

Chilaiditi's Syndrome: A Brief Review

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I. Chilaiditi's Syndrome: A Brief Review

Chilaiditi's sign is the interposition of the colon between the liver and the diaphragm anatomically; and when accompanied with clinical symptoms it is known as Chilaiditi's syndrome. Commonly, it is an asymptomatic radiological finding and is a rare entity. This rare syndrome need to be distinguished from the more frequently seen causes of air under the diaphragm or else it may lead to unnecessary surgical intervention. Chilaiditi's syndrome may be permanent or sporadic and easily discernable on abdominal or chest x-ray¹ and it is often misdiagnosed in clinical practice with pneumoperitoneum, pneumobilia, and hepatic-portal-venous gas.

It was first described in 1865 by Cantini who observed it clinically. In 1910, Demetrius Chilaiditi, described it as a radiological diagnosis.² The incidence of such finding radiographically is between 0.025% and 0.28% including all the age ranges with slight increase in individuals aged above 60 years, men affected more than women in the ratio of 4:1.^{3,4}

Several causes, including absence of suspensory ligaments of the transverse colon, atrophic or small liver, segmental agenesis of the right lobe of the liver, abnormality of the falciform ligament, redundant or dilated colon, and volvulus of the colon. The condition occurs with greater frequency in individuals with chronic lung disease, scarring of the liver (cirrhosis), and the accumulation of fluid within the abdominal cavity (ascites).^{5,6}

Generally it is asymptomatic and is an incidental finding. Presenting symptoms may be of respiratory system symptoms such as respiratory distress and chest pain. Gastrointestinal system symptoms includes vomiting, abdominal pain, constipation, abdominal distension, and loss of appetite, cardiac symptoms includes tachycardia, arrhythmia, and angina-like chest pain.⁶⁻¹³ Rare cases may present with multiorgan symptoms.⁶⁻¹³ Gastrointestinal symptoms could be mild, recurrent, chronic, and severe. Sometimes clinical pictures such as volvulus (in cecum, splenic flexure, transverse colon), incarceration, and perforation, which might require emergent intervention^{6,9-13} may be seen. Pseudoobstruction may be seen in colon (Ogilvie's Syndrome). Coexistence with pulmonary and gastrointestinal malignancies (colon, rectum, gastric) has been reported.⁶⁻¹³ Chilaiditi's sign has been reported in a 15-year-old girl diagnosed with multiple endocrine neoplasia type 2B.¹³ Chilaiditi's syndrome has been reported in an 18-year-old case presented with direct hyperbilirubinemia and elevated transaminases, in whom jaundice gradually decreased with supportive treatment.¹²

Diagnosis can be made with the help of chest X-ray or x-ray abdomen which shows air under right dome of diaphragm and also haustral folds of bowel loops can be seen. Sometimes haustral folds of bowel loops may not be seen in chest X-ray. In such case, the left lateral decubitus abdominal plain film may help to differentiate between pneumoperitoneum and Chilaiditi's sign, which shows absence of haustral folds in pneumoperitoneum and presence of haustral folds in Chilaiditi's sign. Sato *et al.* reported that ultrasound is helpful in diagnosing Chilaiditi's syndrome. Though most of the cases can be diagnosed by X-ray and CT of abdomen which provides more information. Ultrasound of abdomen is helpful in distinguishing between Chilaiditi's syndrome and pneumoperitoneum. The management of Chilaiditi's syndrome includes both operative and nonoperative approaches. Saber *et al.* reported that 26% of patients needed operative management¹⁴, while the majority required nonoperative treatment consists of bed rest, intravenous fluids, nasogastric decompression, enema and stool softener. Bowel decompression may be both diagnostic and therapeutic.¹⁴ Surgical intervention is necessary in case of bowel ischemia or obstruction from intestinal volvulus.

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