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Situs Inversus Totalis in a man with generalised peritonitis secondary to typhoid ileal perforation: A case report

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Abstract

Situs inversus totalis (SIT) is a rare congenital condition in which all thoraco-abdominal organs are mirrored from their normal positions, occurring in approximately 1 in 10,000 individuals. Its coexistence with typhoid ileal perforation is exceptionally uncommon and poses unique diagnostic and surgical challenges. We report a 50-year-old Nigerian man who presented with an 18-day history of fever and 5-day history of abdominal pain and distension. Chest X-ray revealed dextrocardia, and a diagnosis of generalised peritonitis secondary to typhoid ileal perforation was made. Emergency exploratory laparotomy confirmed SIT, with two ileal perforations identified proximal to a left-sided ileocaecal junction. Segmental resection and anastomosis were performed with an uneventful recovery. This case highlights the importance of maintaining a high index of suspicion for anatomical anomalies and the value of thorough preoperative imaging in ensuring safe surgical management.

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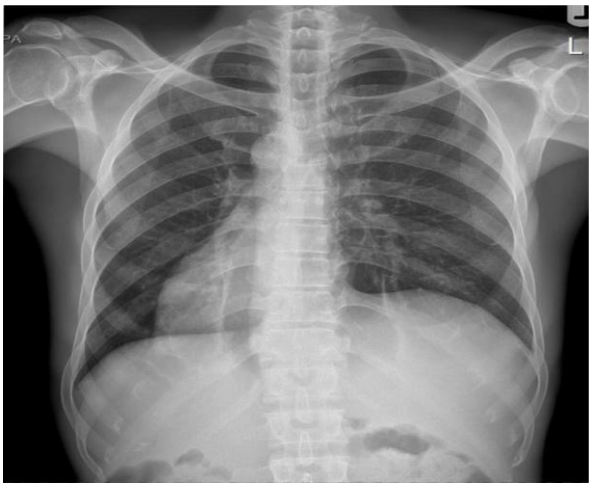
Introduction

Typhoid fever, caused by *Salmonella Typhi,* is a common cause of fever in developing countries and can lead to serious complications, including intestinal perforation. Situs inversus totalis (SIT) is a rare congenital condition resulting in the complete reversal of thoraco-abdominal solid organs. The embryonic rotation of the midgut occurs in the opposite direction, leading to a mirror image arrangement of all visceral organs in both the thorax and the abdomen.

Fabricius first described dextrocardia in 1600 AD, but Severinus was the first to describe it with a complete situs inversus[1]. According to estimates, the incidence lies between 1 in 10,000 and 50,000 live births[1,2]. The direct aetiology of this condition is not known; however, this is an autosomal recessive condition has been linked to a number of things, such as conjoined twinning, cocaine usage, and maternal diabetes[1,2].

Figure 1: Chest X-ray of the patient showing dextrocardia



Both males and females have equal predilection. Individuals with this disorder may also present with primary ciliary dyskinesia, congenital heart defects, and splenic abnormalities. The coexistence of typhoid ileal perforation with SIT is exceptionally uncommon and poses unique diagnostic and surgical challenges. Here, we describe the journey of a patient with typhoid ileal perforation who underwent exploratory surgery that revealed the surprising finding of SIT.

Figure 2: Surgeon on the left side of the patient during resection and anastomosis of the left sided situated terminal ileum.

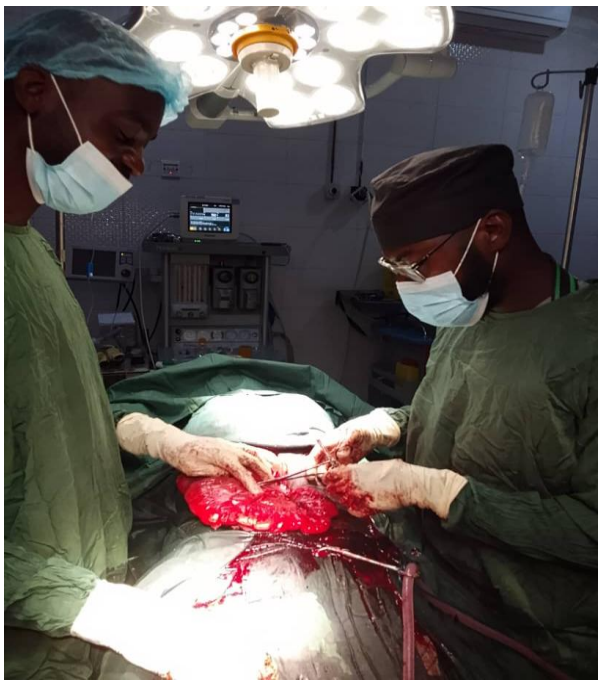


Figure 3: Spleen located at the right side .

Case Presentation

A 50-year-old man presented to our hospital with an 18-day history of fever and a 5-day history of abdominal pain and progressive distension. The fever was high-grade stepladder pattern, accompanied by fatigue. His abdominal pain was located initially around the umblicus but became progressively generalized with associated bilious vomiting and constipation. There was no drenching night sweat, ingestion of unpasterised milk, prior history of Peptic Ulcer Disease or abuse of NSAIDs. He had no prior history of abdominal surgery or known congenital anomalies.

On arrival, he appeared acutely ill, afebrile (37.1°C), with a heart rate of 88 beats per minute and blood pressure of 110/60 mmHg. The apical heart beat was heard over the right intercostal space, midclavicular line. His abdomen was visibly distended and tender with guarding, Bowel sounds were reduced, and his digital rectal examination was unremarkable.

Initial blood tests showed anemia, whilst blood electrolytes were normal. A chest X-ray showed dextrocardia (heart located on the right side, figure 1), and an abdominal ultrasound revealed free fluid in the abdomen, suggesting peritonitis.

A diagnosis of generalised peritonitis secondary to Typhoid ileal perforation was made. The patient had three pints of blood transfused, nasogastric tube decompression, urethral catheterization and intravenous fluid administration, as well as antibiotics targeting Salmonella typhi.

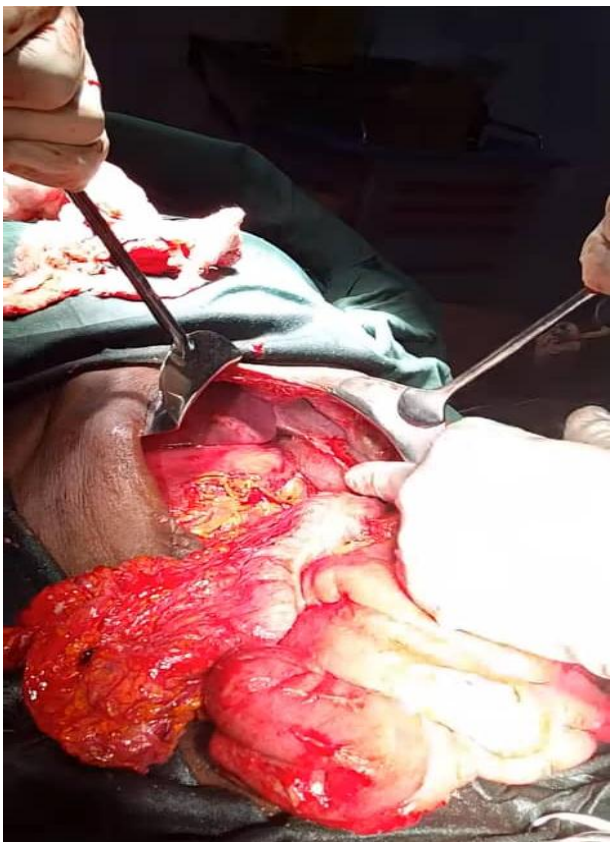
The patient's recovery was uneventful. He was managed with intravenous antibiotics targeting Salmonella Typhi, and the abdominal drain was removed on postoperative day 5. He was discharged on day 9 in good condition and advised to complete a two-week course of oral antibiotics. At a follow-up visit two weeks later, he had made good recovery. The histology of resected bowel returned consistent with Typhoid perforation.

Discussion

This case highlights a rare intersection of two conditions: typhoid ileal perforation and situs

inversus totalis (SIT). Typhoid ileal perforation is a well-known complication of typhoid fever, occurring due to necrosis of Peyer's patches in the ileum. It often requires prompt surgical intervention to prevent fatal outcomes[3].

Figure 4: Left lobe of the liver located at the right side.



SIT is a rare congenital condition occurring in approximately 1 in 10,000 individuals, where the thoracic and abdominal organs are reversed. Few cases has been reported in Nigeria however, the case remain rare[4 5]. While it is usually asymptomatic and often discovered incidentally, it can complicate the diagnosis and management of acute conditions.

In this patient, the reversed anatomy caused no diagnostic dilemma and the patient never had any clinically significant cardiopulmonary symptoms or features suggestive of other associated conditions of SIT. However, the diagnosis was important so as to properly counsel the patient to forestall any future diagnostic dilemma.

This case underscores the importance of maintaining a high index of suspicion for anatomical anomalies, particularly in patients with atypical presentations of common conditions. Preoperative imaging is crucial, especially in resource-limited settings where anatomical variations may go unnoticed. Sharing such rare cases enhances understanding and prepares clinicians for unexpected findings during surgery[6, 7].

Conflicts of Interest: None declared.

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