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Case Report

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Two Cases of Chilaiditi Syndrome: Symptomatic and Asymptomatic Presentation

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ABSTRACT

Chilaiditi syndrome or sign is mostly asymptomatic but rarely presents with gastrointestinal symptoms. Air under the right hemidiaphragm, which is a sign of the syndrome on direct X-ray, may suggest many acute abdominal etiologies. Both the haustral structures formed by the folds and visualization of the interposition of the colon between the liver and the right hemidiaphragm on computed tomography confirm the Chilaiditi sign. In this article, we present two cases of Chilaiditi, a symptomatic elderly patient with gastrointestinal complaints during hospitalization, and an asymptomatic youth person. This sign, which is one of the differential diagnoses of air under the right hemidiaphragm in X-ray, is aimed to attract the attention of clinicians to protect the patient from unnecessary interventional procedures as a requirement of the quaternary prevention principle. Lifestyle changes and medical treatments for complaints were recommended in both cases, and no surgical procedure was performed.

Keywords: Chilaiditis syndrome, colon, gastrointestinal disease, quaternary prevention

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INTRODUCTION

The Chilaiditi sign, described by the Greek Radiologist Chilaiditi in 1910, is the imaging of the interposition of the intestine between the liver and the diaphragm; if this sign accompanies gastrointestinal symptoms, it is called Chilaiditi syndrome.[1] It is often detected incidentally on a direct X-ray or computed tomography. It is observed between 0.025% and 0.28% in the general population and is frequently seen in men. Furthermore, its incidence increases with age. Most cases are asymptomatic; gastrointestinal symptoms, such as mild abdominal pain, nausea, indigestion, and constipation, are observed in symptomatic patients.[2] In this case report, the Chiladiti sign, which was detected in a 23-year-old asymptomatic male person and a 66-year-old male patient with gastrointestinal symptoms during hospitalization, is presented considering the relevant literature, with the informed consent of both persons.

CASE REPORT

Case 1

A 23-year-old male applied to a family medicine outpatient clinic for a workplace entrance examination. He did not have any clinical complaints. It was learned that he had gastrointestinal complaints such as indigestion, bloating, variable abdominal pain, and irregularity in defecation for a long time in his past, and his complaints decreased with the use of proton

pump inhibitors and diet regulation. His physical examination was unremarkable except for an obese appearance and increased tympanitis in the right upper quadrant of the abdomen and partially under the ribs. On the chest X-ray, it was seen that the right diaphragm was elevated, and the air image of the colon drew attention to it (Fig. 1a). After the X-ray was reported as the Chilaiditi sign, computed tomography of the abdomen was taken, and it was seen in the image that the colon loop interposed between the right hemidiaphragm and the liver (Fig. 1b). Because to the fact that the person is currently asymptomatic, dietary and lifestyle changes for possible gastrointestinal symptoms were explained and information was given about possible complications.

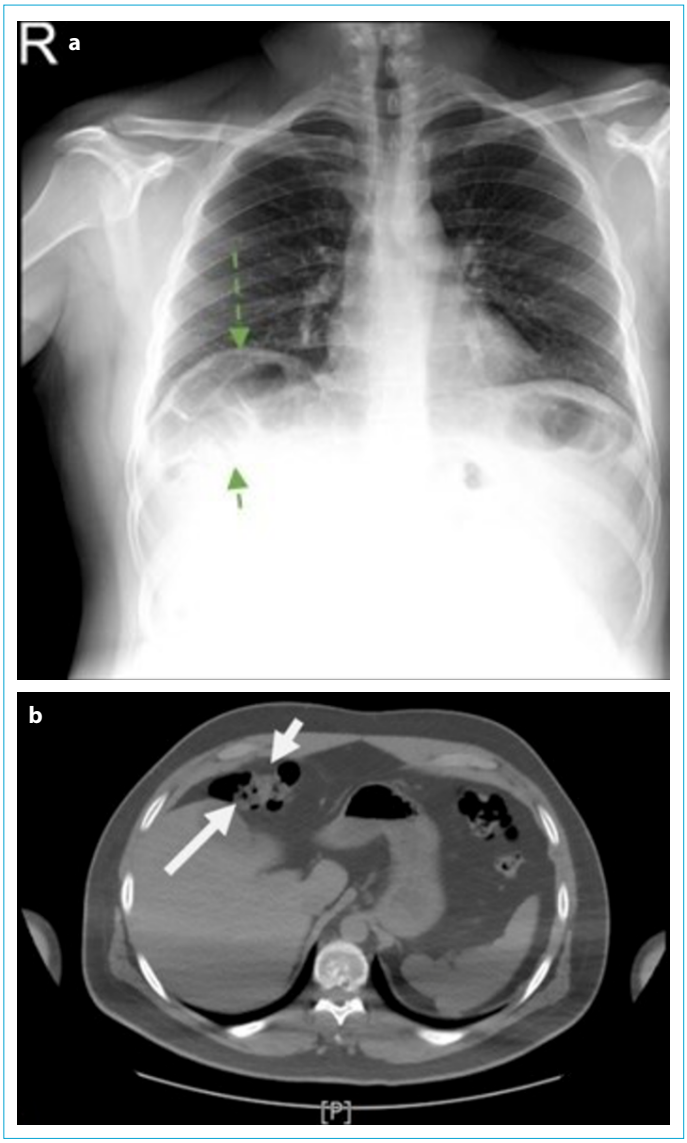

Figure 1. (a) Air spaces belonging to the colon are seen under the right hemidiaphragm. **(b)** The colon loop is interposed between the liver and the right hemidiaphragm.

Case 2

A 66-year-old male patient with known chronic obstructive pulmonary disease (COPD) was admitted to the emergency department for increased dyspnea. After the examinations, he was hospitalized with a pre-diagnosis of COPD exacerbation. Chest X-ray was taken on admission; increased bilateral aeration, flattening of the bilateral diaphragms, and an appearance compatible with the colonic loop under the right hemidiaphragm were detected (Fig. 2a). Abdominal computed tomography was performed on the patient due to complaints such as bloating, abdominal pain, and dif-

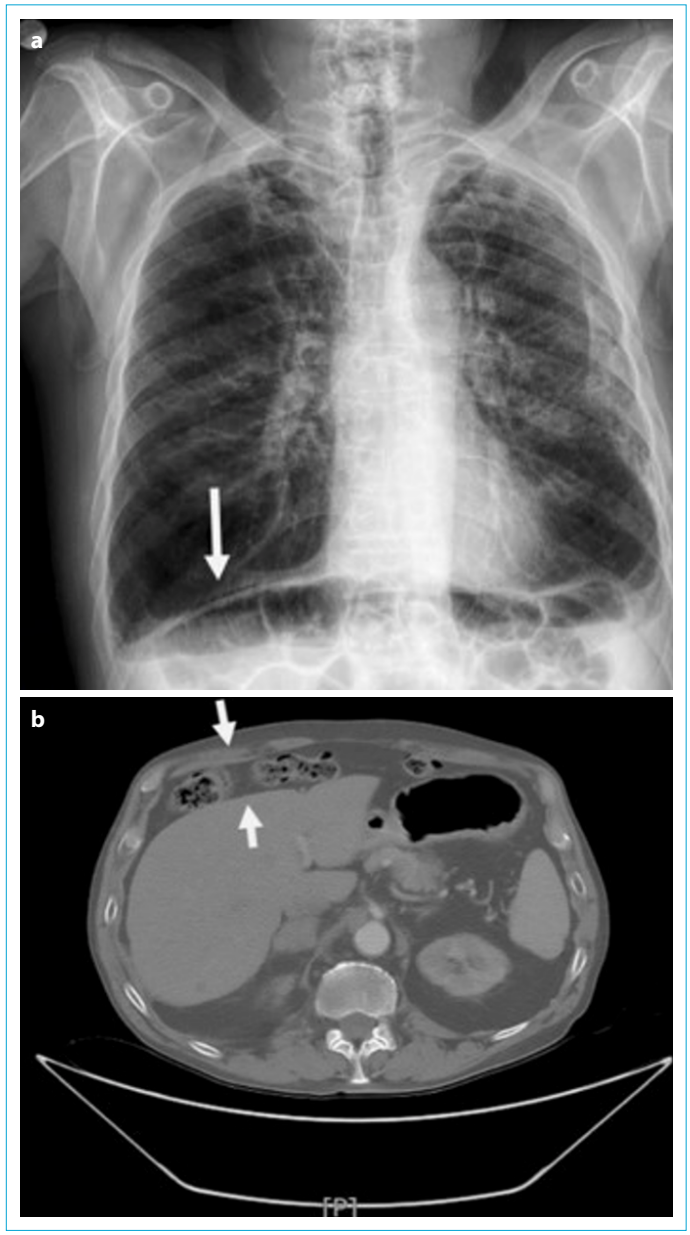

Figure 2. (a) Flattening of the bilateral diaphragms and colon loop under the right hemidiaphragm. **(b)** The colon loops are interposed between the liver and the right hemidiaphragm.

ficulty breathing while eating during follow-up and treatment. On tomography, it was observed that the colon loops were interposed between the liver and the right hemidiaphragm (Fig. 2b). With the diagnosis of Chilaiditi syndrome, in addition to dietary recommendations, anti-spasmodic and motility-regulating medications were administered in the treatment.

DISCUSSION

Chilaiditi cases are mostly asymptomatic, but few cases present with non-specific gastrointestinal symptoms such as bloating, indigestion, nausea, and abdominal pain.[2-4] Chilaiditi cases are rare clinical conditions; when not recognized correctly, they can be confused with many acute abdomen etiologies such as pneumoperitoneum, which is included in the differential diagnosis of subdiaphragmatic air and may cause clinicians to perform unnecessary surgical intervention. Deciding on surgical intervention only with radiological images is not suitable for medical science. However, in patients who do not have symptoms compatible with acute abdomen, interventional procedures for diagnosis and treatment can be performed due to radiological images. For this reason, it is necessary to protect the patient from unnecessary invasive procedures based on quaternary prevention, also known as "primum non-nocere".[5] The presence of normal plical or haustral appearance of the colon under the diaphragm on direct X-ray may help in the differential diagnosis of Chilaiditi signs and other diseases with free air images in the abdomen. In patients with the Chilaiditi sign, the subdiaphragmatic air is not displaced by changing position. In cases where intestinal air and free air cannot be distinguished in the subdiaphragmatic area on X-ray, computed tomography can be performed for differential diagnosis.[6] In Chilaiditi syndrome, supportive treatments such as rest, fluid supplementation, nasogastric decompression, enemas, laxatives, and a fiber diet are generally recommended; surgical treatment is limited. Complications of Chilaiditi syndrome that may require surgical intervention include the cecum, splenic flexure, and transverse colon volvulus, cecal perforation and rarely perforated subdiaphragmatic appendicitis.[7]

The clinical significance of the Chilaiditi sign is that the air image of the colon under the right hemidiaphragm on the direct X-ray taken at the time of admission suggests acute abdominal etiologies such as perforation and may cause unnecessary surgical procedures. Our cases are presented to draw attention to family physicians, emergency physicians, and surgeons to consider the Chilaiditi sign as a differential diagnosis and to avoid harming the patient to provide the quaternary prevention known as "primum non nocere."

Disclosures

Informed Consent: Written informed consent was obtained from the patients for the publication of the case report and the accompanying images..

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