

A successful management of complicated ileocaecal typhoid infection: a case report

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Abstract

Background: Typhoid fever is one of the serious infectious diseases caused by *Salmonella Typhi*. It affects both children and adults. Ileal perforation is one of the common complication of typhoid infection and it is associated with increased morbidity and mortality. The aim of this report is to present a successful management of a 6-year-old girl with multiple ileocecal typhoid lesions.

Case Presentation: A 6-year-old girl, with 3-weeks history of fever, headache, and abdominal pain with distension presented to the department of surgery of General Amadi Rimi Specialist Hospital (GARSH). On Examination she was found to be acutely ill, dehydrated and in some respiratory distress, pale and febrile (temperature of 37.9 °C). Abdominal examination revealed generalized abdominal tenderness, rigidity and guarding but bowel sounds were normal. An assessment of acute abdomen secondary to likely bowel perforation from typhoid infection was made. An exploratory laparotomy was carried in the surgical theatre after routine and other necessary investigations after obtaining signed informed consent to operate from the parents. An inflammatory mass lesion was found in the ileocecal region extending to the caecum with three perforations within it. Limited Right hemicolectomy was done. Patient made remarkable recovery and was discharged on the 13th day after the surgery.

Conclusion: The case presented has emphasized the need for the development of good clinical skills that are essential in arriving at the likely diagnosis, and helpful in giving the right treatment efficiently, especially in limited medical resources centre.

Keywords: typhoid, infection, ileocecal, antibiotics, surgery.

Introduction

Typhoid fever, caused by a gram-negative bacterium *salmonella typhi*. is among the common febrile illnesses in the tropics.^[1, 2]

It is transmitted faeco-orally and affects all

the age group, and more especially among

those within five and fifteen years of age.

Common features of typhoid fever include,

fever often on the rise, shivering, headache,

abdominal pain, with either diarrhoea or

constipation, during the first week of disease.^[3] As the disease progress without proper intervention, diffuse intestinal inflammation might occur in the third week. It is often followed by ulceration and necrosis of the Peyer's patches. This may eventually leads to intestinal perforation.^[4]

Ileal perforation is the most deadly complication of typhoid fever. It is of great public health concern especially in endemic regions such as developing countries with low socio-economic status where the morbidity and mortality is high.^[5,6] Sometimes the mortality rate could be as high as 60%.^[7] Mortality can be reduced by making early diagnosis, taking adequate preoperative measures such as resuscitation, patient optimisation as well as early preoperative antibiotic administration.^[8]

The laboratory diagnosis of typhoid fever is made by positive blood culture, stool culture or urine culture. The clinical diagnosis of typhoid perforation of the small intestine is

based on its features like abdominal pain, abdominal distension, vomiting, diarrhoea and constipation. Similarly, plain abdominal X-ray, chest X-ray and abdomino-pelvic ultrasound are important supportive investigations that might reveal evidence of bowel perforations.^[9] Various surgical options exist for the repair of typhoid ileal perforations. Simple closure after refreshing the edges is considered for a single perforation. Whereas resection of the multiply perforated segment of a bowel and end-to-end anastomosis of the healthy part is considered for multiple perforations.^[10]

To emphasize the medical importance of good clinical skills as an essential aid in identifying the features of perforated typhoid fever and in its diagnosis, this case report presented the successful management of a complicated ileocecal typhoid infection with multiple perforations.

Case presentation

A 6-year-old girl, who resides with her parent in one of the villages in Jibia Local Government, Katsina State, presented to the Accident and Emergency Unit of the General Amadi Rimi Specialist Hospital (GARSH) on 25th September, 2017. She had a 3 weeks preceding history of high grade fever that is continuous, and associated headache that is temporarily relieved by ingestion of paracetamol syrup. One week to presenting at GARSH, she developed abdominal pain, with associated insidious distension of the abdomen that subsequently became generalized. Three days prior to presentation, she passed watery stool of about 100 ml at an average of 3-4 bouts per day. There was no associated history of vomiting, constipation, passing dark stool (melaena), weight loss, ingestion of unpasteurized milk, drenching night sweat, chronic cough, contact with chronically coughing adult, breathlessness, yellowish

discolouration of the eyes, prior history of trauma nor history of similar illness in the past. The patient initially presented to the General Hospital Jibia, where she was referred to Turai Maternal and Child Hospital (TMCH) Katsina, from where she was finally referred to GARSH.

Physical examination finding revealed that she was a girl in her early childhood, weighing 18 kg, looking acutely ill and toxic, conscious, dehydrated, lethargic, in respiratory distress, pale and febrile (temperature of 37.9 °C). She was not jaundiced, acyanosed, no pedal oedema, nor having palpable peripheral lymphadenopathy. The respiratory rate (RR) was 30 cycle per minute and the chest was clear clinically. In addition, her pulse rate (PR) was 122 beat per minute and the heart sounds were essentially normal clinically. Abdominal examination revealed generalized abdominal tenderness and rigidity but bowel sounds were present.

Similarly, perianal examination did not revealed evidence of any abnormality. A provisional diagnosis of acute abdomen, secondary to likely bowel perforation from typhoid infection was made.

The patient was placed on nil per oral, with nasogastric tube inserted for abdominal decompression. A urinary catheter plus urine bag to monitor urine output was also inserted. She was also placed on intravenous fluid paediatric saline and empirical antimicrobial therapy consisting of three parenteral antibiotics of ciprofloxacin, ceftriaxone and metronidazole, after obtaining blood, stool and urine samples from her for laboratory investigations. The investigations requested for were, blood culture, stool culture, electrolytes and creatinine, full blood count and differential, urinalysis as well as screening for hepatitis and HIV (Human immunodeficiency virus). Other important investigations requested for were Mantoux test, erythrocyte

sedimentation rate (ESR), abdominal ultrasound (USS), plain chest and abdominal radiographs to support diagnosis, to know the extent of complications of the disease and to prepare the patient for surgical operation.

The patient was found to be anaemic with packed cell volume (PCV) of 21%. Stool culture revealed normal flora. Blood culture showed no organism isolated. Mantoux test, retroviral screening, hepatitis screening and electrolyte, urea and creatinine results were all essentially normal. Plain abdominal X-ray showed slight dilation of the bowel loops. Chest X-ray revealed air under the diaphragm. Abdominal ultrasound revealed features in favour of peritonitis with paralytic ileus likely from bowel perforation. The patient was optimised, resuscitated and anaemia corrected with blood transfusion. She was then taken to theatre on 27th September 2017 for surgical exploration after informing her parents about the

condition and a written informed consent was signed by them before the surgical treatment. After anaesthetizing, cleaning and draping the patient, a lower midline sub-umbilical incision was made on the abdomen in layers until the inner aspect of the abdomen was reached. An inflammatory mass lesion was found in the ileocecal region extending to the caecum with three perforations within it (one in the caecum and two on the terminal ileum about 1-2 cm from the ileocecal junction). Limited right hemicolectomy was done (i.e. the resection of terminal ileum, caecum, appendix and part of the ascending colon). Ileocolic anastomosis was performed with vicryl 2/0. The patency of the lumen was tested to confirm free flow of the intestinal contents (Figure 1). The infected segment was then dissected to observe the nature of the lesion. We thus observed chronic inflammatory changes with yellowish inflammatory

debris. The whole segment was labelled as a specimen for histology (Figure 2).

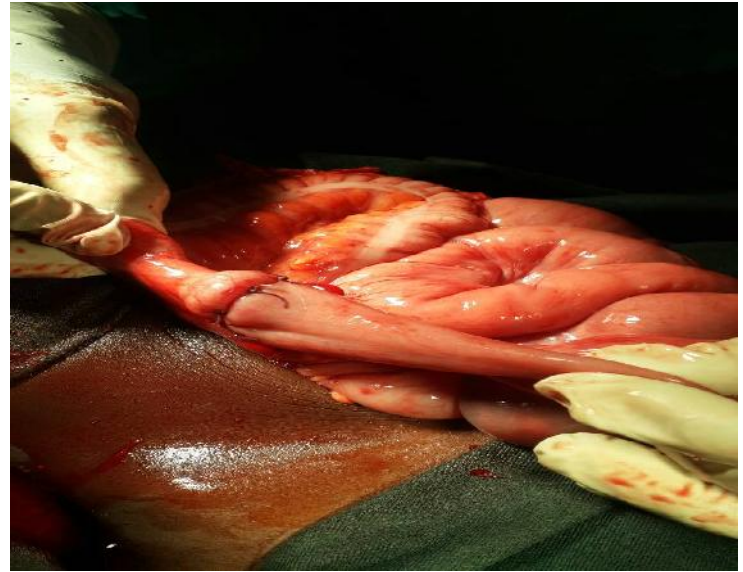


Figure 1: Intraoperative procedure indicating anastomosis of the terminal ileum and the part of colon) following right hemicolectomy.



Figure 2: Longitudinal section of the lesion from ileocecal region that shows chronic inflammatory changes with whitish and yellowish debris of infection.

The triple antibiotics regimen, intravenous fluid paediatric saline, given initially were continued as post-operative treatment, including parenteral analgesics. The urinary catheter and nasogastric tube were also maintained in situ. A further plan to place the patient on anti-tuberculous drugs as a trial should the histology result reveal a likely ileocecal tuberculosis was also put in place. Five days after the surgery, the wound was examined which was found to be very clean with no evidence of infection from the operation site. Therefore, the urinary catheter and nasogastric tube were removed after patient was observed to be making adequate urine and the returning of normal bowel sounds respectively. She was then asked to start taking liquid food substances orally. She was also encouraged to ambulate. Alternate stitches were removed on 7th October 2017 (i.e.11 days post-operation). Thereafter the patient's parenteral medications were converted to

oral equivalents. She started moving around within and outside the ward. Subsequently, the remaining stitches were removed. In view of her clinical improvement and stability, she was discharged on the 10th of October 2017 (i.e. thirteen days after the surgery). She was asked to continue her oral medications and to come back with her parents for follow-up with histology result after two weeks.

Two weeks later, the patient came back with her father for further review on 24th October 2017. Nil fresh complaints revealed by the patient or the parents. The patient was said to be eating, defecating, and playing well. And that her involvement in domestic activities is without any problem. The wound site was examined, which was clean and healed completely with no sign of infection or breakage (Figure 3). Unfortunately, the parents discarded away the specimen instead of taking it for histology. Subsequent follow-up every four

weeks revealed no problem till the documentation of this report.



Figure 3: A healed scar at the lower midline abdomen of the same patient about four weeks after the surgery

Discussion

Typhoid fever is a serious infection associated with many complications when not diagnosed and treated early. One of the most important complications is ileal perforation, and this was found in this case. This finding was similar to that which obtain in other poor resource countries where presentations are often late and might

contributes to the associated with increased morbidity and mortality.^[1-10] The favourable outcome in this case despite the late presentation was due to high index of suspicion and good clinical skills that favours prompt diagnosis, proper pre-operative care and patient optimisation, adequate resuscitation and rehydration, as well as early administration of broad-spectrum parenteral antibiotics. All these have been highlighted in previous studies.^[1-10]

A probable differential in this case, especially in our environment is ileocecal tuberculosis.^[11] Tuberculosis (aka TB) is an infectious diseases caused by the micro-organism tubercle bacillus, and it is the second most common infectious cause of small bowel perforation (5% to 9%) after typhoid fever when it becomes abdominal TB.^[12-14] However, we could not ascertain this diagnosis due to inability to perform histology on the lost resected sample. This

obviously is a major limitation of our study and one we should have taken steps to prevent. Nonetheless, our clinical assessment did not support the likelihood of abdominal TB. Secondly, previous studies identified the ascending, transverse and descending colon as the commonly affected segment of abdominal TB unlike in this study which was at the ileocaecal junction.^[15-17] Also, the patient responded well to the antibiotic therapy without the anti-tuberculous medication might also rule out the possibility of abdominal TB.

We did limited right hemicolectomy and ileocolic anastomosis considering the affected regions (caecum and terminal ileum and part of the ascending colon). This is nearly similar to the opinion of Momo *et al.*,^[18] who demonstrated a successful outcome in the management of an elderly man with multiple typhoid ileal perforation and severe peritonitis by resecting the infected segments and anastomosing the healthy ends

(i.e. performing resection and anastomosis). However, Siddiqui, *et al.*^[19] proposed that in cases of multiple ileal perforations, a temporarily ileostomy before primary repair or intestinal anastomosis, should be observed to reduce the incidence of postoperative faecal fistula that is associated with increase morbidity and mortality, particularly in unstable patient.

Conclusion

We presented a successful management of a 6-year-old girl with complicated ileocecal typhoid infection with perforations. Using surgical and medical treatment approach, with parenteral antibiotics, we successfully treated the patient with 2 weeks of presenting for management. This case emphasized the need for the development of good clinical skills that are essential in arriving at the likely diagnosis, and helpful in giving the right treatment efficiently, especially in limited medical resources settings.

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Conflicts of interest: Nil

Consent: Informed consent was obtained from the parent of this patient for publication of this case report.

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