

Chilaiditi's Syndrome with Pneumobilia in a Patient in the Emergency Department: A Case Report

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Abstract

The hepatodiaphragmatic interposition of the colon or small intestines known as Chilaiditi's sign is a rare entity. It is frequently experienced in elderly, particularly in men. It may be asymptomatic, but it may be also present with symptoms, such as abdominal pain, nausea, vomiting, constipation and respiratory distress. We report a case of an 82 year old male with a past medical history of Parkinson's disease, hypertension and cholecystectomy (10 years ago), with a history of generalized abdominal pain, nausea, vomiting, starting 10 days ago. Clinical examination revealed dehydration, abdominal distension and severe stabbing right upper quadrant and epigastric pain. The supine and erect abdominal X-ray showed Chilaiditi's sign, without evidence of air fluid levels. An emergency CT scan of the abdomen showed the interposition of the hepatic flexure of the colon between the right liver lobe and the right hemidiaphragm and pneumobilia. The patient was admitted in the hospital and treated conservatively. His evolution was favorable, he was discharged from the hospital three days later. This case report an association less common: Chilaiditi's syndrome and pneumobilia.

Keywords: *Chilaiditi's Syndrome; Chilaiditi's Sign; Pneumobilia; Emergency Department; Case Report*

Abbreviations

RBC: Red Blood Cell Count; WBC: White Blood Cell Count; AST: Aspartate Transaminase; ALT: Alanine Transaminase

Introduction

The radiographic interposition of the hepatic flexure of the colon between the right hemidiaphragm and the liver, usually asymptomatic, is known as Chilaiditi sign. It is rare and an incidental finding on abdominal x-ray: incidence ranges from 0.1 to 1% [1]. When it is associated with symptomatology (abdominal pain, distension, vomiting, anorexia, constipation, respiratory distress, chest pain) it is called as Chilaiditi's syndrome. This syndrome was described for the first time by the radiologist Demetrius Chilaiadi in 1910 [2]. Pneumobilia is defined as the presence of gas in the biliary tree of the liver secondary to an abnormal connection between the gastrointestinal tract and biliary tract or infection by gas forming bacteria [3]. The most common causes of pneumobilia are biliary enteric surgical anastomosis, incompetent sphincter of Oddi, emphysematous cholecystitis, spontaneous biliary enteric fistula, blunt abdominal trauma, after cardiopulmonary resuscitation or after endoscopic retrograde cholangiopancreatography [4-6]. In this case report we present an elderly male who had a history of cholecystectomy (10 years ago), with Chilaiditi's sign and was found to have pneumobilia on CT abdomen which completely recovered after conservative management.

Case Report

We report a case of an 82 year old male with the past medical history of Parkinson's disease, hypertension and cholecystectomy (10 years ago), who was brought by the ambulance in the Emergency Department with a history of vague generalized abdominal pain, nausea, vomiting starting 10 days ago. The patient denies any recent trauma. He was dehydrated and the abdominal examination showed distension and severe stabbing right upper quadrant and epigastric pain. Laboratory tests showed elevated white blood cell count (WBC) 13700/mL, blood urea nitrogen 89 mg/dl (normal range 15 - 45 mg/l) and creatinine 1,62 mg/dl (normal range 0,72 - 1,23 mg/dl); red blood cell count (RBC), hemoglobin, hematocrit, lipase, sodium and potassium were within the normal range. Liver enzymes were also slightly elevated: AST 87 (normal range 17 - 59 U/L), ALT 98 (normal range 21 - 72 U/L). The supine and erect abdominal X-ray showed elevated right hemidiaphragm with transverse colon interposition between it and the liver (Chilaiditi's sign, Figure 1) without any evidence of air fluid levels but transabdominal ultrasonography showed pneumobilia and a non-detectable dilation of the intrahepatic biliary tracts. Upper gastrointestinal tract endoscopy revealed the duodenal orifice anastomosis hole (choledochoduodenostomosis). Contrast enhanced CT scan of the abdomen and pelvis showed the interposition of the hepatic flexure of the colon between the right liver lobe and the right hemidiaphragm (Figure 2) and pneumobilia (Figure 3). The patient was admitted to the hospital for observation, hydration, serial abdominal examinations and treated conservatively. Its evolution was favorable with the disappearance of symptoms and the patient was discharged from the hospital three days later.



Figure 1

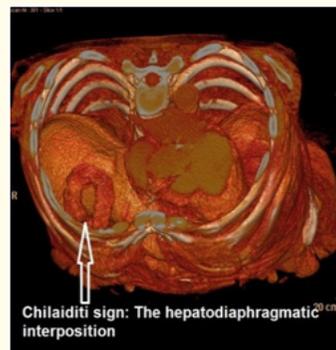


Figure 2

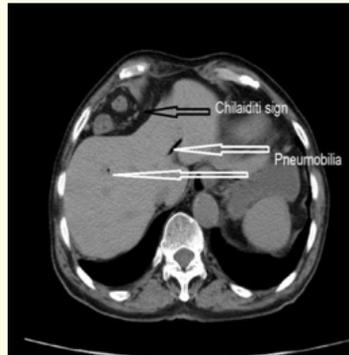


Figure 3

Discussion

This case reports an association less common: Chilaiditi's syndrome and pneumobilia. Chilaiditi's syndrome is a clinical abnormality consisting of episodic, recurrent, abdominal pain, nausea, vomiting, constipation with intermittent upper gastrointestinal obstruction by an ectopic segment of colon. The etiology of Chilaiditi syndrome is unclear. Several causes have been reported such as: absent suspensory or falciform ligaments, redundant colon, dolichocolon, motility disorders of the right hemidiaphragm [7]. Occasionally Chilaiditi's syndrome is associated with colonic volvulus [8]. However, the treatment for Chilaiditi's syndrome is generally conservative. Generally, the mainstay of the therapy is conservative and consists of mostly bed rest, antisecretory, antiemetic and antispastic therapy, intravenous fluids, nasogastric decompression, bowel decompressions and enemas [9,10]. On the other hand, the presence of air in the biliary system (pneumobilia) may indicate either a benign or potentially life-threatening condition such as serious infectious etiologies (emphysematous cholecystitis or pyogenic cholangitis, infections due to gas-forming bacteria, such as *Clostridium perfringens* or *Klebsiella pneumoniae*) [3,11,12]. Pneumobilia following blunt trauma abdomen is rare; only a few cases are described in the literature [3,6,11,13]. If pneumobilia seems to be an incidental finding, especially after surgical procedure (choledochoduodenostomy in this case), a search for an alternative cause of the patient's symptoms may be necessary.

Conclusion

We report a case of Chilaiditi syndrome in an elderly male who associated pneumobilia with short history of upper abdominal pain and vomiting. Rarity of this condition and the strikingly different treatment strategy (conservative) as opposed to other serious surgical causes of pneumoperitoneum and pneumobilia prompted us to report it.

Conflict of Interest

Authors declare no conflict of interest.

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