only 12 (37%) patients in group A and 10 (55%)

in group B presented with 1-3 days while in studies[5,7,8] it was present in 60-100 % patients. Constipation was present in 16 patients at the

Table: Clinical Features of both groups.

Clinical Features	Group- A	Group- B	Significance
Fever	Lasted 8-30 days	1-8 days	P <0.05
Abdominal Pain	Lasted 1-15 days	1-4 days	P <0.05
Vomiting	12	10	P <0.05
Constipation	16	9	P <0.05
Loose Motions	2	-	P <0.05
Pulse Rate	84 – 140 / Minute 28 Patients (87.5 %) had Pulse rate ≥ 100 / Minute	90 – 130/ Minute 14 Patients (77.7 %) had Pulse rate ≥ 100/ Minute	P <0.05
Dehydration	28	15	
Blood Transfusion	8	2	

time of presentation in group A. Almost similar results were observed in a study[4] but the other studies found it as 67% and 87% respectively[7,21]. In group A, 3 patients (9.3%) had two perforations. Similar findings were observed in a study[5] while in another study found 75.6% solitary perforation and 24.3% more than one perforation[21]. In our study in group A, 32 (90.6%) patients developed wound infection post operatively. Other studies[4-7,21] the observations were between 25-55%.

Typhoid ileal perforation remains a serious complication of typhoid enteritis, a very high rate of morbidity and mortality observed in many developing countries including Pakistan. In developed countries mortality is very low (<1%) but in developing countries it is still >10%[11,16]. In our study, the mortality in typhoid patients was 6.25% while in non typhoid group it was 5.5%. A recent study in Pakistan[17] found a mortality rate of 12.5% while other studies found even higher mortality rate of 15% and 28% respectively[18,19].

CONCLUSION

Acute perforation of terminal ileum is a common problem in developing countries. Association of different epidemiological factors was found to be insignificant in this study. These patients need research with large sample size to find out, the actual cause, pathogenesis of disease, mechanism of perforation and specific treatment if any.

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