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Case Report

Ileal Perforation and Psychosis in a 19-Year-Old Haemoglobin SC Patient-A Case Report

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Abstract

Ileal perforation is a fatal surgical complication of typhoid fever. Acute psychosis occurring together with perforation presents a fatal outlook. This is made worse by these patients presenting late for appropriate intervention.

A patient with sickle cell disease in addition to ileal perforation and psychosis presents a clinical picture the outcome of which is unpredictable. It could occasionally cause diagnostic dilemma and a great clinical challenge.

Typhoid fever, a bacterial disease of low- income countries could be prevented by an improvement in socioeconomic conditions of the people. This will prevent or reduce to the barest minimum the occurrence of these fatal outcomes associated with its complications.

This is the case report of a 19-year-old Haemoglobin SC (HbSC) with ileal perforation and acute psychosis.

Keywords- Psychosis; Haemoglobin SC (HbSC); Typhoid Fever; Ileal perforation.

Key Message- Occurrence of Psychosis and ileal perforation increases morbidity and mortality in typhoid fever. It is worse when they occur in a sickler.

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Introduction

Typhoid fever is an endemic bacteria disease in low- and middle-income countries.[1] It affects about 14 million people per year with 136000 deaths,[1] with estimates of more than 22million cases and 200,000 deaths in 2000. It is caused by Salmonella typhi and to a lesser extent, Para typhi A,B,C . It involves multiple systems in the body and is potentially fatal.

With prompt treatment, recovery is excellent but with delay in treatment, fatal complications, like acute psychosis and ileal perforation may occur.

Diagnosis is clinical, with good history and physical examination. However, the gold standard for diagnosis is the isolation of the organism in a culture.

Untreated, complications like ileal perforation, osteomyelitis, liver abscesses, multiple brain abscesses[2] and typhoid psychosis. [3]

Psychosis in these patients presents delirium and occasionally requires administration of anti-psychotics.

This is the case report of a 19-year-old Haemoglobin SC (HbSC)patient with ileal perforation and acute psychosis.

The aim of this case report is to highlight the diagnostic dilemma in these patients involving febrile illness, peritonitis, and vaso-occlusive crisis causing high morbidity and mortality and the need for prompt surgical intervention.

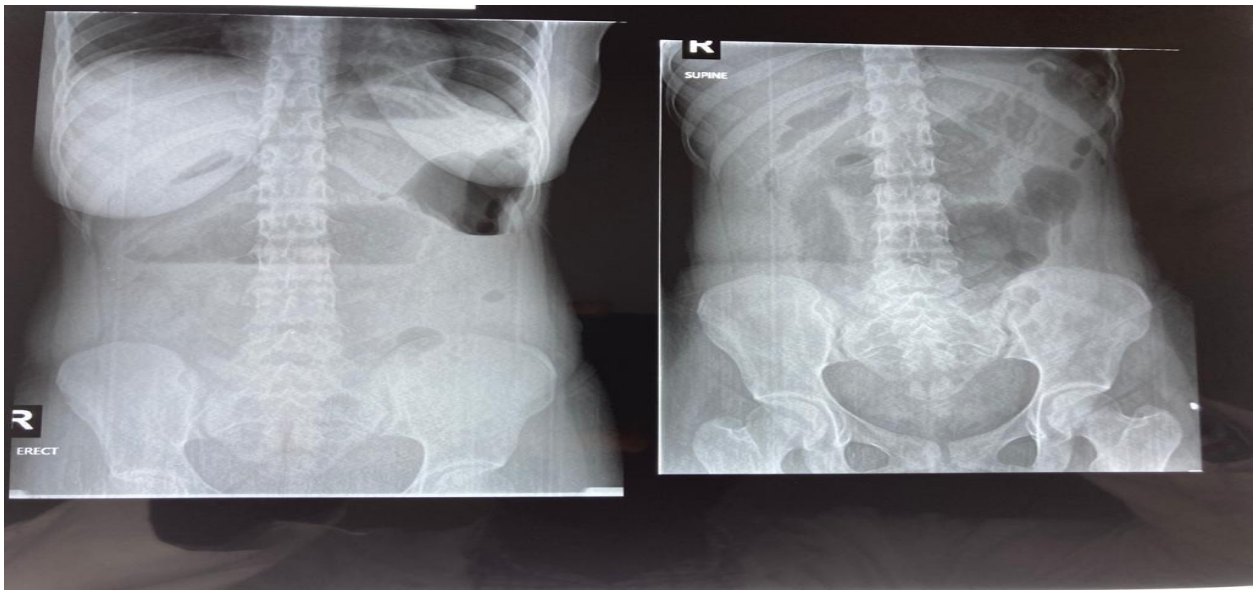
Case Report

UA, 19-year-old female who was a known patient with HbSC. She was referred from a general hospital with a 2-week history of high-grade, continuous fever and 6-day history of initially para-umbilical but later, generalized, colicky abdominal pain, vomiting and body weakness. It was relieved with analgesics. There were three episodes daily of bilious vomiting and a 6-day history of constipation.

She was diagnosed with HbSC disease at 7years and has had two episodes of bone pain crisis. She was unaware of her steady state packed cell volume (PCV). She is a secondary school leaver and works as a tutor in a primary school. Source of water supply is mainly sachet water and occasionally tap water.

She was managed at a private hospital on an out-patient basis for 2 days but was later referred to a general hospital for worsening condition from where she came to us. Prior to referral, she had an abdominal X-Ray and abdomino-pelvic ultrasound scan (USS) done. The X-ray (Figure 1) showed no significant finding, but there were dilated bowel loops and ascites on USS. A naso-gastric tube and an indwelling urethral catheter were passed.

Figure 1-Plain abdominal X-rays



At presentation to our centre, she was conscious, acutely ill looking, not pale, anicteric, febrile (temperature – 38.1^0c) and dehydrated. The naso-gastric tube was draining bilious effluent, and the urine was concentrated. Her abdomen was distended and tense with generalised tenderness, marked in the epigastrium. There was ascites. Nil bowel sounds. Digital rectal examination showed an empty rectum. An assessment of acute abdomen in an HbSC patient secondary to a suspected? perforated viscus was made. Results are as shown in Table 1. Screening for HIV and Hepatitis B surface antigen were negative.

Table 1- Laboratory investigation results from admission to discharge.

Day / Test	1	3(post-op)	4	7	9	14	20	26	32
PCV	47.7	33.5	32	30		28	32	36	37
WBC. 4-11,000/mm^3	8,200		9,000	13000		11500	11000	9,000	
Na+ (135-145) mEq/l	140		142			144	143	144	
K+ (3.5-5.5)mmol/l	3.9		3.5	3.2		1.8	3.2	3.7	
CL- (95-110)mmol/l	104		102			105	106	106	
Urea (2.5-7.5)mmol/l	8.7		8			7.5	7.4	7.0	
Creatinine (61.9-114.9)umol/l	70.5		70			69	69	80	

Serum albumin (35-53)g/l				13	16.4	25	30	35	38
Total protein (66-83) g/l				20	29.6	45	55	68	69

She had an emergency exploratory laparotomy. The operative findings included gush of gas in the abdomen, 3L of dark -yellowish purulent peritoneal fluid and 0.5cm longitudinal perforation on the anti-mesenteric border, 10cm from ileo-caecal junction (Figure 2). It was repaired by simple closure in 2 layers. The peritoneal cavity was lavaged copiously. Two abdominal drains were placed in both para-colic gutters.

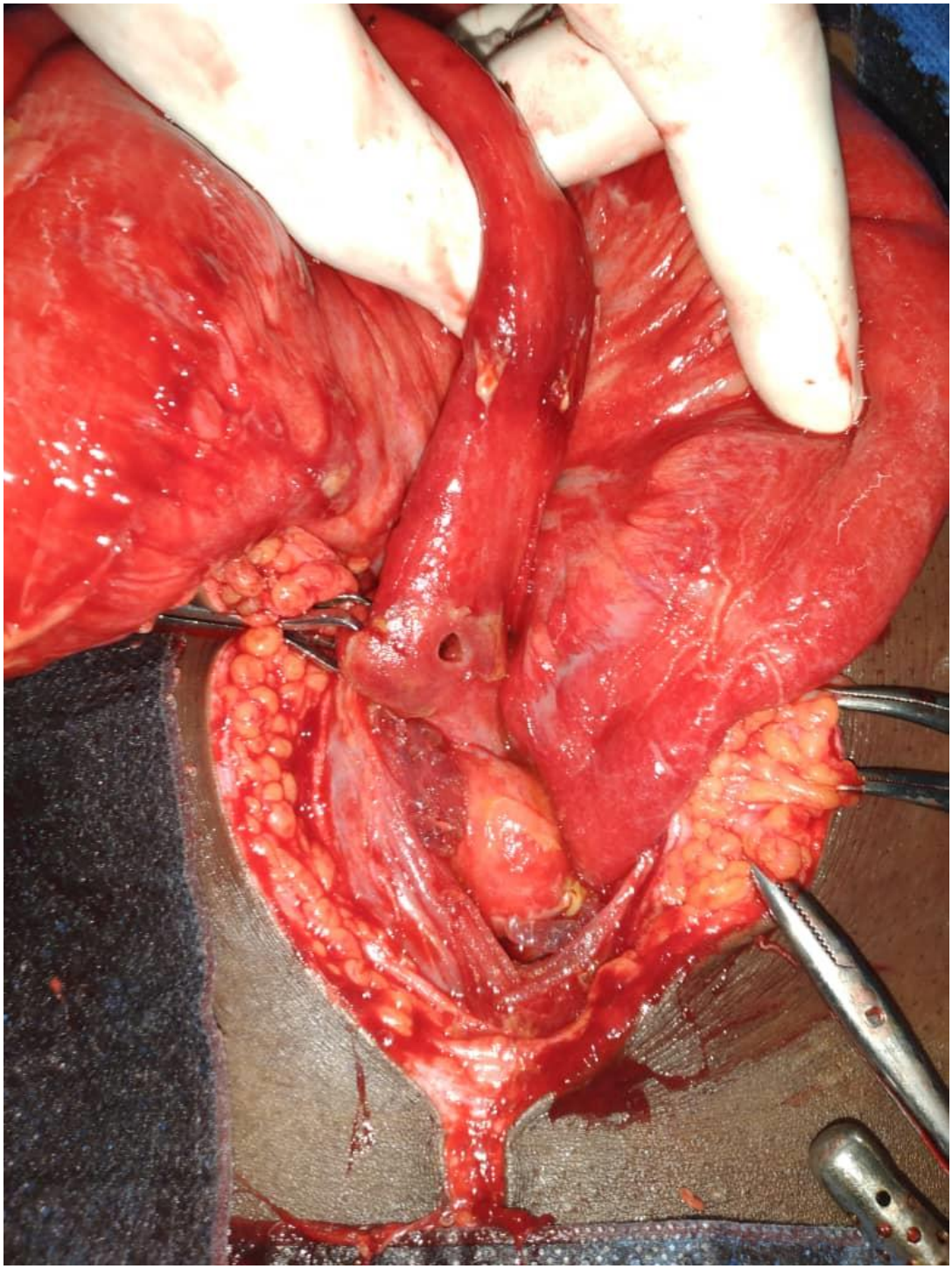
Post-operatively she was admitted to the intensive care unit. She had a steady post-operative course until the fourth day when she developed respiratory distress. Chest examination revealed bilateral basal crepitations. Chest X-ray showed Bilateral pleural effusion. A Chest Computed Tomography scan revealed Left lower lobe pneumonia and bilateral pleural effusion. She commenced on spirometry and the Cardiothoracic Surgery unit was invited, who managed her conservatively using IV Frusemide 20mg 12hourly. She commenced on graded oral intake which was well tolerated. On the 7th day, she complained of a dull abdominal pain radiating to the back. She was in mild painful distress, with bilateral pedal edema up to the groin. There was tachycardia of 142/min and dyspnea between 30-44/min, with crepitations. The assessment was a vaso-occlusive crisis with chest infection. Her pain medication and fluid regimen were reviewed. However, she was still tachypneic, tachycardic, febrile and the surgical wound was noted to be discharging pus from the distal third. A swab was taken for microscopy, culture, and sensitivity. It grew *Candida albicans, Salmonella typhi* and *E. coli*, both sensitive to Meropenem. An intra-abdominal collection was suspected on account of which she had an abdominopelvic scan and serum albumin level. The abdominopelvic scan showed 56mls of fluid collection in the left paracolic gutter, 25.3mls in the right paracolic gutter and 24mls in the pelvis. She immediately commenced on IV meropenem 500mg 8hourly for 7 days and fluconazole 150mg daily for 2 weeks.

She was also commenced on parenteral nutrition, including combilipid and Albumin for short duration due to cost consideration and high protein diet thereafter once she was able to tolerate oral feeding.

On the 11th day, she became agitated, crying, restless and could not sleep. She complained of seeing shining lights and hearing voices and sounds. She was seeing a late patient at night calling her. She was incoherent, confused, had illusions with visual and auditory hallucinations. A diagnosis of Typhoid psychosis was made and was referred to a psychiatrist. She started on 5mg Benzhexol daily and Chlorpromazine 100-100-200mg. Her dose of Chlorpromazine was reduced after 2 weeks following marked improvement. She was placed on fortified pap and high protein diet. Her pedal edema subsided. The bilateral pleural effusion responded well to conservative treatment. Her serum potassium dropped to 1.8mmol/l). IV Frusemide was reduced to 20mg daily and Tabs Aldactone 25mg and potassium correction and Slow K 600mg were added. Breathing improved tremendously. Staples were removed on the 21st post-operative day and the wound was dressed with honey. The pleural effusion was monitored by serial chest CT scans.

She was discharged on the 32nd day on admission for review in both the surgical out-patient and the psychiatric outpatient clinics. Her surgical outpatient visits have been uneventful. The surgical wound has healed, and the patient is doing very well. Informed consent was sought and taken from the patient and images were anonymised to ensure confidentiality.

Figure 1- Ileal Perforation



Discussion

Typhoid ileal perforation is the commonest and most severe surgical complication of typhoid fever, a disease which is still a serious public health problem in developing countries.[4] Mortality rate, which was reported to be 100%,[5] though still very high, has reduced with the advent of modern therapeutic options. Kenneth A. *et al,*[6] reported an overall mortality of 30%, but it was 100% in those with three or more perforations. In a review from six countries, Birkhold *et al* found that mortality in low-income countries ranged from 4.6-75%,[7] and <1% in developed countries. These figures are still extremely high and not acceptable.

In addition to mortality, morbidity is also high, with studies from Nigeria reporting a morbidity above 50%,[7]. Osifo OD *et al,* [8] in Benin, Nigeria, reported a mortality of 75% and morbidity of 100%.

Diagnosis of this condition is clinical although culture of blood, stool, or urine in the first, second and third week respectively could isolate the organism. Plain Abdominal X-rays and USS where available could help in making pre-operative diagnosis but these should not delay early surgical intervention. Tissues obtained at surgery could also be used to identify the organism. In this case, wound swab grew Salmonella typhi.

Perforation usually occurs in the second to third week of untreated or improperly treated Typhoid fever as it happened in this index case. The onset of abdominal pain was at the onset of the second week. This contrasts with the report of a series in Maiduguri that found that more than 50%, [9] of the perforations occurred in the first week.

The features of the perforation highly suggested Typhoid ileal perforation as against tuberculous perforation.

Complications in these patients include enterocutaneous fistula,[4] intra-abdominal abscesses, malnutrition. Others are surgical site infections and post operative pyrexia. [9]

The index patient not only developed the above complications, but also had schizophrenic manifestations in the form of visual and auditory hallucinations, restlessness, confusion, weepy spells, and poor sleep. Behavioral abnormalities including delirium and sleeplessness("coma-vigil") were ascribed to "Typhoid Toxaemia", [3] and are believed to occur at the onset of fever which usually subsides with defervescence. Oshuntokun,[10] reported late development of schizophreniform psychosis as seen in the index case which got worse until she was treated with anti-psychotics. Esa *et al* reported acute psychosis in a 20-year-old patient with blood-culture- positive typhoid fever,[11] while Stanley,[12] reported a rare delusional disorder in a 17-year-old with psychosis following typhoid fever. This psychotic episode contributed to the morbidity of this patient.

Surgical intervention includes simple repair, resection, and anastomosis in the case of multiple perforations, and exteriorization of both ileal ends as temporary ileostomies when the bowel is edematous and not suitable for safe anastomosis and if the patient is extremely sick. We could also exteriorize the ileal perforation. Perforations less than 3cm from the ileo-caecal junction are treated with right Hemicolectomy.

Mean hospital stay was 30 days (range 8-52) in Abidjan,[4] Cote D'Ivoire and 22.9 ± 12.3 (range, 6−46) days in Maiduguri.[9] The index case was discharged after 32 days on admission. This long hospital stay underlines the problems and complications associated with this condition.

Conclusion

The combination of acute psychosis and ileal perforation in an HbSC patient with Typhoid fever results in high morbidity and mortality. Early surgical intervention is necessary to reduce mortality and prompt administration of anti-psychotic medication is important.

References

1. The global burden of typhoid and paratyphoid fevers: a systematic analysis for the Global Burden of Disease Study 2017.GBD 2017 Typhoid and Paratyphoid Collaborators. *Lancet Infect Dis.* 2019 Apr; 19(4):369-381.
2. Hanel RA, Araujo JC, Antoniuk A, da Silva Ditzel LF, Flenik Martins LT, Linhares MN. Multiple brain abscesses caused by Salmonella typhi: case report. *Surg Neurol*. 2000 Jan. 53(1):86-90.
3. Nair RK, Mehta SR, VSM, Kumaravelu S. Med J Armed Forces India. 2003 Jul;59(3):252-253
4. Kouame J, Kouadio L, Turquin HT. Typhoid Ileal Perforation Surgical Experience of 64 Cases. *Acta chirbelg*, 2004, 104, 445-447.
5. Foster EC, Lefor A.T. General management of gastro-intestinal fistulas: recognition, stabilization and correction of fluid and electrolyte balances. Surg Clin North Am, 1996, 76: 1019-33
6. Agu K, Nzegwu M, Obi E. Prevalence, morbidity, and mortality patterns of typhoid ileal perforation as seen at the University of Nigeria Teaching Hospital Enugu Nigeria: an 8-year review. World J Surg 2014 Oct;38(10):2514-8. doi: 10.1007/s00268-014-2637-5.
7. Birkhold M, Coulibaly Y, Coulibaly O, Dembélé P, Kim DS, Sow S, Neuzil KM. Morbidity and Mortality of Typhoid Intestinal Perforation Among Children in Sub-Saharan Africa 1995–2019: A Scoping Review. World J Surg. 2020; 44(9): 2892–2902.
8. Osifo OD, Ogiemwonyi SO. Typhoid ileal perforation in children in Benin City. Afr J Paediatr Surg May-Aug 2010;7(2):96-100. doi: 10.4103/0189-6725.62857
9. Nuhu A, Dahwa S, Hamza A. Operative management of Typhoid Ileal Perforation in children. Afr J Paediatr Surg 2010;7:9-13
10. Osuntokun BO, Bademosi O, Ogunremi K, Wright SG. Neuropsychiatric manifestations of typhoid fever in 959 patients. *Arch Neurolo.* 1972;27:7–13.
11. Esa H, Norazlah B, Hameed AA, Ding CH, Wahab AA. Typhoid fever presenting as acute psychosis in a young adult: case report and literature review of typhoid psychosis. Trop Biomed. 2021 Jun 1;38(2):192-195
12. Stanley PC, Andrew AE. Fregoli syndrome: a rare persecutory delusion in a 17 year old sufferer of psychosis associated with typhoid fever at Jos University Teaching Hospital, Jos, Nigeria. Nigerian Journal of Medicine2002 Jan 1;11(1):33-4.