



Strangulated small bowel gangrene due to torsioned gangrenous appendix in an old man: a case report

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ABSTRACT

Background: Torsion of the appendix is a rare entity and divided into two categories: primary and secondary. The primary mode is due to an abnormality in either appendix anatomy or its meso or both and is more common in children. The secondary forms happen in adults which can be associated with appendiceal tumor, appendiceal mucocele, fecal impaction, volvulus of ovarian cystadenoma. Adynamic small bowel obstruction or ileus is seen frequently with all forms of peritoneal inflammation. However, Anatomical small intestinal obstruction or gangrene due to torsioned appendix is a rare condition and few cases reported in the literature. Method: Here we have a 83-year-old man patient with small bowel obstruction and localized right lower quadrant peritonitis who undergo emergency laparotomy to eliminate small bowel obstruction and peritonitis. Preoperative abdominal radiography showed multiple dilated small bowel loops with empty colon. Results: During exploration necrosis of the terminal 40cm of the ileum due to a twisted and gangrenous appendix was discovered. Other parts were normal. Conclusion: it may be useful to recommend early midline exploratory laparotomy for patients with small bowel obstruction even in the presence symptoms of local appendicitis. This operation can be both diagnostic and therapeutic.

Keywords: Appendix, Torsion, Small Bowel, Abdominal

INTRODUCTION

Torsion of the appendix is a rare entity and divided into two categories: primary and secondary [1]. Primary torsion is associated with abnormality in the appendix anatomy or meso of the appendix [1, 2] and secondary torsion in related to fecalith [3 4], cystadenoma [4], mucocele and [4], duplication of appendix. However, in a number of cases the mechanism is unknown [1]. The primary mode which is an abnormality in either appendix anatomy or its meso or both is more common in children [5]. The secondary forms happen in adults which can be associated with appendiceal tumor [4], appendiceal mucocele [4], fecal impaction [3], volvulus of ovarian cystadenoma [4] Small intestinal obstruction or gangrene due to torsioned appendix is a rare condition and few cases reported in the literature [5].

CASE REPORT

Patient was 87-year-old man with the complaints of abdominal pain and distention, inability to pass gas or stool, and one episode of vomiting 24 hours before refer to our health care center. Past medical history was insignificant and with no history of previous abdominal pain. The patient was afebrile but had tachycardia. Distended and tympanic abdomen, hypoactive bowel sounds and abdominal tenderness especially localized to right lower quadrant were detected. The rectum was empty on digital rectal examination. White blood cells count was 13700. His plain abdominal radiography showed multiple dilated and full of air small bowel loops but no colon air which was in favor of small bowel obstruction (Fig. 1).



Figure 1. Plain abdominal radiography. Note dilated small bowel loops

Emergency midline laparotomy was done with the impression of small bowel obstruction. During exploration a 40 cm gangrenous small bowel loop was seen starting 2 cm from the ileocecal valve toward proximal. Appendix was seen with a gangrenous tip and twisted around the meso of this gangrenous small bowel loop (fig. 2).



Figure 2. Left picture: showed torsion of appendix with twisting around the terminal loop of ileum and its strangulation and gangrene (red arrow). Right picture: appendectomy and detorsionizing of bowel loop (white asterisk)

There was also 700 cc of blood in the abdominal cavity. Ileocecal resection and orthotopic ileo-cecal anastomosis with appendectomy were performed. The patient went into remission after surgery and was discharged after an uneventful but prolonged (about one month admission and two weeks of admission in intensive care unit) hospital course.

DISCUSSION

In this patient we seen a twisted and ring shaped appendix with grossly gangrenous tip which turned around distal loops of ileum. No definite abnormality in its meso or anatomy was seen. Other organs were normal. In 1918, Payne first reported a case of torsioned vermiform appendix but without infection or bowel strangulation [6]. Among the previous case reports the youngest age that has been reported is 50-days old and the oldest one 76 years old [7]. The most frequent form of presentation is acute abdominal pain and it shows itself as restlessness in small children [7]. Our patient had a history of acute abdominal pain with localized right lower quadrant peritonitis but his small bowel obstruction symptoms were dominant. This was also the dominant presentation in most of previous case reports in literature review for adult patients [7]. Appendix rotation is both clockwise and counterclockwise direction in the range between 120 to 180 degrees [7]. The pathology of the appendix can be varied from a twisted one, fecalith with or without infection to a low or severely congested or even a gangrenous and necrotic [7]. This patient had distal necrosis and infection of the appendix and the process of twisting and bowel gangrene may be due to adhesion of the inflamed tip of the appendix to the posterior peritoneum with resultant bowel loop strangulation and gangrene, however, since the patient did not report any history of previous abdominal pain, primary or secondary cause was not determined [5]. In our patient symptoms of small bowel obstruction was prominent and laparotomy was performed, which revealed a fried sausage shaped appendix that was the cause of obstruction with twisting around a loop of the terminal ileum.

In one study with review of literature, they found that the underlying pathology in intestinal obstruction caused by appendicitis could be happen in four different ways as follow: adynamic ileus, mechanical without strangulation,

strangulation alone, and obstruction due to mesenteric ischemia [8]. As discussed about our patient gross pathology, it seems logical that this patient had some components of all above four different pathological categories.

Small bowel strangulation due to torsioned appendix was first time described by Naumon in 1963 [9]. This event happens when the appendix twisted and forms a ring shaped loop around the base of a bowel loop, or when inflamed appendix adheres to posterior peritoneal tissues and a loop of the bowel pass and trapped in this ring shaped loop of appendix. Eleventh cases reported in literature [9]. The most probable pathophysiology that seems to be correct regarding our case is the process of inflammation and adherence of the appendix to the retroperitoneal tissue which resulted in strangulation, obstruction and gangrene of the bowel loop.

CONCLUSION

Torsion of the appendix is a rare cause of small bowel obstruction especially among old age patients when considering the low incidence of appendicitis in this age group. Also it is rare to have so late presentation of appendix abnormalities. In our review of the literature frequently the correct diagnosis of appendix as the cause of small bowel events had been made during exploratory laparotomy and after operation. Overall, it may be useful to recommend early midline exploratory laparotomy for patients with small bowel obstruction even in the presence symptoms of local appendicitis. This operation can be both diagnostic and therapeutic.

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