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CASE REPORT

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Transverse colon appendagitis clinically mimicking acute appendicitis

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ABSTRACT

A 21-year-old single female presented with a complaint of right iliac fossa and lower abdominal pain associated with low grade fever for the last two days. Laboratory workup from emergency department revealed mild leukocytosis and microscopic hematuria. Ultrasound (US) of pelvis and liver/gall bladder ruled out ovarian pathology, free fluid in pelvis, or acute cholecystitis. Appendix was not visualized on US examination. Subsequently, focused abdominal computed tomography revealed acute epiploic appendagitis along the transverse colon.

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Acute epiploic appendagitis; computed tomography; acute appendicitis; ultrasonography

Introduction

Appendices epiploicae (AE) are small pouches of peritoneum that are distended with fat, which lie parallel to the taenia coli on the large bowel. They are attached to the colon by small vascular stalks. Acute epiploic appendagitis (AEA) is thought to be a result of twisting, kinking, or stretching of epiploic appendages along their long axis with impairment of vascular supply, subsequent venous thrombosis and necrosis. It can mimic various underlying causes of the acute abdomen depending on the localization and severity [1]. The diagnosis of AEA primarily relies on cross-sectional imaging and is made most often on computed tomography (CT). AEA has a predictable appearance in terms of location, size, and density. The most common finding on CT is a fat-density oval lesion with surrounding inflammation on the anterior aspect of the sigmoid colon [2].

We present a unique case of transverse colon (TC) AEA which clinically mimicked acute appendicitis. This case emphasizes the need to be mindful of AEA as a cause of acute abdomen, to keep in mind the differential diagnosis and their CT appearances.

Case Presentation

A 21-year-old single female presented in the emergency department (ED) with spontaneous paraumbilical pain, progressing and gradually transferring to right iliac fossa (RIF) for the last two days. It was associated with RIF tenderness, low grade fever, nausea, and malaise. Patient had altered bowel habits since onset of symptoms. She was sent to radiology department for abdominal ultrasound (US) which was unremarkable. Her further medical history was unremarkable with no known comorbid, previous history of surgery, drug intake, or any known recent abdominal trauma. On physical examination, she had pale sclera and skin. She was tender to palpation in RIF and paraumbilical region with mild guarding and positive rebound tenderness (Blumberg's sign). The Rovsing's sign was positive at the time of examination.

Routine laboratory testing was performed in ED. Complete and differential blood counts were performed showing hemoglobin 13 mg/dl (11.1–14.5), hematocrit 37.9 (45.4–42), platelets 231 × 10E9/l (150–400), and white blood cell counts 10.2 × 10E9/l (4.0–10.0) with neutrophils

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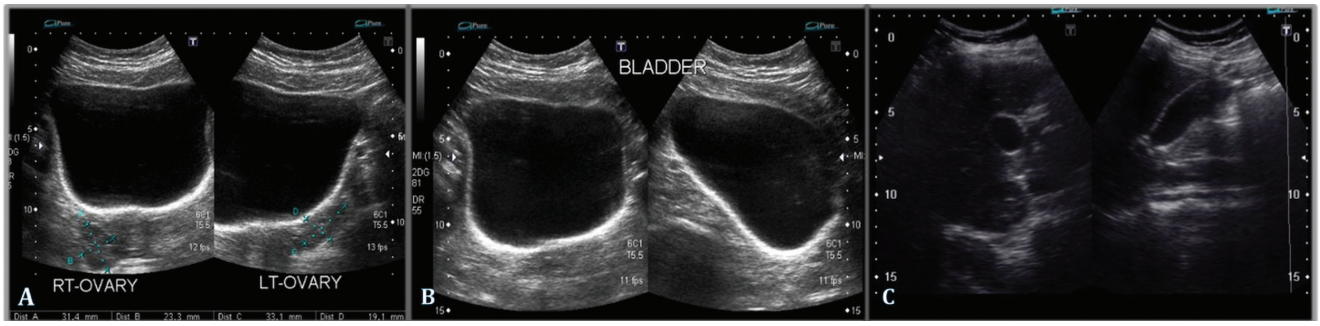


Figure 1. Ultrasound Pelvis (a and b) and Liver/GB (c); no evidence of any ovarian pathology or free fluid in pelvis. Appendix could not be seen due to bowel gases. Normal GB ruling out acute cholecystitis.

of 63% (40–75). The renal function test was within normal limits showing serum creatinine and blood urea levels of 0.7 mg/dl (0.8–1.3) and 11 mg/dl (6–20), respectively. However, the urine detailed report demonstrated yellow turbid urine with hemoglobinuria of 3+, erythrocytes of 8/HPF, leucocytes of 6/HPF, and pH of 6.8. The liver function test and blood electrolyte level was normal.

ED team suspected acute appendicitis or any pelvic abnormality including ovarian torsion or hemorrhagic cyst. The patient underwent an US pelvis examination as seen in Figures 1(a) and 1(b), which demonstrated normal ovaries without any signs of torsion or free fluid within pelvis. Appendix was not separately visualized due to colonic and cecal gases. Subsequently, the patient also underwent US liver and gall bladder (GB) to rule out acute cholecystitis which turned out negative. Normal GB can be well visualized in Figure 1(c). Patient did not respond well to the initial conservative management with analgesics. Therefore, unenhanced focused abdominal CT (FACT) was performed to rule out any abnormality. It demonstrated a partially defined, ovoid, fat density appendage with hyperattenuating rim and surrounding fat stranding anterior to the mid portion of transverse colon as depicted in Figure 2. It was measuring approximately 1.1 × 0.8 cm in size. The caecum, ascending colon, small bowel, and kidneys were normal. Appendix was separately visualized and appeared normal. So based on the CT FACT findings, the diagnosis of acute epiploic appendagitis of transverse colon (TC - AEA) was made, which is also well demonstrated on coronal and sagittal sections of CT FACT in Figure 3. The patient was provided with symptomatic treatment with oral analgesics and hydration for 5 days without any antibiotic treatment. The patient responded well with conservative management without the need of any surgical intervention.

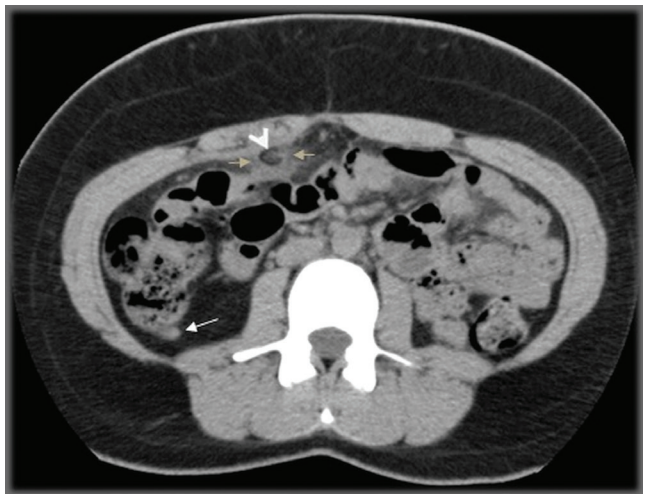


Figure 2. Unenhanced CT Abdomen, axial section; demonstrating ovoid, fat density appendage (arrow head) with hyperattenuating surrounding rim and fat stranding anterior to transverse colon (grey arrows). Normal origin of appendix seen (white arrow).

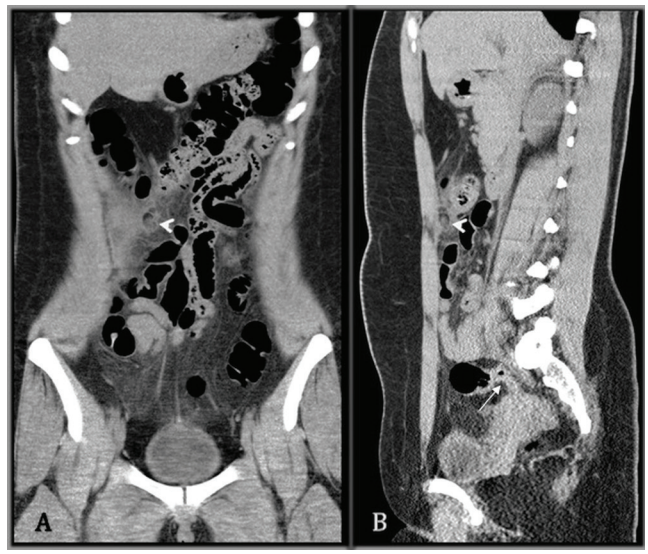


Figure 3. Unenhanced CT Abdomen, coronal section (A) and sagittal section (B) redemonstrating TC - AEA (arrow head) with normal appendix (white arrow).

Discussion

AEA is an uncommon cause of the acute abdomen and was first described by Lynn et al. in the mid-1950s [3]. Adults aged between 20 and 50 years are typically affected by AEA with an equal gender distribution [4,5]. The anatomy of the AE makes its torsion the most common cause of inflammation of these structures [6]. Torsion occurs along the long axis and is followed by edema, vascular compromise, thrombosis, and ischemia; finally resulting in gangrenous necrosis, which may give rise to focal peritoneal signs. Other causes of AEA include spontaneous thrombosis of the draining vein, lymphoid hyperplasia, and bacterial invasion may occur directly or secondary to diverticulitis. AEA may also develop secondary to Crohn's disease, appendicitis, cholecystitis, pancreatitis, or salpingitis [7].

The usual presentation of AEA is localized and non-radiating abdominal pain in the absence of severe illness. The pain usually involves the right lower quadrant (55%), despite the fact that most of infarcted appendages are found in the sigmoid colon. It is infrequent for AEA to be located adjacent to the transverse colon. The most common location for the acute appendagitis in descending order are rectosigmoid junction (57%), ileocaecal region (26%), ascending colon (9%), and transverse colon (6%) [8]. In a study, 58 cases with classic CT features of AEA were identified, out of which 28 cases occurred in the sigmoid colon followed by sixteen cases in the descending colon [9].

CT scan is diagnostic for AEA as US has very limited sensitivity. The characteristic AEA appearances consisting of a fat-density ovoid structure adjacent to colon, usually 1.5–3.5 cm in diameter [5]. There is usually a thin high-density rim of 1–3 mm thickness [9] with surrounding inflammatory fat stranding and thickening of the adjacent peritoneum. The central dot sign, hyperattenuating dot representing the thrombosed vascular pedicle, is most characteristic of AEA [2]. The differential diagnosis of an inflammatory fatty lesion on CT besides AEA including mesenteric panniculitis/lipodystrophy, acute diverticulitis, omental neoplasm, e.g., liposarcoma, etc. [10].

Our case is unique as the patient presented with all the clinical and laboratory manifestations of acute appendicitis including RIF pain, positive rebound tenderness, guarding, Rovsing's sign, microscopic hematuria, and mild leukocytosis. But it was CT FACT which later revealed that these paradoxical signs and symptoms were caused by TC – AEA, a rare entity. While considering the management of AEA, the decision whether or not to proceed for surgery is unclear. The most supporting expectant management is symptomatic treatment including oral or intravenous anti-inflammatory medications and antibiotics if needed [5,6].

Conclusion

AEA was diagnosed at exploratory laparotomy before the introduction of CT scans. It is uncommon for AEA to be located adjacent to the transverse colon. We presented this to highlight the existence of this entity and emphasize its consideration in the differential diagnosis of nonspecific or even localized acute abdominal pain. CT diagnosis of AEA in the ED in a patient with acute abdominal pain would prevent any unnecessary surgical intervention.

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