INTERNATIONAL JOURNAL OF CURRENT ADVANCED RESEARCH
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: 6.614
Available Online at www.journalijcar.org
Volume 12; Issue 11; November 2023; Page No.2646-2648
DOI: http://dx.doi.org/10.24327/ijcar.2023.2648.1578

Research Article

MANAGEMENT OUTCOME OF TYPHOID INTESTINAL PERFORATION IN CHILDREN IN BAUCHI NORTH EASTERN NIGERIA

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A R T I C L E I N F O

Article History:
Received 15th October, 2023
Received in revised form 7th November 2023
Accepted 19th November, 2023
Published online 28th November, 2023

Key words:
management, typhoid intestinal perforation, resection, outcome.

A B S T R A C T

Background: Typhoid fever is a potentially lethal systemic illness and it continues to be a significant global health concern, particularly in resource-limited settings. Intestinal perforation is one of the deadliest complications of typhoid fever. It remains of public health importance in sub-Saharan Africa. **Materials and Methods**: We retrospectively analyzed the records of 168 children who were treated for typhoid intestinal perforation between January 2017 and December 2022. Data was collected from the files using the proforma prepared for this study. Obtained data was analyzed using SPSS version 25(SPSS Inc. Chicago IL), and results were presented using frequency tables and figures. **Results**: Males constituted 93(54.0%) of the patients while females were 75 (46.0%) M:F of 1.2:1.Majority of the patients 141 (84.0%) were operated on once while 5 (3.0%) were operated on three times. Furthermore, 68(40.5%) had wedge excision and repair while 36 (21.4%) had segmental ileal resection and anastomosis. The most common postoperative complication was superficial surgical site infection, which accounted for 16 (50.0%), enterocutaneous fistula developed in 4 (12.5%). Thirty five percent (35%) of patients spent between 11days to 20 days in the hospital following operation, 4 (2.5%) stayed up to 70 days. Mortality rate of 19.0% was recorded in this study. **Conclusion**: Typhoid intestinal perforation is still associated with high morbidity and mortality

INTRODUCTION

Typhoid fever is a serious illness caused by Salmonella typhi, which a gram-negative bacterium and continues to be a significant global health concern, particularly in resource-limited settings. The route of transmission is feco-oral by ingestion of contaminated food or water.[1]Typhoid intestinal perforation is one of the most common dreaded complications of this disease which is associated with significant morbidity and mortality. [2]The incidence of typhoid intestinal perforation in developed countries is from 0.8% to 3.9%.[3-6]It is prevalent in Sub-Saharan Africa including Nigeria, where it constitutes a major health problem.[7,8]Factors that have been found responsible for high prevalence include poor environmental sanitation, lack of adequate clean potable water and late hospital presentation.[9] Late diagnosis and upsurge of multi-drug resistant strains of Salmonella typhi are also associated with poor outcome.[10]

We present a 5-year outcome study of the children who were managed for typhoid intestinal perforation at Abubakar Tafawa Balewa University Teaching Hospital Bauchi, North eastern Nigeria.

This study aimed at summarizing the outcome of the patients managed for typhoid intestinal perforation at Abubakar Tafawa Balewa University Teaching Hospital Bauchi, North Eastern Nigeria.

MATERIALS AND METHODS

The study was carried out in the Department of Surgery, Abubakar Tafawa Balewa University Teaching Hospital Bauchi, a tertiary health institution located within Bauchi metropolis, North Eastern geo-political zone, Bauchi State, Nigeria. It was a retrospective study. Ethical approval was obtained from the Ethics and Research Committee of the hospital. Case files of patients between the ages of 1year and 15years who were treated for typhoid intestinal perforation between January 2017 and December 2021 were retrieved. Socio-demographic and clinical data, which included age, sex, number of perforations, type of intestinal repair, outcome of surgery and postoperative complications were collected using the proforma prepared for this study. A total of 170 patients' files were reviewed. Two (2) patients were excluded on account of incomplete data. The remaining 168 patients with complete data were included in the study. Obtained data was

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analysed using SPSS version 25.0 (SPSS Inc. Chicago IL) and presented using tables and charts

RESULTS

There were 168 patients, 93 (54.4%) male and 75 (45.8%) female.The mean age was 9.75 ±3.57 years. Majority of the patients 80 (47.6%) were aged 6-10 years [Table 1].

Table 1 Age distribution

Age group (years)	Frequency	Percentage (%)
1-5	13	7.7
6-10	80	47.6
11-15	62	37.0
>15	13	7.7
Total	168	100

All the patients presented with fever and abdominal pain, while 155 (92.3%) of the patients presented with abdominal distention. Other symptoms are as shown in Fig. 1 Most of the patients 68 (40.4%) were operated on within 48hours of admission, with only 45 (26.8%) of patients were operated within 24 hours of admission, 1 patient (0.6%) was operated after a week of admission. Single perforation was the most common finding in 101 (60.1%) of patients. One patient had up to eight perforations.[Table 2]

Table 2 Number of perforations

No of perforations	Frequency	Percentage (%)
1	101	60.1
2	48	28.6
3	10	5.9
4	3	1.8
5	1	0.6
6	3	1.8
7	1	0.6
8	1	0.6
Total	168	100

The most commonly performed procedure was wedge excision and repair in 68(40.5%) patients, followed by segmental ileal resection and anastomosis 36(21.4%). Twenty-six (15.5%) patients had limited right hemicolectomy with ileocolic anastomosis. Ileostomy in patients that were very sick was the least performed procedure *5 (3.0%).* Fifty-nine patients (35.1%) stayed for 11 to 20 days in the hospital after operation, 37 patients (22%) stayed for 21-30 days, while 15 patients (8.9%) stayed for 10 days or less. Twenty-seven patients (16.0%) required re-operation of which 22 were operated upon twice and only five patients had operations three times. The reasons for the reoperations ranged from bust abdomen to intraperitoneal abscess collections. Thirty-two patients (19%) developed post-operative complications giving a complication rate of 19.0%, the most common being incisional surgical site infection (SSI) 16 (50.0%) [Table: 3].

Table 3 Complications

Complication	Frequency	Percentage (%)
Incisional surgical site infection	16	50
Wound dehiscence	9	28.1
Enterocutaneous fistula	4	12.5
Intra-abdominal abscess	3	9.4
Total	32	100

Thirty-two patients died giving a mortality rate of 19.0%, while the remaining patients were discharged home.

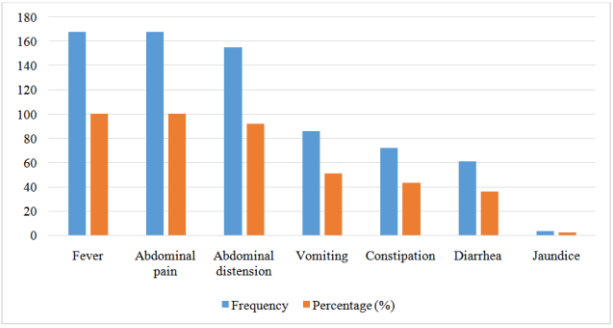

Fig.1 Symptoms

DISCUSSION

Typhoid intestinal perforation remains the most lethal complication of typhoid fever, associated with high morbidity and mortality.[2] Male gender was predominantly affected by typhoid intestinal perforation in our study; this is similar to other reports.[11-14]however, one report from Kano, Nigeria[15] found a slight female preponderance. The majority of our patients were within the first decade of life; this is at variance with findings of Grema et al[11] and Aliyu et al[16] who reported that most of their patients were in the second decade of life. Fever and abdominal pain were the most common symptoms in our study, these were also found to be the commonest symptoms in other studies in our environment. [11,16,17] Most of our patients were operated within 24-48hrs of admission (range =1-7 days), this is significantly shorter than the admission-operation range of 2-28 days reported by Sheshe et al.[18] and is an improvement to the usual delays experienced in our environment. Single perforation rates have been reported to range from 54.5%-90.6%,[11,16,18,19] in this study the single perforation rate was 60.1%. The most commonly performed procedure in our patients was wedge excision and repair accounting for 40.5% of procedures done, this was largely due to the fact that majority of our patients had single perforations, this finding is similar to other reports in the literature with high single perforation rates[11,16] The complication rate in this study is 19% with incisional surgical site infection accounting for 50% of these complications, this is similar to what was reported by Aliyu et al [16] and Na'aya et al [19]. Hospital stay was prolonged beyond 10 days in over 57.1% of our patients and this also is the case in other reports by Usang et al[19], Mortality was 19% in this study, similar to the reports by Naaya et al[20](13.9%),and Aliyu et al [16] (14.1%)as well but much lower than the report by Osifo et al [17] (75%).

CONCLUSION

Typhoid intestinal perforation is a common complication of typhoid fever and is still associated with high morbidity and mortality, which ultimately leads to prolonged hospital stay.

Conflict of interest: Nil

Source of funding: Nil

Acknowledgement: We acknowledged the valuable contribution of Mr Samaila Nerus and Mrs Helen Abe Oluwaseun both of health information management department for assisting with data acquisition and analysis.

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How to cite this article:

Kefas John Bwala.,Nasirudeen Oloko Lanre., Kache Stephen Akawu., Umar M Aminu., Sani Adamu.,Stephen Yusuf., Lofty-John Anyanwu and Aminu Mohammad., 2023, Management Outcome of Typhoid Intestinal Perforation in Children in Bauchinorth Eastern Nigeria. *International Journal of Current Advanced Research.*12 (11), pp.2646-2648.

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