



# RADIOGRAPHIC QUIZ

From page 18

## ■ OVERVIEW OF THE DISEASE

Chilaiditi syndrome is the anterior interposition of the colon to the liver reaching the under-surface of the right hemidiaphragm with associated upper abdominal pain; it is one of the causes of pseudopneumoperitoneum.

Colonic gas in this position may be misinterpreted as true pneumoperitoneum resulting in further imaging, investigation and treatment that is not required.

Pain distinguishes Chilaiditi syndrome from asymptomatic colonic interposition, which is termed as Chilaiditi sign. This is by virtue of the fact that a syndrome is a collection of signs and symptoms.

It is named after Demetrios Chilaiditi (1883-1975), Greek radiologist who described the radiographic findings in 1910 whilst working in Vienna, Austria. Although the first description of colon interposition between the liver and the right hemidiaphragm was published by Cantini in 1865.

The incidence of this syndrome ranges from 0.025% to 0.28% and seems to increase with age. The sex ratio is 4:1, male to female. In these patients, the colon is displaced and caught between the liver and the right hemidiaphragm. Generally, patients are asymptomatic but non-specific symptoms such as abdominal pain, distension, and nausea; vomiting and constipation can be present. Confusions could be avoided with proper diagnosis of this rare syndromic presentation with more serious abnormalities such as perforated viscus, pneumoperitoneum and subphrenic abscess. Recognition of Chilaiditi syndrome is important because this rare entity can be misleading to the surgeons and mistaken for more serious abnormalities, which may lead to unnecessary surgical interventions. Diagnosis is best achieved with CT imaging. Identification of Chilaiditi syndrome is clinically important as it can lead to many significant complications such as volvulus, perforation, and bowel obstruction. If the patient is symptomatic, treatment is usually conservative. If the patient does not respond to initial conservative management, and either the obstruction fails to resolve or there is evidence of bowel ischemia, then surgical intervention is indicated.

Radiographic features

## PLAIN RADIOGRAPH

Features that suggest a Chilaiditi syndrome (i.e. Chilaiditi sign)

include:

- gas between the liver and diaphragm
- haustra within the gas suggesting that it is within the bowel and not free

## CT

If there is a clinical suspicion of abdominal visceral perforation and plain radiographic appearances are unclear, abdominal CT can be performed to clarify whether there is pneumoperitoneum.

CT can clearly demonstrate the presence of interposed colonic loops between the right hemidiaphragm and liver with no free intraperitoneal air.

## TREATMENT AND PROGNOSIS

Asymptomatic patients with Chilaiditi syndrome do not require specific treatment. Those with abdominal pain or distension are usually treated conservatively with analgesia and fluid resuscitation. Patients with recurrent presentations or evidence of bowel ischemia may be offered surgical treatment. Gangrenous or ischemic bowel segments may have to be removed if there is associated colonic volvulus. Otherwise, colopexy may be sufficient to prevent future recurrence of symptoms.

Our patient was treated with oral Metoclopramide which improved his symptoms and the follow up chest x ray reveals there was no longer gas distention of the colon.

## ■ REFERENCES

1. TAA Taha Chilaiditi's syndrome: correct diagnosis can save the patient from unnecessary and life threatening surgery. *Adv Surg Res* 2017, 1: 45-47.
2. Nakagawa H, Toda N, Taniguchi M, Taniguchi M, Ibukuro K, Tagawa K. Prevalence and sonographic detection of Chilaiditi's sign in cirrhotic patients without ascites. *Am J Roentgenol.* 2006;187 (6): W589-93. doi:10.2214/AJR.05.0597
3. Z. V. Maizlin. *Wonders of Radiology*. CreateSpace Independent Publishing Platform (2010) ISBN: 9781449976453

There is evidence of gas distention of the hepatic flexure of the colon interposed between the liver and hemidiaphragm (Chi-laiditi syndrome). Note there are haustra within the gas suggesting that it is within the bowel and not free.

The CT image clearly reveals the presence of right hepatic flexure of the colon filled with gas between the liver and hemidiaphragm and the presence of well demonstrated haustra of the colon.

# Answer to Radiographic Quiz



Please respond to the following with True or False

- F There is evidence of pneumoperitoneum
- F Right lower pulmonary lobe pneumonia
- T Elongated thoracic aorta with a prominent aortic arch and calcified atheromatous plaques
- F Right pneumothorax
- T Gas distention of the hepatic flexure of the colon
- F Prominent hilar lymphadenopathy

Considering the clinical data and radiographic findings, which of the following exams could help for the definitive diagnosis.

- X Right lateral chest x ray
- X Chest CT
- X Abdominal CT
- Intravenous pyelogram
- Barium meal