Typhoid perforation : An Experience at Mayo Hospital, Lahore

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With the view of evaluating our own results with pertinent emphasis on surgical treatment, we conducted this retrospective study. This study consists of 53 cases of typhoid perforation treated in our unit in the last two calendar years from Jan 1997 to dec. 1998. We found that disease remains endemic in poor socioeconomic areas and usual sufferers are young active males(71.7%), with male to female ratio of 2.5:1. The diagnosis of the typhoid perforation should be made on physical examination, prolonged fever 02-03 weeks (62.2%) followed by pain abdomen usually 24-72 hours(68%). The diagnosis is supported by pneumoperitoneun in 37(68.9%), the serological tests are neither very specific nor readily available in emergency laboratory. The surgical treatment is required in all cases. The majority of the patients had single perforation 39(78%), multiple in 07(14%) and mostly had established severe peritonitis 34(68%). The single layer repair was performed in 18 (36%), double layer in 21(44%) which carries risk of leakage 01(5.5%) and 02(9.5%) respectively. Resection and anastomosis was performed in 10(20%) cases which resulted in very high morbidity and mortality 03(30%). Wound infection was the commonest complication, leakage was seen in 06(12%) cases, incidence of leakage was minimum with single layer closure of perforation. The flouroquinolone are far superior with response rate of 92.3% as compared to chloramphenicol 66.6%. Hence single layer closure with aggressive peritoneal lavage under flouroquinolones is recommended. Exteriorization should be preferred choice than resection and anastomosis in high risk cases.
Key Words: Typhoid perforation, single layer repair, flouroquinolone.

Typhoid fever " it is rarely seen and rarely thought of" (Schawartz). The disease which is rarely seen in West, is still endemic in our region with poor hygienic condition and water contamination[1]. The estimated incidence of 540/100000 causing five hundred thousand deaths per year through out the world[2]. It is caused by Salmonella Typhi and is characterized by an early septicaemic phase with colonization of several organs including small intestine. The terminal ileum bears the brunt of the disease with formation of the longitudinal ulcers, which may lead to the most dreadful complication, typhoid perforation.

The treatment of typhoid perforation needs surgical intervention but there are number of controversies regarding form of treatment i-e single or double layer repair, resection, exteriorization etc. This retrospective study was undertaken to review our own experience and to find the best form of treatment, morbidity, mortality of this one of the commonest surgical emergency.

Material And Method

This retrospective study consisted of 53 patients with typhoid perforation presented in the emergency of North Surgical Ward, Mayo Hospital, Lahore from Jan 1997 to Dec 1998. These patients were diagnosed basically on the clinical grounds, confirmed by erect X Ray Abdomen, Widal test , exploratory laparotomy and biopsy of the perforation in some cases.

All patients were resuscitated with I/V fluids and electrolyte replacement, nasogastric aspiration, I/V antibiotics (Quinolones / Chloramphenicol), and analgesia. After adequate resuscitation (monitored by urine output), exploratory laparotomy was carried out. The pathology noted, surgical treatment of the perforation was carried out. Post operatively same treatment continued for 4 - 5 days, when nasogastric tube was removed and gradually oral feeding was started. The parental antibiotics converted to oral and continued for 14 days. The patient was carefully monitored for development of any complication.

Results

A total of 53 cases with typhoid perforation presented in our emergency in two years. The young males were the main sufferers. Their sex and age distribution is shown in Fig. 1 and 2 respectively.

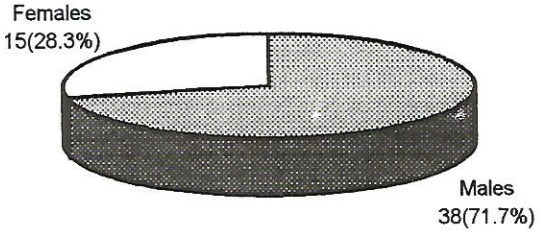


Fig1 Sex Distribution

The majority of patients 32(60.4%) were resident of poor socio-economic areas in and around Lahore city, The 14(26.4%) were referred from outside Lahore, out of which 4(28.5%) were postoperated cases with complications. In 07(13.2%) no address was available in records.

The commonest presenting symptom were fever followed by pain abdomen and rest of clinical features are shown in table 1.

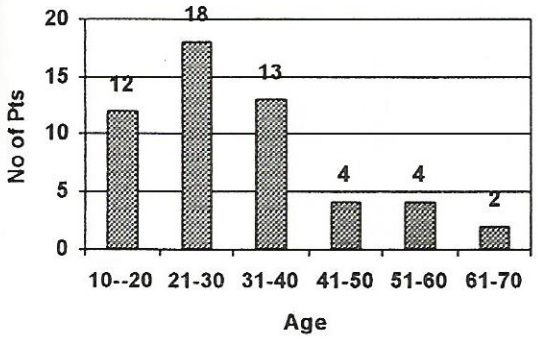


Fig 2 Age Distribution

Table 1: Clinical presentation.

Symptoms & Signs	n=	%age
Fever	49	92.4
Pain Abdomen	47	88.6
Abdominal Distension	42	79.2
Nausea & Vomiting	33	62.2
Loose motions	16	30.2
Bleeding per rectum	02	03.7
Enterocutaneous Fistula	04	07.5
Abdominal Tenderness	41	77.3
Guarding & Rigidity	37	69.8
Septic Shock	04	07.5

The duration of fever at time of presentation was variable, but majority of the patients having fever for 2-3 weeks as shown in Fig 3. The interval between the onset of pain abdomen and presentation to the hospital was also variable. Although the majority of the patients do present with in 24-72 hours but delayed presentation is not uncommon , as shown in Fig 4.

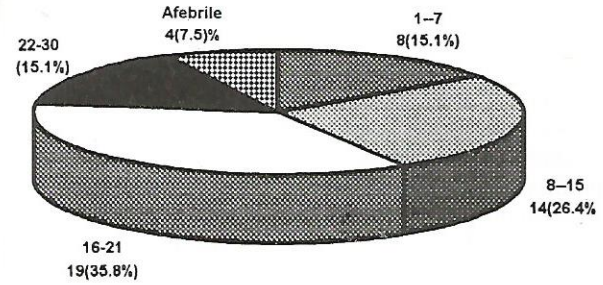
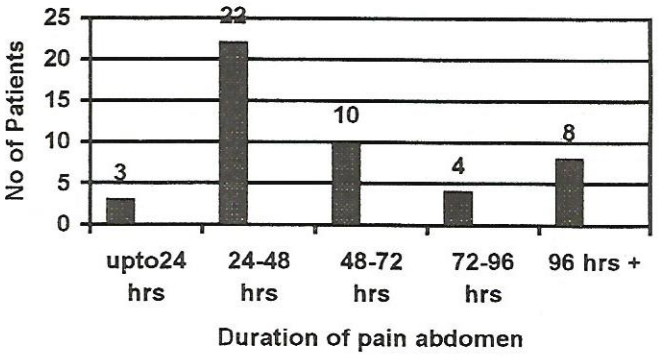


Fig.3 Duration of Fever

The diagnosis was mainly based on clinical grounds. The air under the diaphragm was seen in 37(69.8%)and leucopenia in 14(26.4%) of cases. The preoperative Widal test was available in only 05(9.4%) cases and was positive in only 02(40%). The postoperative Widal test was carried out in 21(42%) cases which turned out to be positive in 11(52.7%) of cases. The biopsy of the edges of the perforation was only performed in 19 cases which was suggestive of typhoid in 16(84.2%) and was non specific in 03(14.2%) of cases. The goldstandard for diagnosis, the blood culture was never performed in this study.

Fig 4 Duration of Pain Abdomen



The exploratory laparotomy was carried out in all except 03 cases, two of them presented in septic shock and they died before operation. Another was operated at periphery, presented with fistula and was treated successfully by conservative management. The degree of peritonitis was categorized as mild 05(10%), moderate 11(22%) and severe in 34(68%) of cases. The number and site of perforations were noted and are shown in table 2 and 3 respectively.

Table 2: Number of perforations

Number of perforations	n=	%age
Single	39	78
Double	04	08
Multiple	07	14

Table-3 Site of perforation from ileocaecal Valve

Site	n=	%age
Less than 6 inches	04	08
6inches - 1 foot	38	76
1 to -2 feet	06	12
More than 2 feet	02	04

The various surgical procedures performed in 50(94%) cases are shown in table 4. The 02(3.7%) of patients died during resuscitation with 2-3 hours after arrival in hospital before any surgery was carried out. Four patients who presented with enterocutaneous fistula after surgery at District hospitals. One patient having controlled fistula from lower end of the wound managed conservatively. Rest of 03 patients having wound dehiscence (02), one with septicemia was managed surgically (Exteriorization).

Table 4: Surgical Procedures

Procedure	n=	%age
Repair of perforation		
I) Single Layer	18	46
II) Double Layer	21	44
Resection & anastomosis		
I) Single Layer	03	06
II) Double Layer	07	14
III) Covering Ileostomy	02	04
Ileostomy		
I)Exteriorization (Primary)	01	02
II) After Leakage	06	12

The complication which was encountered during this study are shown in table 5. The results in this table show resection and anastomosis carries very high morbidity and mortality followed by double layer repair.

Table 5: Complications

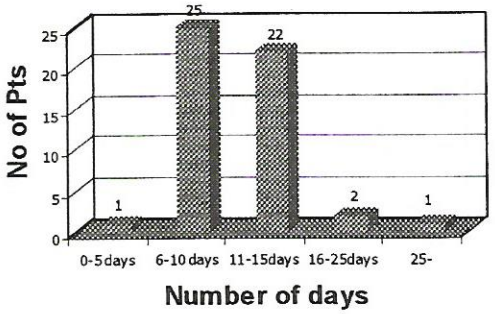
Complications	n=	%age
Leakage (Total)	6	12
i) Single Layer repair	1/18	5.5
ii)Double Layer repair	2/21	9.5
iii) Resection anastomosis	3/10	30
iv) Leakage from previous site	4	10
v) New perforation	2	4
Postoperative fever (5 days)	13	26
Wound infection	11	22
Wound dehiscence	04	08
Pelvic abscess	06	12
Inter loop abscess	05	10
Subphrenic abscess	02	04
Mortality (Total)	7	13.2
i)Before Operation	02	03.7
ii)After operation	5	09.4

This study has highlighted certain prognostic feature like duration of fever , duration of pain abdomen, number of perforations and also the effectiveness of various antibiotics as shown in table 6.

Table 7: Prognostics features and role of antibiotics

Feature	n(%age)	Mortality/response n(%age)
A- Duration of fever		
i) < 2 weeks	39(73.5)	2(3.7)
ii) 3-4 weeks	14(26.4)	5(35.7)
B- Duration of pain		
i)24-48 Hrs	22(41.5)	1(1.8)
ii) 48-72 Hrs	12(22.6)	2(3.7)
iii) above 96 Hrs	19(35.8)	4(7.5)
C- Number of perforation		
i)Single	39(78)	2(5.1)
ii) Multiple	11(22)	3(27.2)
D- Antibiotics		
i) flouroquinolones	39(76.4)	36(92.3)
ii)Chloramphenicol	12(23.5)	8(66.6)

Fig.5 Duration of hospital stay.



The duration of hospital stay is shown in Fig .5. The patients without complication, their stay was in the range of 9-12 days but those who developed complications, their stay was prolonged. The mean stay in hospital was 11.7 days.

Discussion

Typhoid fever is still endemic in all the developing countries with poor hygienic condition and water contamination, as in Pakistan. The young active males are the usual sufferer of the disease, probably because they are more prone to eating food from roadside and drinking water at work site[3]. The diagnosis of the typhoid fever is usually delayed because socio-economic and technical reasons. The older serological test like Widal, only become positive towards the end of 2nd week and is not very specific[4]. Blood culture, which is the most diagnostic in 1st week, is not readily available and is costly. The newer test like Typhoid dot, ELISA are more specific[5,6] and can diagnose the disease early, are not in everybody's reach.

The delay in diagnosis results in haphazard treatment resulting in prolonged morbidity, drug resistance and leads to lethal complications[7]. The treatment of typhoid perforation necessitates surgical intervention, peritoneal toilet & drainage under antibiotic therapy is standard treatment. But there are a lot of controversies about exact form of surgical treatment i-e single or double layer repair, resection anastomosis, exteriorization et. The present study has shown that single layer repair in favorable cases is better choice than double layer repair[8]. Resection anastomosis carries very high morbidity and mortality[9]. In such cases with adverse prognostic factors like prolonged fever, delayed presentation after onset of abdominal pain, multiple perforation, severe septicemia ileostomy is a very viable alternative[10,11].

Another area of debate is choice of antibiotics. The Chloramphenicol used to be the standard treatment for typhoid fever but now with emergence of the drug resistance this is no longer a drug of choice. The Flouroquinolones have been proved to be far more superior than Chloramphenicol. They carry a very high cure rate with fewer complications[12].

Typhoid perforation, usually present late with established peritonitis and patients are already immunocompromised due to prolonged illness, this results in very high morbidity. The commonest complication was wound infection [13] followed by prolonged fever(longer than 5th postoperative day), pelvic and subphrenic abscess. However most dreadful complication is leakage from repair site, which not only prolongs the misery, but it also carries a very high mortality[14,15]. Identification of high risk cases, prompt aggressive resuscitation, intensive therapy and exteriorization instead of repair are only way to reduce the mortality[10]. But the ideal will be to improve the hygienic conditions and water sanitation to eradicate this endemic health problem.

Conclusion

Typhoid perforation is a sinister problem. The early diagnosis, resuscitation, single layer closure of perforation and aggressive peritoneal lavage is very rewarding. High risk cases and resection anastomosis carries very high morbidity, in such cases exteriorization is recommended. Flouroquinolones are drug of choice which results in high cure rate and less incidence of complication. But the gold standard remains to be achieved, is hygienic food and clean water for everybody to be a typhoid free community.

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