

Left Colonic Interposition Mimicking Acute Abdomen: A Case Report

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INTRODUCTION

The radiological sign of colonic interposition between the liver and the diaphragm was firstly reported and named by a Greek radiologist, Demetrius Chilaiditi, in 1910. The first three cases were asymptomatic patients who had the appearance of intra-abdominal free air under the right diaphragm on routine abdominal or chest x-ray [1].

Clinical presentation may vary, ranging from asymptomatic patients with incidental finding to patients complaining of a wide range of gastrointestinal symptoms like abdominal pain, bloating, nausea or vomiting. Extra-gastrointestinal symptoms such as dyspnea, chest pain and arrhythmias are rare [2-4].

The incidence of the sign is very low, accounting for 0.025% to 0.28% worldwide, with a higher prevalence between males older than 60 years old [2]. Factors favoring the Chilaiditi's sign include anatomical variations such as absence or laxity of the falciform liver ligament or the transverse colon suspensory ligament, congenital malrotation or functional disorders like obesity or right diaphragmatic paralysis [5]. The most frequent bowel segment involved is the hepatic flexure, however small bowel or splenic flexure have also been described in a limited number of patients [6].

Despite the radiological sign is well known, abdominal pain or gastrointestinal symptoms might lead the physician to misdiagnosis and lead to unnecessary surgeries, especially in an emergency setting.

In this report we present a case of 60-year-old woman with acute abdominal pain and Chilaiditi's sign due to sigmoid dolichocolon mimicking acute abdomen.

CASE REPORT

A 60-year-old female patient presented to the Emergency Department complaining of acute epigastric abdominal pain for 5 hours. The pain was non-radiating and the only relieving position was standing. The patient complained also of nausea and two episodes of vomiting. Her past medical history was significant only for open appendectomy 5 years before.

Upon admission the patient was stable, with a blood pressure 115/60 mmHg, heart rate 53 beats per minute, respiratory rate 18 acts/min, and oxygen saturation of 98 %.

Blood test was within normal range, as well as liver function tests. Her physical examination showed a rebound tenderness in the epigastric region.

An abdominal X-Ray showed an appearance of free air beneath the right diaphragm, a dilated stomach and bowel loops beneath the left hemidiaphragm (Figure 1). A nasogastric tube was then positioned.



Figure 1: Abdominal X-Ray showing Chilaiditi's sign.

Due to the acute onset of the pain and to the appearance of intrabdominal free air, a CT scan of the abdomen was performed. It showed a sigmoid dolichocolon lying in the right parietocolic space and reaching the space between the upper part of the liver and the right hemidiaphragm (Figure 2a). In addition, a displacement and

rotation of the liver with the portal axis pointing anteriorly and slightly reduced in caliber at the hepatic hilum, was reported. The cecum was severely dilated and located close to the II hepatic segment.

In order to study the bowel anatomy, Gastrografin contrast was injected through the nasogastric tube and one hour later a CT scan was obtained. The small bowel appeared to be located in the central abdominal with the last ileal-loop in mesogastrium, suggesting a malrotation of the bowel. No anatomical variation in the origin of Superior Mesenteric Artery (SMA) and Inferior Mesenteric Artery (IMA) were identified, however the direction of the IMA was towards the right iliac fossa (Figure 2b). The reason for the distorted anatomy was attributed to adhesions to the previous surgery. No signs of closed loop volvulus were noted and no free fluid was described by the radiologist.

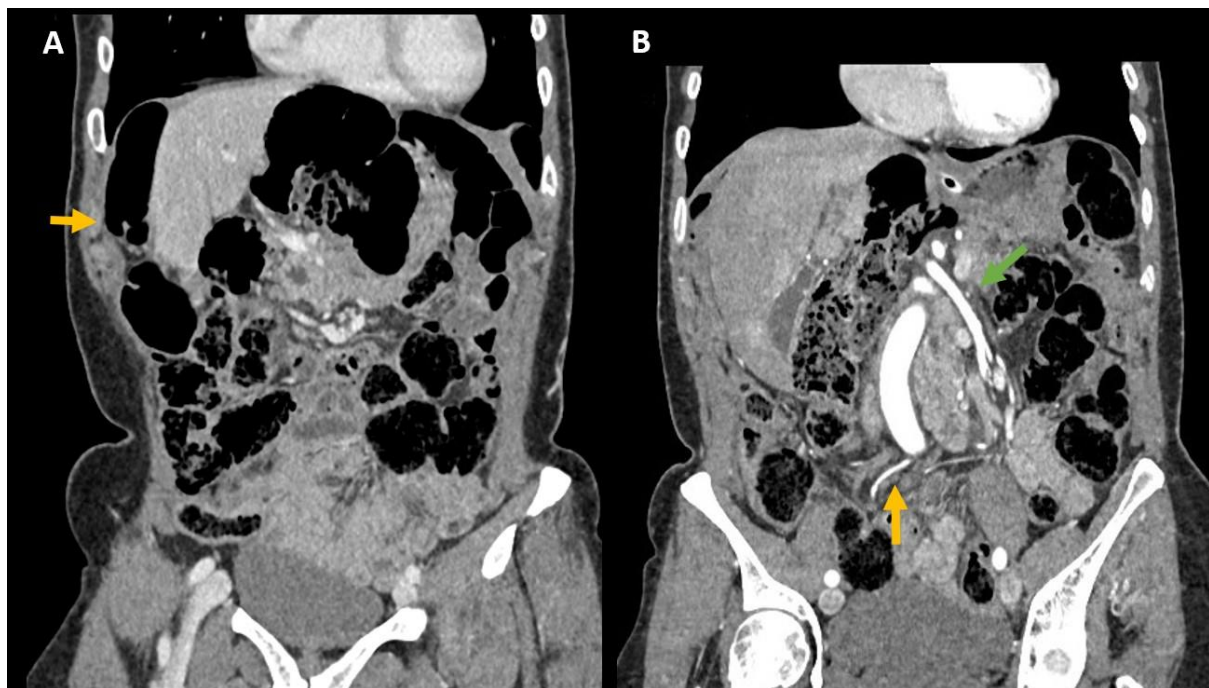


Figure 2: CT scan images showing a) Sigmoid colon interposed between the diaphragm and the liver (Yellow Arrow) b) Superior Mesenteric Artery (Green arrow) and Inferior Mesenteric Artery (Yellow arrow).

The patient was then treated conservatively with fasting, intra-venous fluid injection, enema administration, pain management and bed rest for 12 hours. Furthermore, the Gastrografin contrast helped relieving patient's symptoms. The patient was then dismissed the day after with remission of symptoms and on oral diet.

DISCUSSION

The Chilaiditi syndrome is very rare and could arise with non-specific gastrointestinal symptoms such as abdominal pain, nausea, vomiting, bloating and constipation, but also non-gastrointestinal symptoms like right shoulder pain, arrhythmias or respiratory symptoms [2-4]. It is secondary to an alteration of the anatomy of the liver's ligaments, allowing a colonic interposition between the diaphragm and the liver itself. Apart from congenital causes, acquired reasons like chronic constipation, liver atrophy secondary to cirrhosis, obesity, pregnancy, ascites and paralysis of the right diaphragm have been described [6]. Previous surgery could be a risk

factor as made evident from our report. Lastly, long-standing constipation is considered an acquired cause of Chilaiditi syndrome because of the length of the colon in these patients [6].

The colonic interposition above the right liver could mimic abdominal free air at abdominal or chest X-ray, therefore the early diagnosis of Chilaiditi syndrome in the Emergency department is crucial in cases of acute pain. In fact, this condition could be confused with bowel perforation, appendicitis, intussusception, diaphragmatic hernia or Morgagni's hernia, liver abscess or infected cyst. Negative surgical explorations have been reported in the literature [7-9]. A CT-scan has to be always performed in order to perform a correct diagnosis and to exclude pneumoperitoneum [8].

Once that the perforation is excluded, a conservative management with pain control should be the first option. Depending on the severity of symptoms, a nasogastric tube, fasting, iv fluids and prokinetic could be considered. Laxatives and enemas could also be part of the treatment.

Surgical options should be considered in case of failure of symptoms resolution or volvulus, perforation or bowel ischemia. The aim of surgical approach is to avoid the interposition and it includes colonic or liver fixation to the abdominal wall in order to prevent colonic displacement. In case of visceral perforation, resection is mandatory.

CONCLUSION

In the evaluation of a patient with acute abdominal pain and free air at plain X-ray, Chilaiditi Syndrome should be taken into account. A CT scan should be considered in order to avoid unnecessary surgery and to treat the effectively the patient.

REFERENCES

1. Chilaiditi D, On the question of hepatoptosis ptosis and generally in the exclusion of three cases of temporary partial liver displacement. *Questhepatoptosis ptosis Gen exclusion three cases, Tempor. Partial Liver Displac.* 1910;11:173-208.
2. Kang D, Pan AS, Lopez MA, Buicko JL, Lopez-Viego M. Acute abdominal pain secondary to chilaiditi syndrome. *Case Rep Surg.* 2013;2013:756590.
3. Sorrentino D, Bazzocchi M, Badano L, Toso F, Giagu P. Heart-touching Chilaiditi's syndrome. *World J Gastroenterol.* 2005;11(29):4607-9.
4. Fiumecaldo D, Buck L. Chilaiditi's syndrome causing high-grade small-bowel obstruction requiring exploratory laparotomy. *Mil Med.* 2018;183(5-6):e281-3.
5. Moaven O, Hodin RA. Chilaiditi syndrome: a rare entity with important differential diagnoses. *Gastroenterol Hepatol (N Y).* 2012;8(4):276-8.
6. Weng WH, Liu DR, Feng CC, Que RS. Colonic interposition between the liver and left diaphragm - management of Chilaiditi syndrome: A case report and literature review. *Oncol Lett.* 2014;7(5):1657-60.
7. Shah SS, Chaurasia D, Katuwal D. Dilated sigmoid colon with Chilaiditi's sign mimicking diaphragmatic hernia: A case report. *Int J Surg Case Rep.* 2022;97:107373.

8. Sofii I, Parminto ZA, Anwar SL. Differentiating Chilaiditi's Syndrome with hollow viscus perforation: A case report. Int J Surg Case Rep. 2021;78:314-6.
9. Ben Ismail I, Zenaïdi H, Rebiï S, Yahmadi A, Zoghlami A. Chilaiditi's sign: A rare differential diagnosis of pneumoperitoneum. Clin Case Rep. 2020;8(12):3102-4.