



## AN UNUSUAL INCIDENTAL FINDING OF CHILAUDITI SYNDROME IN A CASE OF METABOLIC ENCEPHALOPATHY PATIENT

### General Medicine

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### ABSTRACT

Chilaiditi syndrome is a rare medical condition characterized by the interposition of the colon between the liver and the diaphragm, leading to various clinical manifestations ranging from asymptomatic to potentially life-threatening complications. This syndrome is often an incidental finding on imaging studies. It may present as abdominal pain, distension, nausea, and respiratory distress. Management strategies range from conservative measures to surgical intervention, depending on the severity of symptoms and associated complications.

### KEYWORDS

CHILAUDITI SYNDROME, INCIDENTAL FINDINGS

### INTRODUCTION

Chilaiditi syndrome is a rare condition characterized by the pathological interposition of the colon between the liver and the diaphragm, which normally is prevented by suspensory ligaments and the anatomical fixation of the colon. Anatomical variations, such as the absence, laxity, or elongation of the suspensory ligaments of the transverse colon or the falciform ligament, can lead to this unusual positioning of the colon.

Several factors predispose individuals to develop Chilaiditi syndrome. Congenital malpositions of the colon, chronic constipation leading to colonic elongation and redundancy, and gaseous distension of the colon are significant contributors. A small liver due to conditions such as cirrhosis or hepatectomy, increased intra-abdominal pressure from ascites, substantial weight loss in previously obese patients, an abnormally high diaphragm, and diaphragmatic paralysis (resulting from conditions such as diaphragmatic muscular degeneration or phrenic nerve injury) are other contributing factors. Chronic obstructive lung disease, which enlarges the lower thoracic cavity, and multiple pregnancies also increase the risk.

Certain psychological and intellectual conditions, including intellectual disability and schizophrenia, are associated with anatomical variations that can result in Chilaiditi sign. Additionally, iatrogenically induced Chilaiditi syndrome has been documented following medical procedures such as bariatric surgery, the insertion of enteral feeding tubes, and colonoscopy.

The occurrence of Chilaiditi sign ranges from 0.025% to 0.28% worldwide, with a male-to-female ratio of 4:1. It is most frequently seen in the elderly, with an incidence of 1% in this age group, though cases have been reported in patients ranging from 5 months to 81 years old. There is also an 8.8% incidence of Chilaiditi sign among individuals with mental illness.

Patients with Chilaiditi syndrome commonly experience symptoms such as abdominal pain, loss of appetite, nausea, vomiting, excessive gas, constipation, and changes in bowel habits. These symptoms can be accompanied by respiratory distress and, less commonly, cardiac symptoms like chest pain similar to angina and arrhythmias. Symptoms tend to worsen at night when the patient is lying down. Occasionally, a patient may exhibit a combination of symptoms affecting multiple organs, with gastrointestinal symptoms ranging from mild to severe.

### Investigation

Chilaiditi sign is identified through radiological findings, where the right hemidiaphragm is elevated above the liver by the interposed intestine. The bowel must be filled with air, creating a pseudo-pneumoperitoneum, and the superior margin of the liver should be lower than the left hemidiaphragm. This sign can be classified into

anterior and posterior types based on the position of the interposed bowel in relation to the liver. Typically, the hepatic flexure, ascending colon, or transverse colon are involved, though there have been instances of small bowel involvement. If free air is detected on abdominal plain films, it is recommended to perform an abdominal CT scan to confirm the presence of the free air.

### Treatment

The treatment for Chilaiditi syndrome is primarily symptomatic. Conservative management includes bed rest, fluid and electrolyte replacement, nasogastric decompression, and the use of laxatives or enemas to relieve constipation and colonic distension. Pain management is also crucial. In complicated cases, where there is evidence of volvulus, perforation, ischemia, or peritonitis, surgical intervention may be required. Surgery may involve colopexy (fixation of the colon), resection of the affected bowel segment, or other procedures based on the specific complication.

### Complications

Chilaiditi sign can be mistaken for pneumoperitoneum, potentially leading to unnecessary surgical intervention. Other complications associated with this condition include volvulus of the cecum, splenic flexure, or transverse colon. Additionally, cecal perforation, mesenteric ischemia, peritonitis, and subdiaphragmatic appendicitis have been reported and may necessitate emergency surgery.

The prognosis for Chilaiditi syndrome is generally good with appropriate management, but complications can be life-threatening, necessitating prompt and accurate diagnosis and treatment.

### CASE

A 55 year old patient presented with chief complaints of B/L Lower limb swelling, drowsiness since past 3 days ,abdominal discomfort since past 1 day, patient has h/o AKI and CVA 2 years back, patient is k/c/o Hypertension, Diabetes since last 2 years in AIMS&RC Emergency department, Patient evaluated clinically and laboratory parameters suggestive of hypoglycaemia , following which patient has been admitted in Intensive Care Unit under Medicine Department ,all routine investigation done, in which Chest X Ray suggestive of elevation of right hemi diaphragm and crescent lucency.

For further evaluation NCCT ABDOMEN & HRCT CHEST was done which is suggestive of **CHILAUDITI SYNDROME**.

### INVESTIGATION-

| COMPLETE BLOOD COUNT      |                         |
|---------------------------|-------------------------|
| Hemoglobin (HB)           | 6.7 g/dl                |
| White Blood Cells (WBC)   | 4.4 x10 <sup>9</sup> /L |
| Platelets (PLT)           | 236,000/ $\mu$ L        |
| Renal Function Test (RFT) |                         |
| Serum Urea                | 47 mg/dL                |

|                                      |                                                                                                                                                                                                                                                     |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Serum Creatinine                     | 1.4mg/dl                                                                                                                                                                                                                                            |
| Serum Uric Acid                      | 4.4 mg/dL                                                                                                                                                                                                                                           |
| Sodium                               | 126 mEq/L                                                                                                                                                                                                                                           |
| Potassium                            | 3.8 mEq/L                                                                                                                                                                                                                                           |
| Chloride                             | 99 mEq/L                                                                                                                                                                                                                                            |
| Random Blood Sugar (RBS)             | 50 mg/dL                                                                                                                                                                                                                                            |
| Liver Function Test (LFT)            |                                                                                                                                                                                                                                                     |
| Bilirubin (Total/Direct/Indirect)    | 0.69/0.62/0.07 mg/dL                                                                                                                                                                                                                                |
| SGOT (AST)                           | 53 U/L                                                                                                                                                                                                                                              |
| SGPT (ALT)                           | 29 U/L                                                                                                                                                                                                                                              |
| Alkaline Phosphatase (ALP)           | 307 U/L                                                                                                                                                                                                                                             |
| Albumin                              | 2.6 g/dL                                                                                                                                                                                                                                            |
| Globulin                             | 3 g/dL                                                                                                                                                                                                                                              |
| A/G Ratio                            | 0.9                                                                                                                                                                                                                                                 |
| Total Protein                        | 5.6 g/dL                                                                                                                                                                                                                                            |
| HbA1c                                | 4.7%                                                                                                                                                                                                                                                |
| Coagulation Profile                  |                                                                                                                                                                                                                                                     |
| Prothrombin Time (PT)                | 15.7 seconds                                                                                                                                                                                                                                        |
| International Normalized Ratio (INR) | 1.22                                                                                                                                                                                                                                                |
| Thyroid Function Test (TFT)          |                                                                                                                                                                                                                                                     |
| TSH                                  | 1.44 mIU/L                                                                                                                                                                                                                                          |
| T3                                   | 3.66 pg/mL                                                                                                                                                                                                                                          |
| T4                                   | 4.67 µg/dL                                                                                                                                                                                                                                          |
| HHH (Hepatitis B, Hepatitis C, HIV)  | Non-reactive                                                                                                                                                                                                                                        |
| Peripheral Blood Smear (PBS)         | Microcytic hypochromic anemia                                                                                                                                                                                                                       |
| RADIOLOGICAL INVESTIGATION           |                                                                                                                                                                                                                                                     |
| CHEST X RAY                          | suggestive of crescent lucency in right upper quadrant is seen with elevated right hemi diaphragm and clear visualization of bowel gas pattern under the right hemi diaphragm                                                                       |
| HRCT THORAX                          | Subsegmental collapse-consolidation of posterior and medial basal segment of right lower lobe with resultant elevation of right dome of diaphragm & minimal right pleural effusion                                                                  |
| NCCT ABDOMEN                         | Hepatic flexor of the colon overlying to right lobe of liver suggestive of <b>CHILAITIDI SYNDROME</b><br>Elevated right dome of diaphragm and liver.<br>Mild Ascites with diffuse mesenteric fat stranding.<br>Bilateral perinephric fat stranding. |



Chest x ray



**Case Summary-**  
We report a case of 55Y/male patient with uncommon Incidental finding on chest x ray and NCCT abdomen which is suggestive of **Chilaiditi syndrome** in patient of **Metabolic Encephalopathy/ T2DM/ HTN/CVA**.

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