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ORIGINAL ARTICLE

Assessment of cases of typhoid intestinal perforation

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ABSTRACT:

Background: Salmonella typhi is a gram-negative bacterium that causes typhoid fever, a feverish sickness. In developing nations, this virus continues to be a significant public health concern. The present study was conducted to assess cases of typhoid intestinal perforation. **Materials & Methods:** 58 patients of typhoid intestinal perforationof both genders were selected. Parameters such as clinical features, investigations, intra– operative findings were recorded. **Results:** Out of 58 patients, 32 were males and 26 were females. Duration of fever (days) was 1 week in 34, 2 weeks in 16 and 3 weeksin 8 patients. Organisms isolated were E coli in 26, Enterococcus in 15, Klebsiella in 2, ESBL (E-coli) in 3 and none in 12 cases. Complications were surgical site infections in 7, chest complication in 4 and enterocutaneous fistula in 2 cases. The difference was significant (P< 0.05). **Conclusion:** Common organisms isolated were E coli, Enterococcus, Klebsiella, and ESBL (E-coli). Complications were surgical site infections, chest complication and enterocutaneous fistula.

Keywords: Salmonella typhi, typhoid intestinal perforation, Klebsiella

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INTRODUCTION

Salmonella typhi is a gram-negative bacterium that causes typhoid fever, a feverish sickness. In developing nations, this virus continues to be a significant public health concern.[1] The two most feared side effects are intestinal perforation and hemorrhage. In underdeveloped nations, typhoid fever is the leading cause of non-traumatic intestinal perforations.[2] Late diagnosis and the rise of virulent and multidrug-resistant strains of Salmonella Typhi have been blamed for the high prevalence of perforation in the majority of developing nations.[3] The range of perforation frequency is 0.8% to 18%. About two to three weeks after the disease starts, a perforation in the terminal ileum results from Peyer's patch necrosis.[4] Obscure peritonitis can be caused by a terminal ileal perforation, which delays detection and surgical intervention, especially in patients in a severe toxic state.[5]

Typhoid perforation patients continue to have a high morbidity and mortality rate despite decades of advancements in patient care, which can be attributed to a number of causes.[6] Nonetheless, preoperative resuscitation, postoperative critical care, and early surgical intervention are considered to be the only effective treatments. The reason of cryptic peritonitis, especially in patients in a severe toxic state, is a perforation of the terminal ileum, which delays detection and surgical intervention.[7]The present study was conducted to assess cases of typhoidintestinal perforation.

MATERIALS & METHODS

The study was carried out on58 patients of typhoid intestinal perforationof both genders. All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded.They underwent a complete blood count, urine analysis, renal function test, serum electrolytes, erect X-ray abdomen, chest X-ray PA view, and ultrasound abdomen. Within six hours of arrival, all patients received pre-operative resuscitation and underwent surgery.Parameters such as clinical features, investigations, intra– operative findings, organisms isolated and complicationswere recorded.Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 58		
Gender	**Male**	**Female**
Number	32	26

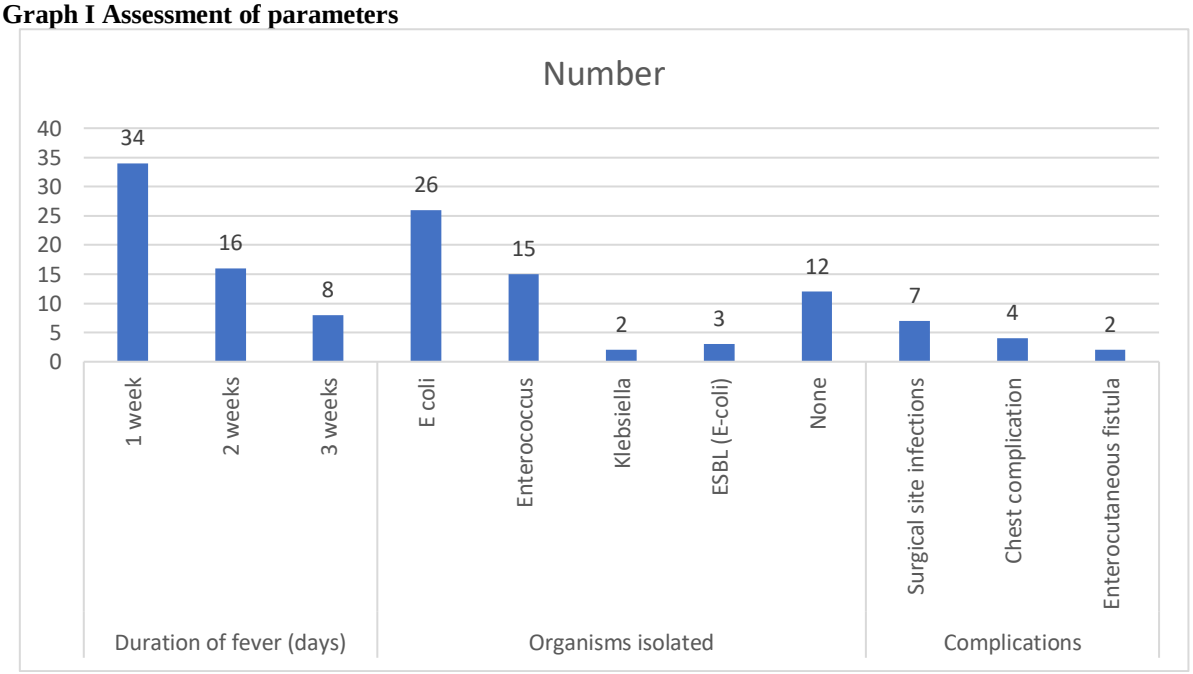
Table I shows that out of 58 patients, 32 were males and 26 were females.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Duration of fever (days)	1 week	34	0.04
	2 weeks	16	
	3 weeks	8	
Organisms isolated	E coli	26	0.05
	Enterococcus	15	
	Klebsiella	2	
	ESBL (E-coli)	3	
	None	12	
Complications	Surgical site infections	7	0.01
	Chest complication	4	
	Enterocutaneous fistula	2	

Table II shows that duration of fever (days) was 1 week in 34, 2 weeks in 16 and 3 weeks in 8 patients. Organisms isolated were E coli in 26, Enterococcus in 15, Klebsiella in 2, ESBL (E-coli) in 3 and none in 12 cases. Complications were surgical site infections in 7, chest complication in 4 and enterocutaneous fistula in 2 cases. The difference was significant (P< 0.05).

Graph I Assessment of parameters



DISCUSSION

The second to third week of fever is when typhoid perforation typically happens.

Nonetheless, instances are reported early in the first week of sickness in underdeveloped nations.[8] In 57.5% of the cases in this study, the fever lasted fewer than seven days. Low immunity, changes in the virulence of the bacteria, or hypersensitivity of Peyer's patches to bacteria could be the cause of this, albeit it has not been established.[9]Early surgery is the optimal treatment in typhoid perforations despite appropriate antibiotics. It ceases the source of further faecal contamination of peritoneal cavity.[10,11]The present study was conducted to assess cases of typhoid intestinal perforation.

We found that out of 58 patients, 32 were males and 26 were females.Sumer A et al[12]evaluated surgically-treated patients with typhoid intestinal perforation. There were 18 males and 4 females, mean age 37 years (range, 8-64 years). Presenting symptoms were fever, abdominal pain, diarrhea or constipation. Sixteen cases were subjected to segmental resection and end-to-end anastomosis, while 3 cases received 2-layered primary repair following debridement, one case with multiple perforations received 2-layered primary repair and end ileostomy, one case received segmental resection and end-to-end anastomosis followed by an end ileostomy, and one case received segmental resection and end ileostomy with mucous fistula operation. Postoperative morbidity was seen in 5 cases and mortality was found in one case.

We found that duration of fever (days) was 1 week in 34, 2 weeks in 16 and 3 weeksin 8 patients. Organisms isolated were E coli in 26, Enterococcus in 15, Klebsiella in 2, ESBL (E-coli) in 3 and none in 12 cases. Complications were surgical site infections in 7, chest complication in 4 and enterocutaneous fistula in 2 cases. Kouame J et al[12] in their study 64 patients,

(31 men and 33 women), with an average age of 34 years (ranging from 5 to 63 years) underwent surgery for typhoid ileal perforation. The surgical techniques used were excision-suture (n = 31) and resection-ileostomy (n = 33). All the patients were operated under similar pre-, per- and postoperative care facilities.Postoperative complications were observed in 59 patients (88.1%). The mean hospital stay was 30 days (ranging from 8 to 52 days). The overall postoperative mortality was 34% (22/64), mainly due to digestive fistula in 11 cases (8 cases of anastomotic leak after excision-suture, 3 cases of bowel fistula after conservative resection-ileostomy) and to chronic peristomal ulceration in 9 cases, which led to progressive malnutrition, cachexy and death.

Chalya et al[13]studied 104 patients were studied representing 8.7% of typhoid fever cases. Males were affected twice more than the females (2.6:1). Their ages ranged from 8 to 76 years with a median age of 18.5 years. The peak age incidence was in the 11-20 years age group. Fever and abdominal pain were the most common presenting symptoms and majority of the patients (80.8%) perforated between within 14 days of illness. Chest and abdominal radiographs revealed pneumoperitonium in 74.7% of cases. Ultrasound showed free peritoneal collection in 85.7% of cases. Nine (10.2%) patients were HIV positive with a median CD4+ count of 261 cells/µl. The perforation-surgery interval was more than 72 hours in 90(86.5%) patients. The majority of patients (84.6%) had single perforations and ileum was the most common part of the bowel affected occurring in 86.2% of cases. In 78.8% of instances, the most often performed technique was simple closure of the holes. Surgical site infection was the most common event in 55.5% of cases, with a postoperative complication incidence of 39.4%. Delays in presentation, inadequate antibiotic treatment before admission, shock upon admission, HIV positivity, low CD4 count (less than 200 cells/µl), high ASA classes (III-V), delayed operation, multiple perforations, severe peritoneal contamination, and postoperative complications were statistically significantly associated with the mortality rate, which was 23.1% ($P < 0.001$). 28 days was the median length of stay in the hospital overall.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that common organisms isolated were E coli, Enterococcus, Klebsiella, and ESBL (E-coli). Complications were surgical site infections, chest complication and enterocutaneous fistula.

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