

# Localized Small Bowel Perforation - a Radiological Rarity

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## Introduction

Tuberculosis and Enteric fever are two of the most common causes of intestinal obstruction in our region.<sup>1</sup> Clinical presentations and diagnosis in each of these can times, be a difficult task for clinicians due to their wide clinicopathological spectrum.<sup>2</sup> We are reporting a case of intestinal obstruction and small bowel perforation in which diagnosis was delayed as a result of diverse presentation and clinical-radiological findings, attributed to the presence both of tuberculosis as well as typhoid in the same region of small bowel.

## Case Report

A 28 year old male was seen in the emergency room with 24 hour history of constipation, abdominal distension and vomiting. He also gave a history of intermittent high grade fever with rigors for the last one month. On examination his abdomen was mildly distended, tender all over with positive gut sounds on auscultation. Plain x-ray abdomen showed multiple air-fluid levels in the small bowel (Figure 1). The x-ray of the chest showed no evidence of free gas under the diaphragm. [(0)] On admission his clinical diagnosis was subacute small bowel obstruction secondary to tuberculosis and conservative management was initiated. [(1)] After about 8 hours of conservative management he passed stool, distension decreased but a localized area of distension, involving parts of umbilical, left iliac region and hypogastrium still persisted. A small bowel enema was performed to exclude a tuberculous stricture. The scout film of the small bowel enema showed the presence of a large lucent area along the left side of the abdomen. The upper limit of this area was seen at the level of L3 vertebral body on the left side. The lower limit of this region extended into the pelvis. Slightly distended small bowel loops were also noted in the left upper quadrant. (Figure 2) Serial small bowel enema films revealed optimal opacification of the small bowel loops with contrast. There was generalized superior displacement of the small bowel loops predominantly along the left side of the abdomen. This area did not [(2)] conform to the shape of a distended segment of either the small or large bowel (Figure 3). The prone film of the small bowel enema showed contrast outlining the distal small bowel and the ascending colon. The lucent area noted in the previous film was seen causing compression over the distal descending colon leading to a slight narrowing. A small amount of contrast appeared to be entering the radiolucent area, the possibility was raised of either an entero-enteral or entero-colic fistula (Figure 4). On the following day the condition of the patient deteriorated with an increase in the abdominal pain and distension. An exploratory laparotomy was performed. Small bowel contents were found in a localized cavity in the left lower quadrant. Rest of the abdominal cavity was plastered due to adhesion between bowel loops and abdominal wall. Two perforations were identified on the antimesenteric border of the small bowel loops. Small whitish tubercles were present all over the visible

serosa of the small intestine. Due to dense adhesions and friable bowel walls the exact level of the perforations could not be identified. Thorough wash out of the cavity was performed; margins of the perforations were refreshed and biopsy was taken. Perforations were closed with single layer of absorbable sutures. A solitary loop of small bowel was separated and brought out as a stoma. Abdomen was closed with a large bore drain in-situ. Histopathology report documented granulomas with epithelioid cell giving a suspicion of tuberculosis. Patient was empirically started on anti-tuberculous therapy. Post operative course was complicated by wound dehiscence and anastomotic leakage, which were managed by re-laparotomy on four occasions and closure approximately 4 weeks after the surgery. Patient was discharged after 7 weeks of hospitalization.

## **Discussion**

Small bowel obstruction formulates a major percentage of surgical patients in the emergency room. There is wide spectrum for common causes of small bowel obstruction varying from western literature to the third world countries. Foreign bodies, mechanical causes and radiotherapy account for most cases in the west and typhoid fever and tuberculosis account for the majority of cases in the developing world. 1 A specific diagnosis can often be made but not infrequently the findings are not specific for any condition. In over 90% of the cases the cause of a pneumoperitoneum will require surgery. The demonstration of pneumoperitoneum is about 75-80% in most series. Reasons for lack of radiological identification are sealing off of the perforation, lack of gas at the site of the perforation, or adhesions around the site of perforation. 2 Plain abdominal radiography remains the first step in the diagnostic imaging evaluation of a patient with suspected bowel obstruction. The diagnostic accuracy of plain radiographs alone is low, varying from 55% to 80%. 3 In our patient the radiograph was able to diagnose small bowel obstruction but was unable to identify the etiology. It has been well documented that radiology is generally considered to be a poor modality for the detection of the underlying etiology of the obstruction due to lack of specific features. 4,5 In a study 74% of pneumoperitoneum was noted on radiography, the majority (55%) of these cases were due to tuberculosis.6 There has been no documentation or any radiological evidence of localized perforations or sealed perforations. Early diagnosis and management of small bowel perforation is essential as delayed intervention can cause a mortality rate of 28% to 40%. 1,7 In this patient the evidence of small bowel perforation was not identified on contrast studies, the radiological signs were interpreted as a fistula between the small and large bowel, mistaking the localized peritoneal cavity as the distal colon. Early laparotomy was performed due to deterioration in the clinical condition of the patient. It is concluded that clinical acumen should be the deciding factor for laparotomy in an acute abdomen. Radiological findings can be misleading in cases of localized small bowel perforations.

## **References**

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