

**CASE REPORT****CHILAITITI'S SIGN: HEPATODIAPRAGMATIC INTERPOSITION OF THE SMALL INTESTINE**

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Chilaiditi's sign or hepatodiaphragmatic interposition of bowel seen on an erect chest radiograph can mimic pneumoperitoneum. The presence of plicae circulares or haustrations is necessary to differentiate this condition from pneumoperitoneum. When this radiological sign is accompanied by a broad range of gastrointestinal symptoms, the condition is known as Chilaiditi's syndrome. In a majority of the cases, Chilaiditi's syndrome is managed symptomatically. We present a case of incidentally detected Chilaiditi's sign in a 73-year-old asymptomatic male.

**Keywords:** Chilaiditi's sign**Introduction**

Air under the diaphragm seen on erect chest radiographs can suggest pneumoperitoneum due to perforation of a hollow viscus. However, hepatodiaphragmatic interposition of the bowel, which is known as Chilaiditi's sign can also mimic pneumoperitoneum. We present a case of Chilaiditi's sign in a 73-year-old male.

**Case Report**

A 73-year-old male was admitted for an elective inguinal hernia repair. The patient was asymptomatic. Clinical examination was unremarkable except for right sided uncomplicated direct inguinal hernia. Gas under the right hemidiaphragm was noticed on his upright posteroanterior chest radiograph during preoperative investigations (Figure 1).

The right hemidiaphragm was elevated. Plicae circulares were evident in the subdiaphragmatic radiolucency. The liver was displaced below the level of the left hemidiaphragm. The patient recovered uneventfully following surgery.

**Discussion**

A case series of hepatodiaphragmatic interposition of bowel was described by Demetrius Chilaiditi, a Viennese radiologist in 1910, which he termed as "Hepatosi"<sup>1</sup>. The term "Chilaiditi's sign" is used when this radiographic finding is seen in an asymptomatic patient. When this radiological sign is associated with characteristic gastrointestinal symptoms such as nausea, vomiting, abdominal pain, constipation and abdominal distension, the clinical entity is described as "Chilaiditi's syndrome"<sup>2</sup>.

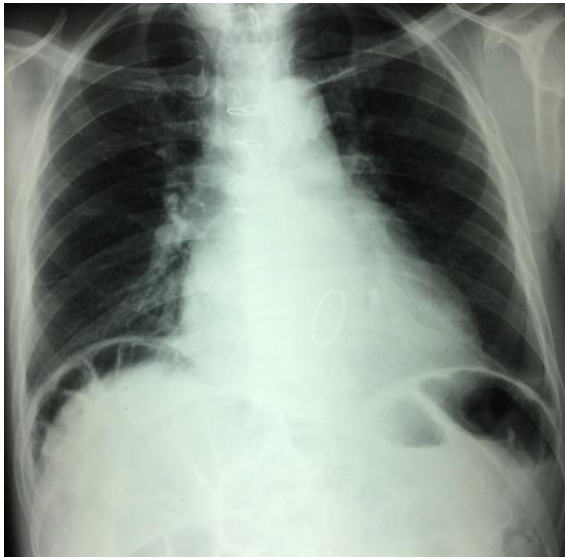


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**Figure 1:** Erect posteroanterior chest radiograph showing hepatodiaphragmatic interposition of small bowel known as Chilaiditi's sign.

The incidence of Chilaiditi's sign is reported to be 0.25% - 0.28% in certain populations<sup>3</sup>. It is commonly seen among elderly males<sup>3</sup>. Vessal described the probable aetiological factors for hepatodiaphragmatic interposition as, "(a) redundant bowel with increased mobility, (b) an enlarged lower thoracic outlet in conditions such as pregnancy and emphysema, (c) an atrophic liver due to cirrhosis, which leaves adequate space for intrusion of adjacent bowel segments"<sup>2</sup>. According to a recent systematic review, chest and abdominal radiographs were used to diagnose this condition in virtually all the cases<sup>4</sup>. Key features needed for the diagnosis of Chilaiditi's sign are, an elevated right hemidiaphragm, depressed upper border of the liver below the level of the left hemidiaphragm and distended bowel loops above the liver<sup>4</sup>. Haustrations or plicae circulares are visible in colonic or small bowel interposition respectively. There is a vast array of treatment modalities of Chilaiditi's syndrome. A majority can be treated symptomatically. According to a systematic review of 27 cases, only 7(26%) cases needed surgical intervention<sup>4</sup>. Volvulus of the colon is one

of the most common indications for surgery<sup>4,5</sup>.

Thus, Chilaiditi's sign is an important differential diagnosis to be entertained if air is seen under the diaphragm on a radiograph, which can be easily mistaken for serious abnormalities which may lead to unnecessary surgical interventions<sup>3,4</sup>.

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### Conflicts of Interests

There are no conflicts of interests

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