

Chilaiditi syndrome—a clinical conundrum!

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Over a century ago, radiologist Demetrius Chilaiditi reported a case series of three patients with the incidental radiological finding of colonic interposition between the liver and diaphragm. Thereafter called the Chilaiditi sign, this finding is a rare anomaly incidentally seen on chest or abdominal radiographs. Chilaiditi syndrome refers to the medical condition in which a Chilaiditi sign is accompanied by clinical symptoms. We report a case of Chilaiditi syndrome that was successfully diagnosed and managed.

Keywords: Chilaiditi syndrome, Demetrius Chilaiditi

Sir,

A 65-year-old male was admitted to the ICU with a 72-hour history of abdominal pain, constipation and vomiting, unrelieved with medication. He was afebrile, haemodynamically stable and the abdomen was mildly distended without hepatosplenomegaly. There was pain on palpation of the right hypochondrium, and a tympanic note on percussion without rebound tenderness. All routine investigations were normal. The chest X-ray revealed gaseous shadows below the right dome of the diaphragm (Figure 1). A clinical diagnosis of intestinal obstruction was considered but chest and abdominal CT scan revealed interposition of a colonic loop between the under-surface of the diaphragm and the liver without any free air in the peritoneum, mechanical obstructive lesion or perforated viscus (Figure 1). Based on these findings, the diagnosis of Chilaiditi syndrome was made. The patient was treated conservatively with bed rest, nasogastric tube insertion, bowel decompression, intravenous fluids, enemas and laxatives. Within 36 hours, the patient was pain free. A repeat chest X-ray revealed disappearance of the subdiaphragmatic air shadows. The patient was discharged on the third post-admission day.

Demetrius Chilaiditi first described hepatodiaphragmatic interposition of hollow viscera in 1910 as an incidental finding on chest X-rays; this is since known as Chilaiditi's sign.¹ It has an incidence of 0.3% on chest X-rays and 2.4% on chest/abdominal CT scans.² Accompanied by clinical symptoms such as abdominal pain, vomiting, and/or constipation, it is referred to as Chilaiditi syndrome.

Predisposing factors are hepatic (liver ptosis caused by relaxation of ligaments, cirrhosis, hepatic atrophy, ascites), intestinal (megacolon, meteorism, abnormal colonic motility), and diaphragmatic (diaphragmatic thinning, phrenic nerve injury, changes in intrathoracic pressure as in cases of emphysema).³ In healthy individuals, Chilaiditi's syndrome is generally attributed to an increase in the length, diameter and motility of the colon.

Patients may present with abdominal pain, nausea, vomiting, constipation, and occasionally with respiratory distress and angina-like chest pain. Complications of Chilaiditi syndrome

may include volvulus of the caecum, splenic flexure, or transverse colon, caecal perforation and, rarely, perforated subdiaphragmatic appendicitis.⁴

Differential diagnosis includes pneumoperitoneum, subphrenic abscess or diaphragmatic hernia. Finding normal plicae circulares or haustral markings of the colon under the diaphragm can rule out these serious entities. Moreover, changing the position in a patient with Chilaiditi's sign will not change the position of the radiolucency, unlike in a patient with pneumoperitoneum. Similarly, when using ultrasound, altering the position of a patient with Chilaiditi's sign will not lead to a change in the location of the gas echo, as opposed to a patient with pneumoperitoneum.⁵ If chest X-ray or ultrasound is indeterminate, CT scan is recommended to establish an accurate diagnosis, if the patient is clinically stable.

The appropriate diagnosis of this condition is extremely important as other entities in the differential diagnosis may require exploratory laparotomy for management, whereas the treatment for this syndrome is generally conservative. Bed rest, analgesia, intravenous fluids, nasogastric decompression, enemas, cathartics, high-fibre diet, and stool softeners are the first line in management. Persistence of the symptoms or development of complications may warrant surgical treatment. The appropriate surgical approach depends on the nature of the interposed segment of the colon. Caecopexy may be adequate to eliminate the possibility of recurrence in an uncomplicated caecal volvulus, unless gangrene or perforation necessitates surgical resection. However, colonic resection is the best option for a volvulus of the transverse colon, and attempts at colonoscopic reduction are not recommended due to a high frequency of gangrene (16%) in this type of volvulus.⁶

Chilaiditi syndrome is rarely considered in the differential diagnosis of patients presenting with vague abdominal symptoms, making diagnosis difficult. Knowledge of this entity is essential for surgeons, anaesthetists and intensivists to prevent unnecessary surgical procedures.

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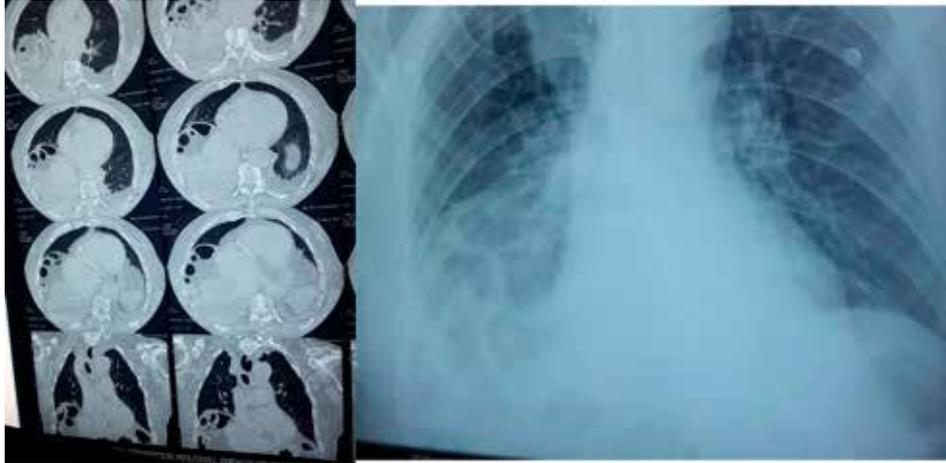


Figure 1: Left: Chest and abdominal CT scan showing interposition of colonic loop between the undersurface of the right dome of the diaphragm and the liver. Right: Chest X-ray showing gaseous shadows beneath the right dome of diaphragm.

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