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Case Report

Acute Appendicitis with Retroperitoneal Ectopic Location from Ascending Colon

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ABSTRACT

Anatomical variant of appendix are very rare, but is important to detect variations of localization for an immediate and correct diagnosis, avoiding complications. Such occurrences can mimic other pathologies and ultrasound examination often does not allow to obtain a precise diagnosis. In this case report, Computed Tomography allowed us to diagnose an inflamed appendix originating from the ascending colon, allowing timely and targeted surgery.

Introduction

The ectopic appendix is a rare occurrence, but it is important to know this as an incoming phlogosis can create difficulties in making a differential diagnosis with other causes of the acute abdomen. In this context, the role of the radiologist is crucial.

Case Report

A 65-year-old male patient was referred to our emergency department for severe abdominal pain, in correspondence with the upper right quadrant. After the clinical examination, he underwent to laboratory tests which showed neutrophilic leukocytosis. In order to the clinical status, biliary colic was suspected and the patient was sent to our department to perform an ultrasound examination of the abdomen. The sonography demonstrated the presence of free abdominal fluid, with acalculous gallbladder. In consideration of the discrepancy in the clinical status, it was decided to perform an abdominal computed tomography (CT) without the administration of contrast medium. The examination showed the presence of ileal air-fluid levels with overdistension of the ascending colon with coprostatic content. In addition, in retroperitoneal subhepatic space, there was an apparently blind loop, with a "hook" appearance, starting from the ascending colon with some appendicoliths in the lumen. Coexisted edematous imbibition of Gerota's fascia and of the periduodenal space. Some lymphadenopathies with a maximum diameter of approximately 13 mm coexisted in adjacent location (Figures 1A-1E). On the basis of these findings, the diagnosis of acute appendicitis with anomalous origin from the mid-distal section of the ascending colon, below the hepatic flexure, retroperitoneal location, was made. The patient, after CT examination underwent surgery. The patient was discharged from the department of surgery after 7 days with good outcome.

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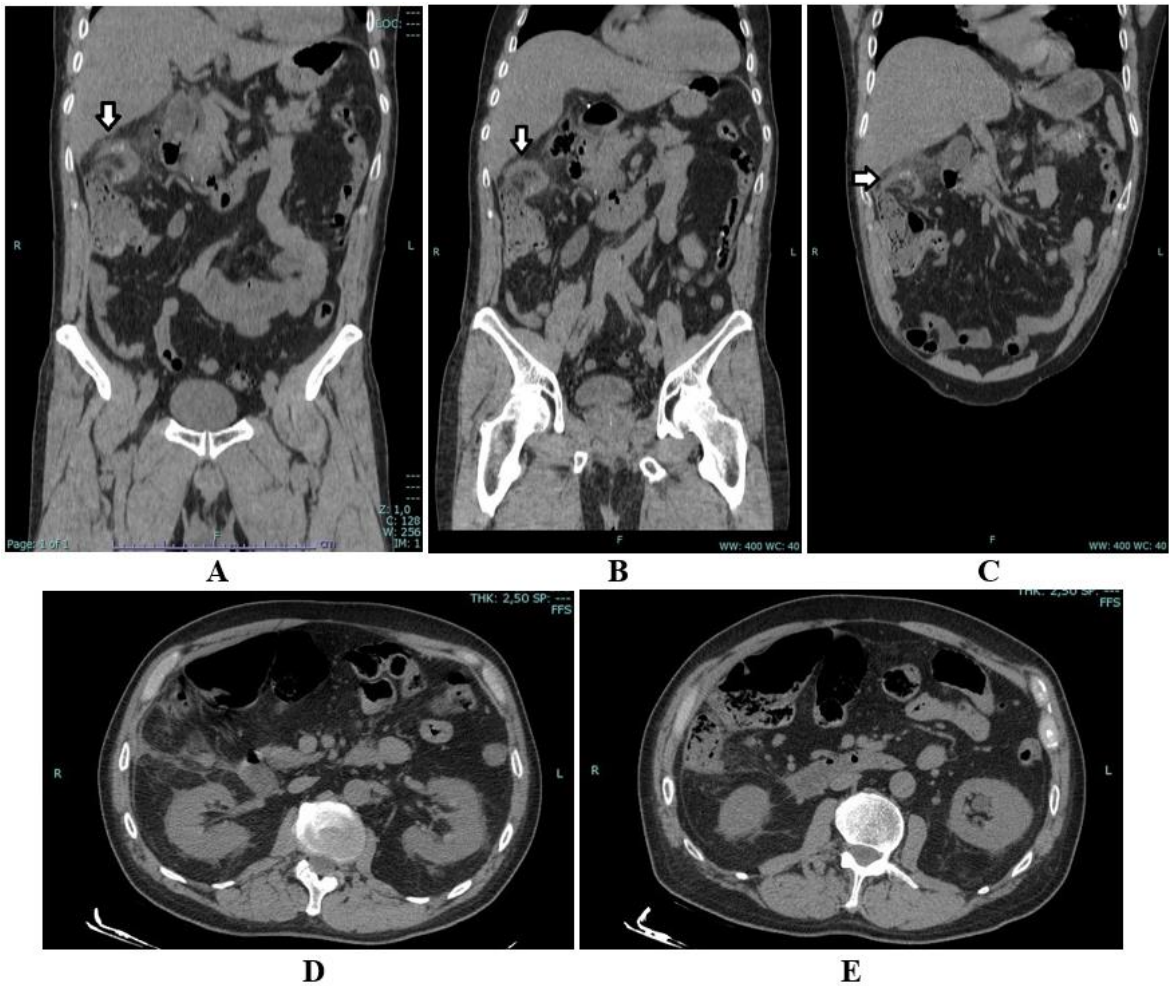

Figure 1: Basal abdominal CT scan. **A)** Coronal and **B, C)** oblique reconstructions show appendix "hook like" with thickened walls (arrows), originating from the ascending colon with some appendicoliths in the lumen. **D)** Axial reconstructions show the Gerota's fascia whit edematous imbibition and a perivisceral fluid layer. **E)** Lymphadenopathies in adjacent location.

Discussion

Appendicitis is one of the most frequent causes of acute abdomen and it requires an immediate surgical treatment to avoid severe complications [1]. The appendix is a diverticulum of the cecum that is usually located in the lower right quadrant of the abdomen. To a better explanation of the aforementioned clinical case, is important to know the embryogenesis of the appendix. At 4 weeks the midgut forms a hernia into the umbilical cord. At 5 weeks the pre-arterial segment of the midgut returns to the abdomen and the cecum is still in the upper part of the abdomen by the 12th week. After the 12th week the intestine continues to lengthen and fuse with parts of the primitive mesentery. When the cecum is located in the distal segment of the umbilical loop, the appendix appears as a descensus of the cecum itself [2]. The most frequently encountered anatomical variants of ectopic appendix are represented by: retrocecal, paracecal, pre-ileal and post-ileal, subhepatic appendix along the lower edge of the liver. More rarely it can be found in the lower abdominal quadrant on the left, in the retroileal area near the duodenum or located in the pelvis near the rectum [1]. Cases of agenesis, duplication or more rarely triplications have also been reported [2]. The subhepatic appendix originating from the ascending colon represents a very rare condition and little described in the literature. It arises from an anomalous embryonic development and it can simulate an acute cholecystitis, calculosis or liver abscess [3]. Prompt diagnosis allows for immediate surgical treatment.

The vermiform appendix and its variants can be visualized using different imaging modalities. Ultrasound represents the first level examination and it is useful in the case of an appendix located in the right iliac fossa, which appears as a tubular structure, normally compressible, without blind bottom peristalsis [4]. Ultrasound does not allow a correct diagnosis in cases of ectopy but allows us to exclude possible biliary lithiasis, cholangitis, cholecystitis and to highlight free effusion, as an indirect sign of peritoneal suffering [5]. Although the ultrasound examination is now used in the diagnosis of acute appendicitis, thanks to the evidence of the thickened and edematous viscus, it appears less effective in cases in which the appendix is located in an ectopic location, as in our case [5]. Furthermore, in this specific case, a direct x-ray examination of the abdomen was not performed, because clinical suspicion of gallstones was made. In consideration of the clinical discrepancy, we used CT that showed the anomalous, very rare, retroperitoneal location of the appendix, originating from the ascending

colon. In fact, the presence of perivisceral effusion, lymphadenopathies and the thickening of the walls of the ascending colon and Gerota's fascia have been well demonstrated.

CT, due to its high sensitivity, specificity and high spatial resolution, is employed with increasing frequency in patients with acute abdomen [3, 6]. As regards the diagnosis of acute appendicitis, due to the aforementioned peculiarities, it represents the gold standard in particular, when is present an anomalous emergence of the appendix [7]. It allows to identify accurately an appendix with a wall thickness greater than 6 mm, signs of periappendiceal inflammation, appendicoliths, any fluid collections, abscesses, extraluminal gas, adenopathies and thickening of the adjacent intestinal wall [2].

Conclusion

The ectopic appendix is a very rare anatomical variant, but insidious when a flogosis occurs. In our case report of appendicitis with retroperitoneal ectopic location from ascending colon, it could mimic clinically other causes of acute abdomen, such as acute cholecystitis or liver abscess. It is therefore essential for the radiologist to know this event, in order to ensure timely surgery and prevent potential fatal complications.

Conflicts of Interest

None.

References

1. Zacharzewska Gondek A, Szczurowska A, Guziński M, Sąsiadek M, Bladowska J (2019) A pictorial essay of the most atypical variants of the vermiform appendix position in computed tomography with their possible clinical implications. *Pol J Radiol* 84: e1-e8. [Crossref]
2. Deshmukh S, Verde F, Johnson PT, Fishman EK, Macura KJ (2014) Anatomical variants and pathologies of the vermix. *Emerg Radiol* 21: 543-552. [Crossref]
3. Gracey D, McClure MJ (2007) The impact of ultrasound in suspected acute appendicitis. *Clin Radiol* 62: 573-578. [Crossref]
4. Alfraih Y, Postuma R, Keijzer R (2014) How do you diagnose appendicitis? An international evaluation of methods. *Int J Surg* 12: 67-70. [Crossref]
5. Pinto F, Pinto A, Russo A, Coppolino F, Bracale R et al. (2013) Accuracy of ultrasonography in the diagnosis of acute appendicitis in adult patients: review of the literature. *Crit Ultrasound J* 5 Suppl 1: S2. [Crossref]
6. Reginelli A, Russo A, Iasiello A, Urraro F, Maresca D et al. (2013) Role of diagnostic imaging in the diagnosis of acute appendicitis: a comparison between ultrasound and computed tomography. *Recenti Prog Med* 104: 597-600. [Crossref]
7. Karul M, Berliner C, Keller S, Tsui TY, Yamamura J (2014) Imaging of appendicitis in adults. *Rofo* 186: 551-558. [Crossref]