CASE REPORT

Acute appendicitis as a rare cause of mechanical small bowel obstruction case report
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ABSTRACT

Acute appendicitis is the most common surgical condition with which patients present in emergency departments worldwide. It is also a rare cause of intestinal obstruction. Here, we report a case of a 53-year-old man who presented with a clinical picture of mechanical small bowel obstruction. Leucocytosis was not demonstrated on the routine blood investigation in our case, in contrast to the findings for most patients with acute appendicitis. Acute appendicitis, as the cause of the intestinal obstruction, was diagnosed by computed tomography of the abdomen. The patient was treated using diagnostic laparoscopy and laparoscopic appendectomy. This case was compared with those previously reported in the medical literature to determine the frequency of the case and the surgical management.

Keywords: Acute appendicitis, intestinal obstruction, laparoscopic appendectomy, small bowel obstruction

INTRODUCTION

Acute appendicitis is the most common surgical condition with which patients present in emergency departments worldwide. It is also a rare cause of intestinal obstruction. The relationship between acute appendicitis and mechanical intestinal obstruction was first described by Hotchkiss et al., in 1901 and Hawkes in 1909.²,³ The clinical features of small bowel obstruction can obscure the clinical picture of appendicitis.¹ It is known that a diagnosis of acute appendicitis is established via diagnostic modalities, such as computed tomography (CT) of the abdomen or diagnostic laparoscopy.

CASE REPORT

A 53-year-old male patient presented to our emergency department with generalised lower
abdominal pain associated with nausea, vomiting and constipation of two- and four-day durations. There was no history of abdominal surgery or medical comorbidities. The patient was afebrile and his vital parameters were normal. Physical examination showed minimal generalised tenderness in the lower abdomen, more so on the right than the left side, and the absence of rebound tenderness or guarding. Mild abdominal distension was observed. The bowel sounds were characteristic of intestinal obstruction. The rectal examination and leukocyte count were normal, and the laboratory investigations were unremarkable. A C-reactive protein test was not performed. Multiple air fluid levels in the small bowel and the absence of free air beneath the diaphragm were observed on erect abdominal X-ray (Figure 1). Initially, the patient was admitted to the surgical care ward with a diagnosis of intestinal obstruction. A CT of the abdomen was requested to confirm the diagnosis. Results showed a dilated small bowel with an inflamed appendix (Figure 2). The patient underwent diagnostic laparoscopy. The intraoperative findings were a thickened oedematous appendix, with the tip adherent to the terminal ileum. The appendix was removed via laparoscopy. Other causes of intestinal obstruction were excluded by diagnostic laparoscopy. The histopathology report confirmed suppurative acute appendicitis. The patient was discharged on the second day postoperatively with no complications.

**DISCUSSION**

The typical presentation of acute appendicitis involves symptoms of initial diffuse abdominal pain that shifts to the right iliac fossa, nausea, vomiting and leukocytosis, supported by routine blood investigations. Only few diagnostic scoring systems, such as Alvarado, have been developed over the years to assist in the diagnosis of acute appendicitis.
Table 1. Comparison with previously reported cases in the literature.

| Mechanism of obstruction                                                                 | Preoperative diagnosis                  | Gender | Procedure          | Age/mean (± SD) Age (years) | Number of cases | Reference |
|------------------------------------------------------------------------------------------|----------------------------------------|--------|--------------------|-----------------------------|-----------------|-----------|
| A constricting ring around the terminal ileum created by phlegmonous appendicitis         | Intestinal obstruction                 | Male   | A midline laparotomy | 20                          | 1               | L. Awale¹ |
| Perforated appendicitis adherent to terminal ileum, colon and cecum                      | Mechanical small bowel obstruction     | 7 Males/3 Females | A midline laparotomy | 46.4 ±                      | 10              | S. Harris⁴ |
| The ileal segment was strangulated by a band composed of inflamed appendix and omentum   | Mechanical small bowel obstruction of unknown aetiology | Male | A midline laparotomy | 24                          | 1               | L. Bhandari⁵ |
| The appendix was wrapped around the last loop of ileum                                   | Mechanical small bowel obstruction     | Female | A midline laparotomy | 78                          | 1               | M. Assenza⁶ |
| The tip of the inflamed appendix was adherent to the terminal part of ileum forming a ring-like structure with herniation of terminal 60 cm of ileum through the ring | Small intestinal obstruction           | Male   | A midline laparotomy | 26                          | 1               | C. Chatterjee⁸ |
| The appendix had surrounded a loop of the terminal ileum, causing a closed-loop obstruction | Small intestinal obstruction           | Female | A midline laparotomy | 86                          | 1               | M. O’Donnell⁹ |
Leucocytosis was not demonstrated on the routine blood investigation in our case, in contrast to the findings for most patients with acute appendicitis, as evidenced by a review of the literature. A study by Harris⁴ reported that 7 out of 10 patients had leucocytosis, with immature polymorphonuclear leucocyte preponderance. Laligen¹ and Bhandari⁵ reported that routine blood investigations for their patients were normal. By contrast, abnormality (white blood cells 7.580/mm³) was not observed in the study by Assenza following routine blood investigations.⁶

The mechanisms of intestinal obstruction caused by acute appendicitis were explained in detail by Bhandari.⁵ He divides the mechanisms into adynamic, mechanical (without strangulation), strangulation (of the intestine) and intestinal (obstruction due to mesenteric ischaemia). Our case fitted into the mechanical obstruction category because the tip of the patient’s appendix was adherent to the terminal ileum.⁷

Intestinal obstruction was the clinical presentation in our case, and following the diagnosis of acute appendicitis via CT of the abdomen, we decided to manage it surgically via diagnostic laparoscopy and laparoscopic appendectomy. Intervention in all of the reviewed literature cases was via midline laparotomy or open appendectomy (Table 1).²⁻⁹ We opted to manage the patient laparoscopically, based on the CT findings of a lack of evidence for bowel ischaemia and volvulus or any clinical signs of peritonitis.

CONCLUSION

Acute appendicitis has been cited in several medical literature case reports as being a rare cause of intestinal obstruction. The underlying pathology of intestinal obstruction caused by acute appendicitis is categorised as mechanical or adynamic obstruction (paralytic ileus). Acute appendicitis causing intestinal obstruction can be managed with explorative laparotomy or diagnostic laparoscopy once other aetiologies have been excluded. Our case was unique in that, it was managed laparoscopically.

DECLARATION

Consent was obtained from the patient regarding the publication of his medical case history and CT findings.

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