

## Mechanical small bowel obstruction due to perforated appendix: a Case Report

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**Abstract:** Acute appendicitis presenting as intestinal obstruction due to perforation leading to bowel paralysis is not a very rare incidence; whereas appendicular knot, adhesive band, perforated appendix causing bowel interloop abscesses etc. leading to mechanical obstruction are not something which is encountered very often. Here we are presenting a case of perforated appendix leading to para-appendiceal abscess which presented as subacute intestinal obstruction. A 23 years old male patient presented in Emergency Department as a case of subacute intestinal obstruction which was later diagnosed to be a case of perforated appendix with appendicolith and abscess formed medial to the right psoas muscle with adhesion of distal ileum to the abscess wall. He underwent emergency exploratory laparotomy, adhesiolysis, drainage of abscess and appendectomy.

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### I. Introduction

Intestinal obstruction is one of the most common surgical emergencies well known worldwide. 1 X-ray abdomen can diagnose acute intestinal obstruction, whereas for diagnosing the etiology of obstruction, CECT abdomen and pelvis is recommended. 2 Small bowel obstruction in acute appendicitis can be both mechanical and due to ileus. 3 Acute appendicitis causing bowel paralysis is not rare, on the other hand, mechanical bowel obstruction as a consequence of acute appendicitis is rare but life threatening. 4 The exact cause of mechanical obstruction, if it's due to complication of acute appendicitis, is difficult to diagnose without laparotomy. 4 Rarely a perforated appendicitis can cause mechanical intestinal obstruction. 5 Other rare scenarios where acute appendicitis causing mechanical obstruction are by kinking, compression or traction of the small bowel trapped in an appendicular mass or abscess etc. 6 Here we are presenting a case of perforated appendix leading to para-appendiceal abscess trapping the small bowel and thus leading to mechanical small bowel obstruction.

### II. Case Report

A 23 years old male presented in Emergency Department with 6 days history of pain and distension of the abdomen and inability to pass stool or flatus for the same duration, with history of two episodes of loose stools 6 days back and 2 episodes of fever during this period. The pain abdomen the patient described was not localized to any particular part of abdomen at any point of time. There was no history of tuberculosis or previous surgery or chronic alcoholism or viral hepatitis.

On examination, abdomen was distended, soft with mild generalized tenderness, no lump was palpable and bowel sound was decreased. No visible peristalsis was present and hernial orifices were normal. After initial resuscitation, X-ray abdomen (AP erect) with X-ray chest (PA) were done which showed dilated small bowel loops with few air-fluid levels in abdomen suggestive of small intestinal obstruction. With all relevant investigations, a Contrast Enhanced CT of abdomen was done later on, which showed: Appendicolith with appendicitis showing indistinct wall in the tail that continues with para-appendiceal abscess medial to right psoas muscle, adhesions of distal ileal loops with abscess wall causing proximal small bowel obstruction.



X-ray abdomen showing dilated bowel loops and air-fluid levels



CECT abdomen showing abscess (pointer) and dilated bowel loops



CECT abdomen showing appendicolith (pointer)

The patient underwent emergency exploratory laparotomy on the same day. Intra-operatively, part of the ileal loop was found to be adherent in the right iliac fossa area. Adhesiolysis was done and around 200ml of pus was removed with suction machine from the area of adhesion in right iliac fossa. Tip of the appendix was found to be gangrenous and perforated with healthy base. Both pus and part of the tip of appendix were sent for culture and sensitivity test, whereas the whole appendix was sent for histopathological examination. After thorough wash of abdomen, a drain was kept in right iliac fossa and pelvis and then abdomen was closed.



Part of ileal mesentery after adhesiolysis



Pus in the right iliac fossa

Post-operatively the patient was managed with bowel rest, appropriate fluid, optimum analgesia and empirical antibiotics until the culture and sensitivity reports arrived. On post-operative day one, around 10ml of serosanguinous fluid was collected in the pelvic drain bag and sample was sent for culture and sensitivity test. Pus culture (collected intra-operatively) showed growth of *Enterobacter* sp. and appendix tip grew *E. coli* both sensitive to piperacillin + tazobactam, whereas drain fluid was sterile.

Patient improved symptomatically without any surgical site infection with one episode of low-grade fever on post-operative day 3, for which all relevant investigations were sent and all reports came to be normal. The patient was discharged with advice on post-operative day 11<sup>th</sup> and was followed up after 1 week and then advised for review after 1 month. Histopathology report of appendix was showing acute necrotizing appendicitis with inflammation of mesenteric fat.

### **III. Discussion**

Acute appendicitis can present as small bowel obstruction with features of bowel paralysis and it is a common scenario encountered in day-to-day clinical practice. On the other hand, mechanical small bowel obstruction as a result of appendicitis is quite rare.<sup>4</sup> The causes of mechanical small bowel obstruction can be an appendicular kinking, perforated appendix leading to bowel interloop abscess causing compression or traction to the bowel etc. and they can be life-threatening too.<sup>4,6</sup> Perforated appendix causing multiple inter-loop abscesses and thus causing obstruction is rare but known complication.<sup>7,8</sup> Inflammatory response after infection at the area leads to activation of inflammatory factors and complements with exudation of fibrin-rich fluid, where fibrinogen is converted to fibrin. This fibrin attaches to the surrounding damaged structures and that causes adhesions. These adhesions are known as fibrinous adhesions. These fibrinous adhesions become fibrous adhesions when fibroblasts emerge into the matrix and deposit collagen there.<sup>9,10</sup>

The case we have discussed above is one of the rare scenarios where perforated appendix causing mechanical small bowel obstruction due to adhesion of bowel to abscess wall. Therefore, in a case

presenting with clinical and radiological features of mechanical obstruction, appendicular pathology must also be in the differential diagnosis and wherever a contrast CT is available as emergency basis, it should be considered as a pre-operative work-up modality, provided patient's condition is allowing.<sup>1</sup> This will help anticipate an intra-operative finding of appendicular pathology. Again, when a patient is being treated conservatively for acute appendicitis or appendicular lump, close monitoring is a must and quick action is to be taken as soon as an abscess is suspected, since it's possible that patient develops bowel paralysis as well as mechanical obstruction as additional complications.

#### **IV. Conclusion**

Mechanical small bowel obstruction can be due to para-appendiceal abscess and thus a proper history might be a very important step in clinical practice, while a contrast enhance CT is important to anticipate such an intra-operative scenario. On the other hand, patients being treated conservatively for acute appendicitis and appendicular lump must be monitored closely and immediate action should be taken as soon as abscess is suspected to avoid additional complications like intestinal obstruction.

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