OLGU SUNUMU / *CASE REPORT*

A Rare Cause of Left Lower Quadrant Pain: Acute Appendicitis in a Patient with Intestinal Malrotation

Sol Alt Kadran Ağrısının Nadir Bir Nedeni: İntestinal Malrotasyonlu Bir Hastada Akut Apandisit

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ABSTRACT

Acute appendicitis is the most common surgical cause of acute abdominal pain. Normally, abdominal pain secondary to acute appendicitis is localized in the right lower quadrant, whereas in case of intestinal malrotation or situs inversus totalis, the abdominal pain is localized in the left lower quadrant. These conditions may lead to delay in diagnosis and treatment. In this case report, it is aimed to present the diagnosis and treatment process of an atypically localized acute appendicitis case due to intestinal malrotation in the light of the literature.

Key words: *abdominal pain; appendicitis; intestinal malrotation*

ÖZET

Akut apandisit, akut karın ağrısının en sık cerrahi nedenidir. Normalde akut apandisite sekonder karın ağrısı sağ alt kadranda lokalize olurken, intestinal malrotasyon veya situs inversus totalis durumunda karın ağrısı sol alt kadranda lokalizedir. Bu durumlar tanı ve tedavide gecikmeye neden olabilmektedir. Bu olgu sunumunda intestinal malrotasyona bağlı atipik lokalize akut apandisit olgusunun tanı ve tedavi sürecinin literatür eşliğinde sunulması amaçlanmıştır.

Anahtar kelimeler: karın ağrısı; apandisit; intestinal malrotasyon

Introduction

Acute appendicitis is the most common emergency surgical abdominal pathology[1,2]. The appendix vermiformis is typically located in the lower right quadrant of the abdomen. On the other hand, the localization of appendix vermiformis may change due to various reasons. For example, malrotation problems such as situs inversus totalis (SIT) and intestinal malrotation (IM) cause the appendix vermiformis to be detected in different quadrants. In these diseases, the appendix vermiformis can be detected in the left lower quadrant[3,4]. Therefore, when acute appendicitis occurs in these patients, the pain is in the left lower quadrant.

This case report it is aimed to present the diagnosis and treatment process of an atypically localized acute appendicitis case due to intestinal malrotation in the light of the literature.

Case Report

A 36-year-old male patient was admitted to the Emergency Department of Erzurum Regional Education and Research Hospital, Erzurum, Turkey, with complaints of nausea, vomiting, anorexia, and abdominal pain, which had started 24 hours ago. Abdominal pain first started around the umbilicus and soon settled in the left lower quadrant. The patient had no previous history of surgery and no other disease.

The vital findings of the patients were as follows: blood pressure 125/72 mmHg, pulse rate 114 beats/min (bpm), respiratory rate 16 times/min, body temperature 38.1°C, oxygen saturation on room air 94% -96%. The patient's physical examination showed localized tenderness, defense, and rebound in the left lower quadrant. Other systemic physical examinations of the patient, including rectal examination, were unremarkable.

In laboratory, the leukocyte count (16.500/mm3) and C-reactive protein (CRP) level (80 mg/dL) were higher. The other blood parameters and urinalysis were normal. On plain radiography, gas shadows were

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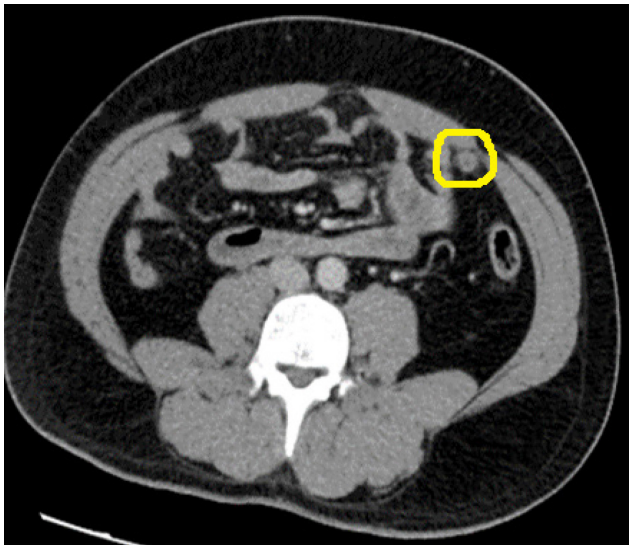

Figure 1. *Computed tomography revealed an appendix vermiformis with a diameter of 9.7 mm in the left lower quadrant.*

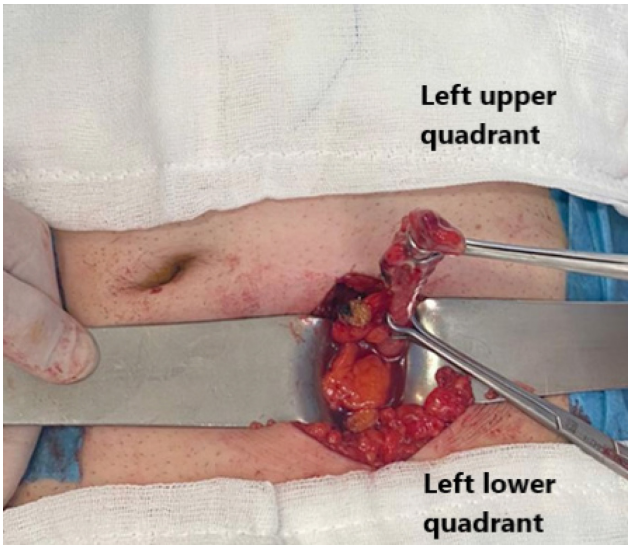

Figure 2. *Intraoperative view of the appendix vermiformis.*

observed in the left lower quadrant of the abdomen. Since no pathology was detected in ultrasonography, intravenous contrast-enhanced computed tomography (CT) was planned to establish the correct diagnosis. Computed tomography revealed acute appendicitis in the left lower quadrant accompanied by intestinal malrotation (Fig. 1).

Emergency surgery with a left paramedian incision was planned. On exploration, acute suppurative appendicitis was seen (Fig. 2). The patient who underwent appendectomy was followed-up in the service during the postoperative period. He was discharged on the second postoperative day without complications.

Discussion

Acute appendicitis is the most common surgical cause of acute abdominal pain. Acute appendicitis manifests itself with symptoms such as pain starting in the peri-umbilical region, loss of appetite, nausea, vomiting, and fever[1,4]. The most important feature of the pain is its displacement, and as the inflammation increases, the pain is localized to the right lower quadrant[2]. The presentation of acute appendicitis imitates various gastrointestinal and genitourinary diseases like gastritis, cholecystitis, pyelonephritis, and diverticulitis. Unfortunately, the atypical presentation of acute appendicitis with left lower quadrant pain can be misleading. Therefore, the diagnosis and treatment process is delayed.

The differential diagnosis of left lower-quadrant pain includes gastrointestinal, gynecologic, and renal/ureteric pathologies. Gastrointestinal pathologies are left colon diverticulitis, epiploic appendicitis, constipation, incarcerated hernia, infectious colitis, inflammatory bowel disease, and omental infarctus[5–7]. In addition, in cases with different localization than expected, as in intestinal malrotation (IM) and situs inversus totalis (SIT), the diagnosis of acute appendicitis may be delayed[4,8]. IM occurs when there is either non-rotation or incomplete rotation of the primitive intestinal loop around the superior mesentery artery axis during the first ten weeks of fetal life[9]. In SIT, all intra-abdominal and intra-thoracic organs are positioned as mirror images. The appendix vermiformis is located in the left lower quadrant in both pathologies.

There is no specific difference in laboratory findings in acute appendicitis cases, whether right-sided localized or left-sided localized. As in our case, leukocytosis and elevated CRP levels are expected changes. Urinalysis can help differentiate renal colic. Although plain radiography and ultrasonography provide information about the diagnosis of acute appendicitis located in the left lower quadrant, computed tomography has an accuracy rate of up to 90% for both differential diagnosis and correct diagnosis[10]. In the present case, we initially suspected left colon diverticulitis. However, the underlying intestinal malrotation delayed the correct diagnosis of acute appendicitis. Malrotation was detected in the patient after a CT scan.

In cases diagnosed with left-sided acute appendicitis, treatment can be performed with open surgery or laparoscopy, depending on the surgeon's experience and technical possibilities[11]. Although there is no difference in technical procedure, the possibility of encountering Ladd bands in malrotation cases should be considered.

Conclusion

Acute appendicitis with atypical localization due to malrotation should be considered in patients with left lower quadrant pain, and the correct diagnosis should be made quickly using appropriate imaging tools.

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