

Acute Appendicitis with the Presence of Peristalsis Seen in Ultrasound

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Abstract

A 27-year-old male patient presented in the emergency department (ED) with right acute abdominal pain, tenderness of the abdominal wall, and abdominal guarding. With suspicion of acute appendicitis, we performed bedside sonography. A blind-ending tubular structure, originating from the base of cecum with the presence of an intraluminal calcified “stone,” with the presence of clear peristalsis was seen. Whether this structure represented the appendix or the small bowel, it was not distinguishable sonographically. A consequent surgical consultation indicated a computer tomography scan, and the finding showed acute appendicitis with appendicolith. An inflamed appendix of 15 cm in length was seen laparoscopically and consequently an appendectomy was performed. The histology confirmed a putrid, ulcero-phlegmonous, and hemorrhagic appendicitis with appendicolith. Postoperatively, the patient made a good recovery without complications. The absence of peristalsis is a well-known criterion for diagnosing acute appendicitis. However, we have shown here, that this should be taken into account with caution, as in rare cases such as this appendicitis can be present with peristalsis.

Keywords: Acute appendicitis, emergency department, peristalsis, ultrasound

INTRODUCTION

Acute appendicitis is a common abdominal emergency presented in the emergency department (ED). Study shows a lifetime prevalence of this phenomenon of about 7%.^[1] A non-typical presentation of such acute cases may delay the establishment of a clinical diagnosis, which is why rapid bedside sonography from an experienced colleague is a crucial first step.^[2] Ultrasound criteria of acute appendicitis include an appendiceal diameter of >6 mm, blind-ended tubular structure, the absence of peristalsis, and increased echogenicity of surrounding mesenteric fat.^[3]

CASE REPORT

A 27-year-old healthy man presented in the ED with a slightly reduced general condition and a 3-day history of abdominal pain in the lower right quadrant. No nausea, vomiting, or diarrhea was reported. Vital signs were in the normal range, temperature included in the study. On clinical examination,

tenderness of the abdominal wall and abdominal guarding were observed. The McBurney sign was positive. No other clinical signs were identifiable.

During routine laboratory tests, the elevation of the following values was observed: Leukocytosis at 13.5 G/L (4–10 G/L) without left shift, lactate dehydrogenase at 319 U/L (<265 U/L), creatine kinase at 592 U/L (<170 U/L), and C-reactive protein at 45 mg/L (<8 mg/L). A urine test revealed inconspicuous results. No relevant familial, social, and medical history was documented. Alvarado score was used to clinically evaluate the likelihood of acute appendicitis. The score of 6 points showed possible appendicitis.^[4,5] A bedside point-of-care ultrasound using a curvilinear probe at 5 Mhz with standard abdomen preset was performed accordingly. The following findings were illustrated: A nonblind-ending tubular structure originating from the base of cecum, which was slightly compressible with

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echogenic tenderness and had a presence of an intraluminal acoustic shadowing of a 2 cm calcified “stone,” increased echogenicity of surrounding mesenteric fat [Figure 1] and with the presence of clear peristalsis [Video 1]. Whether this structure represented the appendix or the small bowel, it was not distinguishable sonographically. A consequent surgical consultation suggested a computer tomography (CT) scan with the finding of acute appendicitis with appendicolith.

In the laparoscopic appendectomy, the surgeon removed an inflamed appendix of 15 cm in length. The histology confirmed a putrid, ulcero-phlegmonous, and hemorrhagic appendicitis with appendicoliths. A laparoscopic cecum wedge resection was applied because the appendicolith at the base of the appendix could not be mobilized.

The postoperative phase was without complications. No follow-up was planned for the patient.

DISCUSSION

Besides Alvarado score and clinical findings, bedside ultrasound is known to assist the diagnosis of acute appendicitis. Sensitivity and specificity of point-of-care ultrasound range from 80% to 91% and 92%–97%, respectively.^[6] CT scan has higher sensitivity and it is considered as the gold-standard for investigation. However, because of the high and comparable specificity of ultrasound, lower cost, and no radiation, ultrasound should be the first-line imaging modality in any ED. In our case, in the midst of scrutinizing the possibility of acute appendicitis, several differential diagnoses came across. The first was acute (terminal) ileitis. It can cause similar sharp pain syndromes in the right lower quadrant. Since typical ultrasound findings of an acute ileitis present with thickening of the terminal ileum, it was considered to be a differential diagnosis here^[6,7] The next differential diagnosis

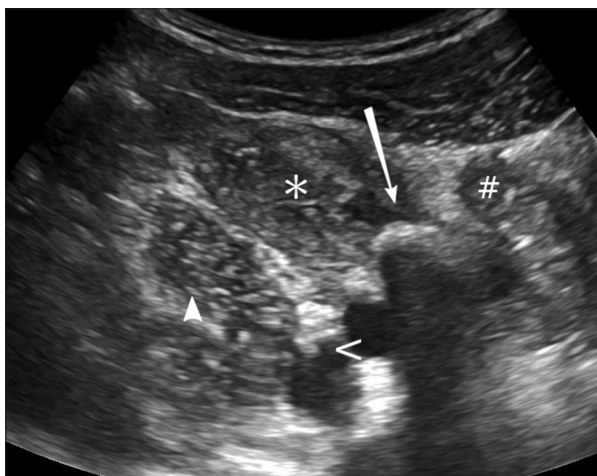


Figure 1: Asterisk: Enlarged appendix with appendicolith. Arrow: Appendicolith Hashtag: Terminal ileum increased echogenicity of surrounding mesenteric fat. Arrowhead: psoas muscle with iliac vessels on the right (open arrow)

was Meckel’s diverticula. Meckel’s diverticula have similar sonographic findings to appendicitis, having the appearance of a blind-ending, thick-walled loop of bowel and a clear connection to a peristaltic and normal small-bowel loop.^[8,9] Because of its location and the length of the appendix in our 5 case, it was difficult to distinguish the two structures originating 6 from the cecum, namely, the appendix and terminal ileum.^[10] In addition, a blinding end was nowhere to be seen. The presence of peristalsis would typically suggest in favor of the terminal ileum, while the “stone” indicates an appendicolith. To the best of our knowledge, this could be the first report of acute appendicitis with the presence of peristalsis seen in an ultrasound. The absence of peristalsis is a well-known criterion for diagnosing acute appendicitis. However, we have shown here, that this should be taken into account with caution, as in rare cases such as this appendicitis can be present with peristalsis. CT scan (or magnetic resonance imaging) should only be used in unclear cases and after surgical consultation.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published, and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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