Typhoid perforation in adults

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Abstract

This study was conducted to establish the nature of clinical presentation, management and prognosis of typhoid perforation at the TU Teaching Hospital. A retrospective study was conducted from July 1988 to June 1993. During this five-year period, 632 patients with enteric fever were admitted. Of the 632 cases, 30 (4.8%) had enteric perforation, in which 25 (83%) and 5 (17%) were males and females respectively. Perforation was most common in 30 to 39 years age group and occurred mostly during the second week of fever. Fever, abdominal pain and vomiting were common symptoms. Diagnosis was mainly clinical, supplemented by the presence of pneumoperitoneum and confirmed at laparotomy. Operative management was the common modality of treatment with only 6% of mortality, which is much lower than that reported in the literature.

Keywords: Typhoid; perforation; incidence; management.

Introduction

Typhoid fever is endemic in many developing countries. In Nepal, the disease occurs throughout the year. It is one of the major public health problems in the country and accounts for significant morbidity in both the adult and paediatric population.1 One of the most lethal complications of typhoid fever is ileal perforation which affects mostly young men. The review of literature on typhoid fever demonstrated that the overall frequency of intestinal perforation in typhoid fever was 3% with over all mortality of 39.6%.2 Typhoid perforations were more common in males than females and were mostly found to be under 30 years of age.3 Very few reports are available on study of typhoid perforation in Nepal.4

The objective of this study was to establish the incidence, clinical manifestations and existing management of typhoid perforation cases admitted to Tribhuvan University Teaching Hospital.

Patients and methods

The study was done by retrospective analysis of hospital records of 5 years, from July 1988 to June 1993. During the study period, 622 patients of enteric fever were admitted. Of the 622 patients, 30 patients (4.8%) had enteric perforation. Although 30 patients were admitted with enteric perforation, only 18 patients had adequate medical records and were included in this study.

Results

The highest incidence of enteric perforation was seen in 30-39 years age group (Table I) followed by 20-29 age group and the incidence decreases in younger as well as older age group. All the patients were presented with the history of fever. Abdominal pain, vomiting not passing stool, and flatus were other presenting symptoms (Table II). 89% of patients with enteric perforation had fever for more than one week and only 11% had perforation with fever of less than one week (Table III).

Table I: Age and sex distribution on enteric perforation cases.

Age group	*Male*	*Female*	*Total*	*Percent (%)*
Below 10 years	0	0	0	0
10-19	2	2	4	13
20-29	8	1	9	30
30-39	9	2	11	37
40-49	3	0	3	10
50-59	3	0	3	10

60 Over	0	0	0	0
Total	25	5	30	100

Table II: Presenting complaints in enteric perforation.

Presenting complaints	*No. of cases*	*Percent (%)*
Fever	18	100
Pain abdomen	17	94
Vomiting	5	28
Constipation	4	22
Distension of abdomen	2	11
Epistaxis	1	6
Loose motion	1	6
Scanty urine	1	6
Not passing urine	1	6

Table III: Duration of fever before admission by week.

Duration	*No.*	*Percent (%)*
Less than 1 week	2	11
1-2 weeks	11	61
2-3 weeks	5	28
Total	18	100

Table IV: Total WBC count (TC).

Total Count (TC)	*No.*	*Percent (%)*
Leucopenia	5	27.6
Normal count	11	61.1
Leucocytosis	02	11.1
Total	18	100

Table V: Peritoneal fluid culture.

Peritoneal fluid culture	*No.*	*Percent (%)*
Report not available	10	62.2
Klebsiella spp	02	12.5
Escherichia Coli	01	6.3

No growth	03	18.9
Total	16	99.9

Laboratory investigations revealed that the majority of patients (61.1%) with enteric perforation had normal WBC count. However, a few cases of leucopaenia (27.6) and leucocytosis (11.1%) were also seen. Blood culture was not done in 89% of cases. X-rays revealed free gas under the diaphragm in all cases.

Surgical management was done in 16 (89%) patients (Table VII). Preoperative preparations included intravenous fluid and electrolytes, blood transfusions (if required only) and nasogastric aspiration. Perforations with localised peritonitis were the common operative findings (Table VIII). Per operatively the peritoneal cavity was cleaned of its purulent contents. Perforations were closed in two layers and thorough peritoneal lavage was done with large amount of warm normal saline. Peritoneal fluid was sent for culture and sensitivity. No growth of the micro-organism was noted in 22.2%. In 62.2% of cases culture reports were not available in the record file (Table V).

Table VI: Clinical findings.

Clinical Findings	*No. of Cases*	*Percent (%)*
Fever	16	89
Tachycardia	14	78
Abdominal tenderness	12	62
Abdominal distension	7	34
Absent bowel sounds	7	34
Abdominal rigidity	11	60
Dehydration	7	34
Obliteration of liver dullness	3	17
Toxic looking	2	11
Crepitation on chest	1	6

Of the 16 surgically managed patients, 15 (93.7%) were cured but one patient died with a mortality of 6.2%. Half of the patients were treated by antimicrobial agents prior to admission to the hospital. Chloramphenicol, Amoxicillin and Ciprofloxacin were the commonly prescribed antimicrobials before admission (Table X). Intravenous antimicrobials like Metronidazole, Ciprofloxacin, Chloramphenicol and Gentamicin were commonly administered drugs preoperatively and continued post operatively (Table XI).

Table VII: Modalities of treatment.

Modalities	*No. of Cases*	*Percent (%)*
Operative	16	89
Conservative	2	11
Total	18	100

Table VIII: Operative findings.

Findings	*No. of Cases*	*Percent (%)*
Perforation only	4	25
Perforation with localised peritonitis	3	19
Perforation with pelvic abscess	7	44

Perforation with peritonitis and roundworm	2	12
Total	16	100

Table IX: Prognosis in surgically managed patients.

Prognosis	*No.*	*Percent (%)*
Cured	15	93.7
Died	1	6.3
Total	16	100

Table X: Antimicrobial treatment prior to admission.

Antimicrobal	*No.*	*Percent (%)*
Information not available	08	50
Chloramphenicol	04	25
Amoxicillin	03	19
Ciprofloxacin	02	12.5
Ampicillin+Cloxacillin	02	12.5
Do not remember the drug	02	12.5

Table XI: Post operative treatment.

Antimicrobials	*No.*	*Percent (%)*
Ciprofloxacin	9	56.3
Chloramphenicol	7	38.9
Ampicillin+Cloxacillin	0	0
Amoxicillin	3	16.7
Metronidazole	16	100
Gentamicin	6	37.5
Cloxacillin	01	6.2

Discussion

Of the 30 patients of enteric perforation 25 (83.3%) were male and 5 (16.7) female. The highest incidence was found in 30-39 years age group followed by 20-29 years (Table I). A similar result was found in Vietnam, where 87 cases of enteric perforations were studied in 2 years. Similar to the present study, there were more males than females and most of the patients were under 30 years age group.[3]

Fever, pain in the abdomen, vomiting, constipation and distension of abdomen were the commonly presenting symptoms in this study (Table II). Similar clinical features were found in Baranasi, India in paediatric population.[5] Most of the patients with enteric perforation had the history of fever for 1-2 weeks and about 90% of enteric perforation occurred during 7-14 days of fever (Table III). It clearly reveals that most of the perforation occurred as a result of an inappropriate management of the typhoid fever.

Eventhough the diagnostic criteria for typhoid perforation are bacteriologic, serologic, anatomopathologic, radiological and surgical[6], most of the enteric perforations in this study were diagnosed on the basis of clinical features, radiological findings and

surgical findings. Blood culture was not done in most of the cases. However, total WBC count and peritoneal fluid cultures were done in all the cases (Table IV-V). Mesenteric lymphnodes culture is the most useful specimen to isolate S.typhi. In contrast, the aerobic culture of peritoneal fluid/pus in non selective media is insignificant for S. typhi.[6] If mesenteric lymph nodes had been sent, instead of peritoneal fluid, more S. typhi could have been isolated. Therefore mesenteric lymph nodes culture is suggested.

Of the 18 enteric perforation patients,
16 (89%) underwent surgical operation
and only 2 patients were kept on conservative management. One of those two conservatively managed cases died because of septicaemia. Of the 16 cases treated by surgery, 15 (93.7%) were cured. It clearly demonstrates that prognosis was good in surgically-managed cases. Only 2 cases were treated conservatively. Therefore it is difficult to predict prognosis in conservatively managed patients. The prognosis is generally good when (a) patient is brought to hospital early, (b) the patient has normal WBC (c) is agressively resuscitated and (d) operated upon early. In contrast, higher mortality rate was reported in patients who had longer interval (>48 hours) between perforation and surgery, haematochezia, leucopaenia and faecoloid peritoneal fluid.[7-9] The low mortality in this study could be correlated with normal leukocyte count in more than 66.1% of the perforated cases and early surgery.

Of the 16 patients who underwent surgery, 8 patients were treated with antimicrobial agents prior to hospital admission. Chloramphenicol, Amoxicilin, Ciprofloxacin and Ampicillin+Cloxacillin combination were the commonly used antibiotics in descending order (Table X). Postoperatively Metonidazole, Ciprofloxacin, Gentamicin, Amoxicillin were commonly used (Table XI). Although studies on antimicrobial usage and resistance pattern in enteric
fever are scarce in this country, several strains of resistant species of S. typhi to Chloramphenicol and Ampicillin have been reported from the Indian subcontinent and South East Asia.[1]

Conclusion

All the suspected enteric fever patients having fever for one week or more should be admitted to hospital and in case of perforation operation should be considered. Enteric fever is transmitted faeco-orally, so the hygiene and sanitary condition in work places should be improved. Further studies should be conducted to improve the management of typhoid perforation in developing countries, where the incidence is very high.

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