Journal of the
Bahrain Medical Society

Agha and Abdulaziz, J Bahrain Med Soc. 2020;32(1):25-28

CASE REPORT

Intestinal Intussusception as a Complication of Typhoid Fever

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Received date: July 1, 2019; **Accepted date:** December 12, 2019; **Published date:** March 31, 2020

Abstract

Typhoid fever is a systemic illness that is characterized by abdominal pain and fever. It is caused by gram negative rod *Salmonella enterica* serotype Typhi and Paratyphi A, B, C. The disease goes through stages and its clinical manifestations varies according to the stage of illness. In this case report we present a case of a young healthy male who presented with abdominal pain which was initially diagnosed with an impression of acute surgical abdomen due to bowel obstruction and later identified to have intestinal intussusception secondary to enteric fever. This type of gastrointestinal complication is considered an uncommon complication of the infective process of Typhoid fever. Reporting this case would help in raising the attention toward such complications which may be confused with other differentials of acute abdomen.

Keywords: Fever; Typhoid; Bowel obstruction; Antibiotics; *Salmonella typhi.*

Introduction

Typhoid fever is a systemic illness that is characterized by abdominal pain and fever. It is caused by gram negative rod *Salmonella enterica* serotype Typhi and Paratyphi A, B, C.[1] Enteric fever is more common in children and young adults than in older patients.[2] Worldwide, enteric fever is most prevalent in impoverished areas that are overcrowded with poor access to sanitation. Incidence of typhoid fever in Bahrain is very low, reported to be 0.5/100,000 population for the last five years (2014-2018).

The disease goes through stages and its clinical manifestations varies according to the stage of illness. Initially, the patient usually presents with fever that progresses to abdominal pain and rash on the trunk. By the third week, there might be hepatosplenomegaly and gastrointestinal complications, the commonest of which are ileal perforation and gastrointestinal hemorrhage, rarely intestinal intussusception. Here we present the case of a young healthy male who presented with abdominal pain which was initially diagnosed with impression of acute surgical abdomen due to bowel obstruction and later identified to have intestinal intussusception secondary to enteric fever. He was managed conservatively with good outcome.

Case Presentation

History and Presentation

A 28-year-old Indian male who was not known to have any medical previous illness presented to the accident and emergency department at Salmaniya Medical Complex in Manama/Bahrain with the complaint of abdominal pain of 6 days duration. The pain was localized mainly in the right lower

quadrant of the abdomen. The pain was colicky in nature, non-radiating, without any particular relieving or exacerbating factors. He gave history of fever with chills and nausea without vomiting for 2 weeks. He denied any change in bowel habits. He never had similar symptoms in the past and there was no past history of surgery. His last visit to India was two years ago.

Physical Examination & Investigation

On examination, the patient looked generally well and not in acute distress. The vitals documented a temperature of 39.5^{0}C with tachycardia of 102 beats/min and blood pressure of 121/64 mmHg. The abdomen was soft with mild tenderness in the lower left inferior quadrant. Murphy's sign was negative and no rebound tenderness was noted. The bowel sounds were absent.

The laboratory investigations showed a normal ESR of 12/hour (upper level of reference range is 20/hour). The complete blood count showed WBC count and hemoglobin within normal limits and thrombocytopenia of 91 g/L. Malaria smear was negative and serum amylase level was normal. Alanine aminotransferase was slightly elevated with a value of 191 U/L (upper level of reference range is less than 41 μ/L).

Computed tomography of the abdomen and pelvis (CT) was done, which showed a short bowel segment in the right iliac fossa displaying the target sign, suggestive of transient ileocecal intussusception with no evidence of bowel obstruction [Figures 1 & 2].

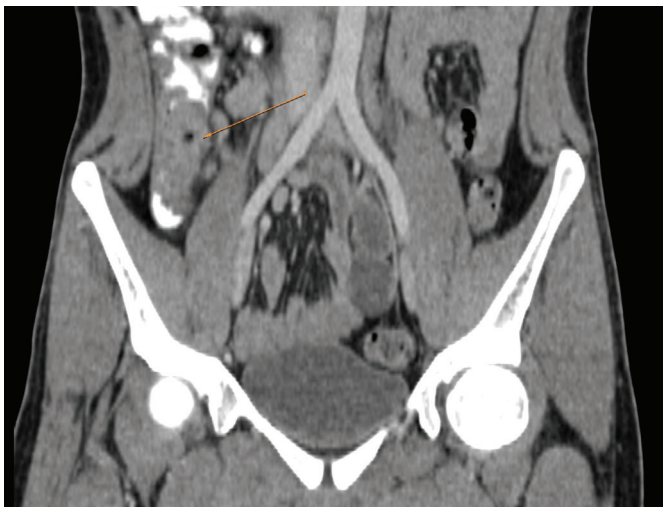

Figure 1: CT scan image of the abdomen and pelvis (coronal cut image). The yellow arrow points at the target sign, suggestive of transient ileocecal intussusception

Figure 2: CT scan of the abdomen and pelvis (axial cut). The yellow arrow points at the target sign, suggestive of transient ileocecal intussusception without evidence of bowel obstruction

Differential Diagnosis

In view of the presenting complain, the physical examination findings and the CT abdomen result, the impression was of acute surgical abdomen that should be admitted for observation and further work-up including the possibility of surgical intervention as the progress of the condition mandates.

Treatment and Diagnosis

He was started on antibiotics (ceftriaxone 2 g once daily and metronidazole 500 mg three times a day) and admitted under the surgical department for observation. After 48 hour, the peripheral blood culture grew *Salmonella typhi*, resistant to nalidixic acid and ciprofloxacin but susceptible to ceftriaxone and cotrimoxazole. Metronidazole was stopped, and he continued the next seven days on intravenous ceftriaxone, followed by oral cotrimoxazole to complete a total duration of therapy of 14 days with impression of bowel intussusception due to typhoid fever.

Monitoring & Outcome

As an in-patient, the patient denied having abdominal pain, and had normal bowel habit with normal appetite after receiving ceftriaxone for four days. His abdomen was completely soft with no tenderness and normal bowel sounds on examination. Therefore, we decided to continue conservative measures and treat him only with antibiotics. Surgical intervention was not needed

in this case. Therefore, he was discharged on the oral antibiotics (Co-Trimoxazole) to complete the treatment as an outpatient.

The patient was seen in the outpatient clinic after completing the treatment course. He was doing well with no gastrointestinal symptoms.

Discussion

Intussusception is the telescoping of one segment of the gastrointestinal tract into an adjacent one.[3] This condition is relatively uncommon in adults as 90% of all intussusceptions is usually encountered in the pediatric age group.[4]

Intussusception in adults differs from that in children. Among children, 90% of all cases is idiopathic, while among adults, it is rarely idiopathic and mostly (90%) secondary to benign or malignant gastrointestinal pathology, or rarely due to an infective gastrointestinal etiology such as typhoid, tuberculous or amebic enteritis.[5-7]

Intussusception in adults is an uncommon complication of typhoid fever. Pathologically, the mechanism proposed involves the affinity of *Salmonella typhi* for the lymphoid tissues and the subsequent enlargement of Peyer's patches in the ileum. Other speculated pathology is the disturbed intestinal peristaltic movement that may set the stage for the prolapse of one segment into another, which is usually encountered by the third week of typhoid fever.[7-8]

Our patient presented with ileocecal intussusception by the third week of his febrile illness and was admitted under the surgical department as acute abdomen. His result of septic workup revealed the diagnosis of typhoid fever and he was managed accordingly.

Computed tomography seems to be the most reliable investigation in making a preoperative diagnosis, especially in those patients with non-specific abdominal pain in whom the diagnosis can be elusive.[4]

Management of intussusception is usually surgical intervention, but for stable patients with small bowel involvement, the conservative approach is also an acceptable treatment option, particularly when the primary etiology is infective pathology.

Similar cases have been reported, demonstrating this uncommon complication of typhoid fever. A case report presented this complication in a 14-year-old boy who complained of fever, bloody stool and vomiting for nine days. He was diagnosed clinically and by CT scan to have bowel intussusception. He was taken for laparotomy and the intussusception was surgically reduced. Post-operatively, Widal test was positive for *Salmonella typhi*, while cultures from blood, urine and stool were negative. However, the child needed to be operated on one more time for the re-emergence of bowel obstruction along with antibiotics including ceftriaxone and ciprofloxacin.[9] Another complicated case was of a 34-year-old male who presented with complaints of abdominal pain and vomiting. After evaluation, he was taken for laparotomy with the impression of intussusception. The patient grew *Salmonella typhi* from the stool. He was treated with antibiotics chloramphenicol but unfortunately the course was complicated by bowel perforation which was treated conservatively. He fully recovered in four weeks of the original presentation.[7]

Conclusion

Intussusception in adults is an uncommon problem and usually presents with nonspecific abdominal pain, hence its diagnosis can be challenging. It is important to have a high index of suspicion for an accurate and timely diagnosis. The progression and outcome of the condition varies from person to person but generally the outcome is observed to be good, based on the review of multiple cases with a similar complication.

Among adults with intussusception, primary (idiopathic intussusception) is a rare presentation. Accordingly, the primary pathology in the gastrointestinal tract should be actively investigated, appropriate septic workup for other infective causes.

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