Abdominal CT-aided diagnosis of acute appendicitis in the presence of mobile cecum: A case report

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**Article info**

**Abstract**

**Introduction**: A mobile cecum is a frequently encountered congenital anomaly. It is important to recognize this atypical position of the cecum as it may interfere with an accurate diagnosis of acute appendicitis.

**Presentation of Case**: A 48-year-old man presented with abdominal pain, anorexia, and fever. He had mild lower abdominal discomfort, and rebound tenderness in the suprapubic region, but no guarding or right lower quadrant findings. Laboratory tests identified an elevated white blood cell count (12350 cells/mL) and C-reactive protein level (4.56 mg/dL). In view of the clinical picture suggestive of localized peritonitis, an abdominal computed tomography (CT) was performed, which revealed a caudally located cecum, lying in the pelvis, along with evidence of an acutely inflamed appendix. An urgent surgical procedure was performed, which confirmed the diagnosis of acute appendicitis accompanying a mobile cecum.

**Discussion**: In the presence of a mobile cecum, the clinical findings of acute appendicitis may be atypical owing to the abnormal position of the appendix. In such cases, there is the possibility of a missed diagnosis. In our case, a CT examination that was performed in view of the clinical diagnosis of mild peritonitis aided in establishing the diagnosis of acute appendicitis and a mobile cecum.

**Conclusion**: Anatomical variations of the cecum and the appendix may result in atypical presentation of acute appendicitis. A high index of suspicion, and a CT examination may be helpful in establishing the diagnosis in such cases.

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1. Introduction

A mobile cecum is not an uncommon congenital anomaly. It may be the result of loss of fixation of the cecum and ascending colon to the posterior peritoneum during embryological development.

We report a case wherein a patient presenting with atypical abdominal findings of peritonitis was diagnosed as having a mobile cecum and acute appendicitis on computed tomography (CT) examination.

This work has been reported in line with the SCARE criteria [1].

2. Case presentation

A 48-year-old man was admitted to our hospital for complaints of abdominal pain and anorexia of two-day duration and fever of one-day duration. The pain was mild, and located in the suprapubic region. Examination revealed mild rebound tenderness in the lower abdomen, but no muscular guarding. The patient did not have any abnormal findings in the right lower quadrant of his abdomen. Bowel sounds appeared to be mildly attenuated.

Laboratory tests revealed a white blood cell count of 12350 cells/mL and C-reactive protein (CRP) level of 4.56 mg/dL. Urinalysis did not indicate any abnormality. Based on the abdominal findings and laboratory data, the patient was considered as having localized peritonitis, although the cause was not obvious. A non-contrast CT examination of the abdomen was performed to identify the underlying pathology.

CT examination identified the cecum as being located in the deeper part of the pelvis, on the right side. This position was caudal to its usual location. The appendix was located posterosuperior to the cecum, extending superomedially (Fig. 1). It appeared inflamed, with coprolite at its base. The superior mesenteric artery and vein

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were located in their normal position, excluding the possibility of intestinal malrotation (Fig. 2). In view of the diagnosis of acute appendicitis, an emergency surgery was performed. The incision was placed caudal to the usual right-sided rectus abdominis muscle site based on the CT findings. The position of the appendix, and the mobility of the cecum were confirmed at surgery. The appendix was enlarged, inflamed, and adherent to the cecal wall and retroperitoneum. The base of the appendix contained faecolith, and was perforated, resulting in a localized abscess. There was no evidence of ascites. Appendectomy and abdominal drainage were performed. The patient recovered well in the postoperative period.

3. Discussion

A mobile cecum results from the loss of fixity of the cecum and the ascending colon to the retroperitoneum secondary to abnormal embryonic development [2]. A mobile cecum may present as chronic or acute right-sided abdominal pain, and may be responsible for several conditions that result in ileus [3]. There are several reports of appendicitis and cecal volvulus in association with a mobile cecum [4–6]. In addition, others have reported atypical presentation of acute appendicitis when accompanied by a mobile cecum [7,8]. The prevalence of mobile cecum has been variously reported as 10–22% by Ingelfinger et al. [9], and as 11.2% in an autopsy series by Wolfer et al. [10]. Since the prevalence of mobile cecum is higher than expected, it is necessary to consider its presence while differentiating the various causes of acute abdominal presentations. In our patient, we did not initially consider the diagnosis of appendicitis as the site of tenderness was in the midline of the lower abdomen.

Abdominal CT has definite advantages in the assessment of acute abdomen owing to the completeness of the examination. Of course, CT should NOT be used in children or women in the childbearing age group. Specifically, it allows for a continuous oral-to-anal
assessment, and distinguishes between large and small intestinal conditions [6]. Therefore, abnormal positional relations of the abdominal organs are obvious, providing an accurate diagnosis as in the case reported by us. Further, in the case of intestinal malrotation, which involves the entire intestine, the diagnosis can be made based on the positional relationship between the superior mesenteric artery and vein.

In this case reported by us, the presence of acute appendicitis accompanying the mobile cecum was identified based on the CT images that demonstrated their respective anatomical positions. The information provided further guided the placement of the incision for surgery.

4. Conclusion

Acute appendicitis in the presence of a mobile caecum may present with atypical abdominal findings, both in terms of the location and severity of tenderness, and the diagnosis may be missed. Mobile cecum is not an uncommon condition, and it should be considered in the differential diagnosis of acute abdomen. Abdominal CT examination may be considered as the investigation of choice in the evaluation of inconclusive acute abdominal presentations.

Conflicts of interest

The authors declare no conflict of interest associated with this manuscript.

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Ethical approval

According to the regulations of Japan including our hospital, ethical approval is not necessary for case report of one case.

Consent

I have obtained informed consent for submitting to a journal at the time of admission and surgery.

Author contribution

Kentaro Yazawa designed the study, and wrote the initial draft of the manuscript. Giichiro Tsurita and Masaru Shinozaki contributed to analysis and interpretation of data, and assisted in the preparation of the manuscript. All other authors have contributed to data collection.

All authors read and approved the final manuscript.

Registration of research studies

No available.

Guarantor

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