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Atypical Presentation of Acute Appendicitis: A Case Report

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Cover Page Footnote

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Atypical Presentation of Acute Appendicitis: A Case Report

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Abstract

Despite the fact that acute appendicitis is one of the most common surgical emergencies worldwide, delays in establishing a diagnosis still occur. We report a case of acute appendicitis with an atypical presentation based on the patient's clinical and laboratory findings. A 25-year-old male was brought with pain in his right lower quadrant. Pain migration, fever, anorexia, nausea, vomiting, or dysuria were denied. Laboratory results were within normal limits. USG examination was not able to visualize the appendix. An abdominal CT-Scan showed a sign of acute appendicitis. The patient was planned for appendectomy. It is important to not immediately rule out the diagnosis of appendicitis because an atypical presentation may be presented and could potentially lead to fatal complications.

Key words: acute appendicitis, atypical presentation

Introduction

As one of the most common abdominal surgical emergencies globally with an annual incidence of approximately 200 of 100.000 population, it is reasonable to expect physicians to have an excellent understanding to identify and manage acute appendicitis.¹ However, delays in establishing a diagnosis of acute appendicitis remains globally found throughout multiple centers.² Failure to immediately diagnose the disease may increase the morbidity and mortality related to possible life-threatening complications.³ Deep and detailed investigation of the patient's history, physical examination, and laboratory findings remain undoubtedly mandatory before imaging. However, every typical clinical sign and symptom does not always show on those with appendicitis, and an atypical presentation may potentially delay the imaging and definitive intervention.⁴ To aid physicians, especially general practitioners working at the frontline, a scoring system is provided. The most commonly used was the Alvarado score.⁵ The score is not merely preventing a delay in the definitive treatment. The score also effectively reduces unnecessary surgical intervention, which is occasionally found due to overdiagnosis.⁶ Nevertheless, the scoring systems may guide to provide a definitive treatment in those showing atypical presentation with a low score.

This report aimed to share a case in which an atypical presentation of appendicitis may lead to misdiagnosis if it does not undergo thorough observation and supportive imaging modalities

Case illustration

A 25-years-old Indonesian male came to the emergency room with abdominal pain in his right lower quadrant. The pain felt for 7 hours before admission, aggravated by pressure in such an area, excessive movement, and coughing. He also had diarrhea the night before. There is no history of migratory pain in the abdomen, fever, anorexia, nausea, vomiting, or dysuria. No record of abdominal nor urinary problems, a relevant drug, psychosocial, or familial.

On physical exams, the blood pressure 120/80 mmHg, pulse rate 98 bpm, respiratory rate 20 times per minute, and the body temperature was 36.7oC). The visual analog scale (VAS) was 9. Abdomen flat reveals pain and tenderness in McBurney's point. The patient's Alvarado score was 3 out of 10 based on the pain on the right lower quadrant and rebound tenderness.

Laboratory findings were normal with a hemoglobin content of 16.2 g/dL, a white blood cell count of 7,500 cells/ μ l, and a platelet count of 282,000 cells/ μ l. However, there was a slightly high neutrophil percentage (NEUT% = 71%). The C-reactive protein of 5 mg/L. Urinalysis showed negative nitrites, leukocyte 2-3 cells/hpf, red blood cells 0-1 cells/hpf, epithelial cells 1-2 cells/hpf). The abdominal ultrasonography (USG) carried out (Figure 1) showed non visualized appendix suggesting a retrocecal appendix. Following this early finding, the physician disregarded acute appendicitis and prescribed analgetic.

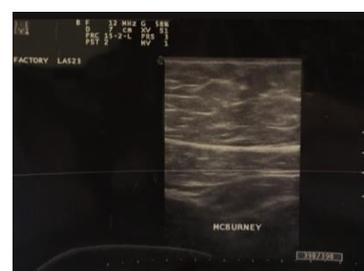


Figure 1. Ultrasound of McBurney area shows a non-visualized suspected to be retrocecaly located.

Even though the pain remained and exacerbated by an increase of intra-abdominal pressure excessive movement. Abdominal computed tomography scan performed (Figure 2) showing the appendix of 5 mm in diameter, lengthy, curvy, and tortuous. Inflammatory fat stranding is shown in the tip representing the signs of acute appendicitis. Mesenteric

lymphadenitis is denoted with enlarging multiple lymph nodes in the McBurney were pointed out, with the largest of 1.3 cm in diameter. Appendectomy carried out, the appendix was found inflamed and retrocaecally located (Figure 3), measuring 10 cm in length and 7.5 mm in diameter. Appendicolith was found. Microscopically, the specimen showed a partially destroyed mucosal layer replaced by acute and chronic inflammatory cells, rich in small capillary vessels and necrotic material (Figure 4). Inflammatory cells invaded through the serous fat tissue. No anaplastic or neoplastic changes are shown. He was discharged on the 3rd postoperative day with no abdominal complain and got well on the 7th postoperative day follow-up

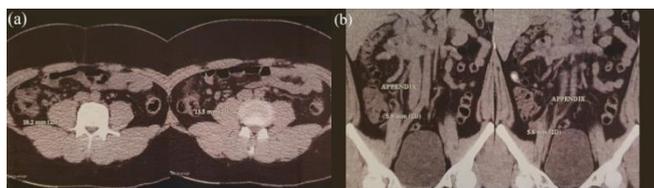


Figure 2. (a) Axial View (b) Coronal View: CT-scan results showing appendix to be 5 mm in caliber, lengthy, curvy, and tortuous. Inflammatory fat stranding can be seen in the tip exhibiting signs of acute appendicitis.



Figure 3. The appendix seen during the procedure

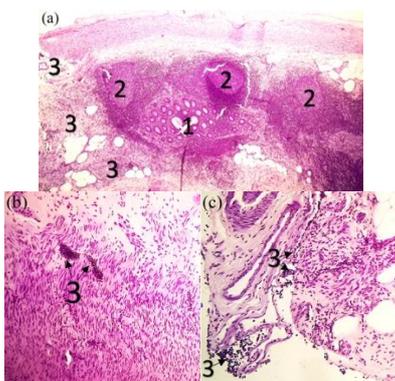


Figure 4. Histopathological findings of the appendix showing (a) 1. remnants of mucosa 2. thickened hyperplastic lymph follicles 3. inflammatory cells infiltration with objective 10 times magnification (b) 3. inflammatory cells infiltration with objective 40 times magnification of the muscular layer (c) inflammatory cells infiltration with objective 40 times magnification of the serous layer.

Discussion

This report an atypical presentation of acute appendicitis with a failure early that may lead to complications. A thorough examination might be needed before rule out appendicitis. Abdominal tenderness on the right lower quadrant and rebound pain were positive findings with a total Alvarado score of 3 out of 10.

A systematic review of Ohle et al. showed the score may accurately predict appendicitis and has been well-calibrated in men. A patient with a score of 1 to 4 denotes a low risk and may be discharged with no surgical interventions.⁷ However, in this case, management based on such a scoring system may lead to mismanagement. Also, with a

'normal' white blood cell count (7,500 cells/ μ L) albeit with a slightly high neutrophil percentage (71%). A study by Sadettin et al. showed that 104 patients out of 648 patients who had undergone appendectomy were found to have a normal white blood cell count. A total of 81% of subjects with normal white blood cell count were confirmed to have acute appendicitis based on the histopathological findings, indicating that white blood cell count alone is not reliable to determine the entity's possibility.⁸ Following an initial assessment, it was fortunate that the physician did not hastily discharge the patient and continued the observation after delivering analgetic. Since there was no improvement, an ultrasound was carried out. Ultrasound is well-established as first-line necessary imaging.⁹ However, with this ultrasound, the appendix was not appropriately visualized. Consequently, a CT-Scan as second-line imaging with sensitivity and specificity similar to magnetic resonance imaging (MRI)¹⁰ showed acute appendicitis confirmed by intraoperative findings and histopathology as well.

Patients with minimal typical findings would delay necessary imaging and definitive treatment. After initial treatment in an emergency setting, it would be best for the physician to not hastily discharge the patient, even after he or she felt better following analgetic administration. Suspicions to the worst-case scenarios should be kept until proven otherwise to avoid complications. Despite the seemingly low risk based on a score, a rebound tenderness located specifically in McBurney's point should always put acute appendicitis as one of the differential diagnosis until proven otherwise.

The patient's clinical findings that were taken into account in the scoring tool to help diagnose acute appendicitis were subjective complaints. In this case, although the patient has atypical signs and symptoms of appendicitis, the physician in charge remains to look for the source of this patient's pain. Thus, the second-line imaging modality performed helps this patient to receive initial treatment without delay. However, CT imaging remains limited in many health centers in Indonesia, especially in rural areas. In cases where acute appendicitis presentation is unclear based solely on the clinical presentation, this limitation may lead to consequences to the patient, which is fatal.

Conclusion

The typical clinical and laboratory findings of acute appendicitis are not always shown in every individual. Thus, thorough observation and repeated assessments after an initial treatment before imaging are necessary to diagnose accurately. The key message to be delivered was for physicians not to immediately rule out the diagnosis of appendicitis because an atypical presentation may be found, and misdiagnosis may lead to fatal complications. Ultrasound or CT Scan facilities should always be provided, in particular, in rural areas.

Disclosure

Authors declare no conflict of interest

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The authors thank Dr. Shinta Rosalina as the radiologist examining the USG result, Dr. Sri Andriani as the radiologist examining the CT-Scan result, Dr. Lewis Lie as the surgeon performing the appendectomy, and Dr. Oen Sindrawati as the pathologist examining the histopathological results.

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