Case Report

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A Case of Perforated Retroperitoneal Appendicitis Mimicking Pyelonephritis

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Abstract

Introduction: Appendicitis is one of the most commonly diagnosed surgical diseases in childhood with emergency abdominal pain. Retrocecal retroperitoneal appendicitis is uncommon and potentially difficult to diagnose. This condition might present with atypical clinical, and radiological signs. Here, we present a patient with perforated retrocecal appendicitis in whom the clinical findings mimicked acute pyelonephritis.

Case Report: A 3-year-old boy presented with right flank pain, fever, and vomiting for two days. The abdomen was soft but the right costovertebral angle tenderness was positive. There was pyuria. The clinical impression was pyelonephritis. Ultrasonography showed perirenal fluid collection but did not show any collections pericecal area. In the Multi-detector CT (MDCT) MDCT a long inflamed retrocecal retroperitoneal appendix was seen with surrounding inflammation that extended to anterior pararenal space, and retroperitoneal air. At surgery, there was retrocecal retroperitoneal appendicitis with perforation and retroperitoneal collection. Appendectomy and drainage were performed.

Conclusions: Patients with retroperitoneal appendicitis is that these patients often present with atypical and less severe abdominal complaints. In this situation, MDCT could be a rapid and efficient tool for localizing the appendix and for the differential diagnosis.

Keywords: Retrocecal retroperitoneal appendicitis, perinephric collection, child

Introduction

Appendicitis is the most common surgical emergency. Accurate diagnosis is sometimes hindered due to various presentations that differ from typical signs and anatomic anomalies of appendicitis (1). A delay in diagnosis and treatment increases the likelihood of complications such as perforation which is associated with an increase in morbidity and mortality. The appendix is typically in the intraperitoneum,either anterior or retrocecal; however, in 30–65% of appendicitis cases, it may be retroperitoneal location (2).

A perinephric abscess is a collection of purulent material in the space between the kidney and Gerota's fascia. It is rare in adults and even less common in children.Sparsely, the spread of infection from inflammatory lesions of adjacent viscera, diverticulitis, and retrocecal appendicitis have been implicated in the pathogenesis of perinephric abscess (3).

We present a boy with perforated retrocecal and retroperitoneal appendicitis in whom the perirenal collection and atypical symptoms and signs of appendicitis were diagnosed by Multidetector CT (MDCT).

Case

A 3-year-old boy presented with right flank pain, fever, and vomiting since two days. His fever was 40° Celsius. The abdomen was soft but the right costovertebral angle tenderness was positive with right hypochondrial tenderness. A complete blood count revealed leukocytosis (19.8 × 109/L) with a left shift. There was pyuria on urinalysis. The clinical presentation was acute pyelonephritis. The patient's abdominal Ultrasonography (USG) findings were normal renal parenchymal echogenicity, and perirenal fluid collection but did not show any collections pericecal area. MDCT was performed for differential diagnosis. In the MDCT a long inflamed retrocecal appendix was seen with surrounding inflammation that extended to anterior perirenal space, and retroperitoneal air (Figure-1). There was also pleural effusion of the right lung base.

At surgery, there was retroperitoneal appendicitis with evidence of perforation into the retroperitoneum and retroperitoneal collection. Appendectomy and drainage of the perinephric abscess were performed. The patient received postoperative ceftriaxone (IV) and metronidazole

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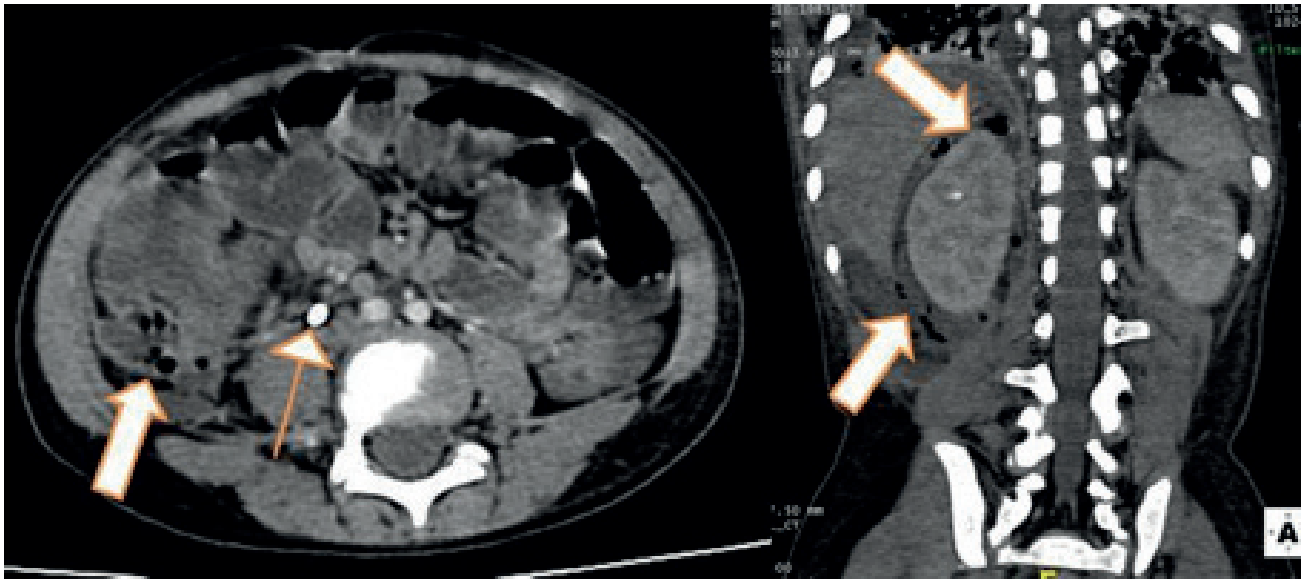

Figure 1. Axial and coronal contrast-enhanced CT images showed retroperitoneal air and inflammation (thick white arrows). In addition, the axial CT image showed appendicolith (thin white arrow).

(IV) for 12 days. The patient made a good recovery. He was discharged on the post-op 14th day in stable condition.

Discussion

Complications and relatively high mortality rate associated with retroperitoneal perforation of appendicitis, it is important to be able to recognize the early signs. This can delay diagnosis, which may contribute to higher rates of complications and mortality. If the appendix is in a retrocecal position, it may be positioned intraperitoneal or retroperitoneal area (4).In the case presented here, the only sign apparent on the MDCT exam was retroperitoneal air and fluid. Patients may present only with minimal perinephric fluid as well. If there is no urogenital pathology on USG, as in our patient, other sources of infection should be searched for, including perforated retrocecal appendicitis.

A perinephric abscess is rare in adults and even less common in children (3,5). Rarely, the spread of infection from inflammatory lesions of adjacent viscera, diverticulitis, and retrocecal appendicitis has been implicated in the pathogenesis of perinephric abscess (3).The most common cause of perinephric abscess is the direct extension or hematogenous seeding from other sites of infection (3).

Patients with acute retrocecal and retroperitoneal appendicitis are that these patients often present with atypical and less severe abdominal complaints cecal in whom the clinical and USG outcomes mimicked acute pyelonephritis. USG is less sensitive in cases with perforated appendicitis, whereas contrast-enhanced computed tomography particularly MDCT with thick coronal multiplanar reformat (MPR) images has better sensitivity and specificity in this clinical setting (6). MDCT can be used effectively for the diagnosis of retrocecal or retroperitoneal appendicitis without additional preparation or focused examination. We postulate that, in this case, the MDCT exam was performed early in the course of perforation, and therefore only retroperitoneal fluid was seen, without intra abdominal fluid.

If there is no urogenital pathology with the USG, as in our patient, other sources of infection should be searched for, including perforated retrocecal and retroperitoneal appendix. In such cases, MDCT can be a more effective method than ultrasound (USG) in the differential diagnosis of retrocecal appendicitis.

Conclusions

In conclusion, retrocecal and retroperitoneal perforated appendicitis may present with various atypical clinical signs such as only with minimal perinephric fluid. In such cases, MDCT can be a more effective method than the USG in the differential diagnosis of retrocecal appendicitis.In such cases, when the appendix cannot be seen clearly or seems in an unusual localization, MDCT can be used effectively as a useful method for the correct diagnosis of retrocecal appendicitis without additional preparation or focused examination.In this situation, MDCT could be a rapid and efficient tool for localizing the appendix and for the differential diagnosis. Perirenal collection and atypical symptoms and signs of perforated appendicitis were diagnosed by MDCT.

We propose that, with increasing use of MDCT exams early in the course of clinical presentation, more cases of acute appendicitis with perforation into the retroperitoneum presenting with retroperitoneal fluid or air may occur, leading to earlier interventions and more successful clinical outcomes.

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