CASE REPORT

Chilaiditi syndrome: A rare case report

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Abstract

Due to advancements in radiology, incidental findings are becoming more frequent, making it easier to diagnose rare conditions. Chilaiditi syndrome is one such rare condition, observed in only 0.28% of individuals.

We report the case of an 84-year-old female who presented to a tertiary care setup with complaints of severe abdominal pain and vomiting. On examination, her abdomen was more tender in the right upper quadrant, and gut sounds were sluggish. A nasogastric tube was passed, which revealed greenish aspirate. The surgical team was consulted, however, the patient was admitted under medical services for conservative management. A CT scan revealed the interposition of the transverse colon between the liver and diaphragm, a rare finding characteristic of Chilaiditi syndrome.

The patient showed improvement with conservative management and was discharged from the hospital. Physicians and surgeons must remain aware of the rare possibility of Chilaiditi syndrome, as unawareness may lead to unnecessary surgical interventions for patients.

Keywords: Chilaiditi syndrome, Chilaiditi sign, Colon.

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Introduction

Chilaiditi's syndrome was first described in the medical literature in 1910 by the Greek radiologist, Demetrius Chilaiditi.[1] Chilaiditi's syndrome can potentially be mistaken for pneumoperitoneum, which can result in unnecessary surgery. Chilaiditi's syndrome is a rare condition where part of the colon abnormally shifts and becomes positioned between the liver and the diaphragm. It has a prevalence of 0.25–0.28%[2] with a male to female ratio of 4:1. A misdiagnosis of bowel perforation might result in unnecessary surgical intervention.

In addition, Chilaiditi syndrome can complicate medical procedures. For instance, the abnormal bowel positioning poses challenges during liver biopsies or percutaneous transhepatic interventions, particularly in cirrhotic patients predisposed to developing the condition. It can also make routine procedures like colonoscopy significantly more difficult due to the interposed bowel segment.[3]

The syndrome underscores the importance of a thorough understanding of radiological findings and clinical context. Its rarity, combined with the potential for serious misdiagnoses and procedural complications, highlights the need for heightened awareness among physicians and surgeons to ensure accurate diagnosis and appropriate management.

Case Report

An 84-year-old female of South Asian descent, known case of hypertension for 30 years and diabetes mellitus for 25 years, presented to the Emergency Department of Dow University of Health Sciences, Ojha Campus, in January 2023, with absolute constipation, abdominal distension, epigastric pain, and vomiting for two days, followed by shortness of breath for one day. The pain increased in intensity with food intake, with no relieving factors. Shortness of breath was present on moderate exertion. The patient had a long-standing history of constipation. She denied orthopnoea, paroxysmal nocturnal dyspnoea, and pedal swelling. There was no history of addiction, fever, or weight loss. There was no significant family history. No birth history was available. No past surgical history or intervention was present. On examination, the patient was a bed-bound female of normal height and built with an unremarkable general physical examination. Her vital signs were stable, and the Glasgow Coma Scale[4] score was 13/15. On inspection, the abdomen was mildly distended, with no scar marks or visible pulsations. The umbilicus was central and inverted. On palpation, there was grade 3 tenderness in the epigastric region, with hepato-splenomegaly. Shifting dullness and fluid thrill were negative, and gut sounds were sluggish on auscultation. The rest of the examination was unremarkable. A nasogastric tube was inserted, which showed green-coloured nasogastric aspirate of approximately 400 ml. The surgical department was consulted, but intervention was declined because of increased anaesthetic risk. The patient was then admitted to the medicine department for conservative management, including hydration, gastric decompression,

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Table: Giant renal angiomyolipoma in the indexed literature, by size.

Lab	Patient value	Reference range	Lab	Patient value	Reference range
Hb	10.2g/dL	12.0--15.0gm/dL	Direct Bilirubin	0.60 mg/dL	0-0.3mg/dl
TLC	$10.4x10^9$/litre	4.0-10.0	SGPT	12 U/L	<34 U/L
PLT	421 per microlitre	150-400	ALP	106 U/L	42-98U/l
Urea	57.7 mg/dl		GGT	23 U/L	<38U/l
Cr	0.84 mg/dL	0.6-1.1mg/dL	AST	25 U/L	<31 U/l
Na	185 mEql/L	136-146mEq/L	ESR	65 mm/hr	0-35mm/hr
K	4.3 MEq/L	3.5-5.1mEq/L	Amylase	40 U/L	28-- 100U/L
Cl	117 mEq/L	98-107mEq/L	Lipase	18 U/L	0-160U/L
HCO_3	23.9 mEq/L	23-29mEq/L	PT	T 12.4 C 13.5	9.1-13.1 second
Total Bilirubin	1.11mg/dL	0.2-1.2mg/dl	INR	1.16	0.8-1.2

Hb: Haemoglobin, TLC: Total Leukocyte Count, PLT: Platelets, Cr: Creatinine, Na: Sodium, K: Potassium, Cl: Chloride, HCO_3: Bicarbonate, PT: Prothrombin Time, INR: International Normalized Ratio, SGPT: Serum Glutamate Pyruvate Transaminase, ALP: Alkaline Phosphatase, GGT: Gamma Glutamyl Transferase, AST: Aspartate Aminotransferase, ESR: Erythrocyte Sedimentation Rate.

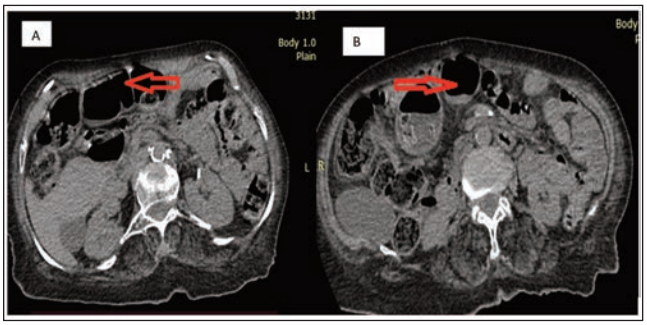

Figure: (A and B): Transverse colon between liver and right hemidiaphragm, likely representing Chilaiditi syndrome (arrow head).

strict input-output charting, and vital monitoring. Table shows the haematological and biochemical investigations of the patient. Figure depicts Chilaiditi syndrome with stercoral colitis. The patient responded to conservative management and was discharged from the hospital with advice to follow up in the outpatient department after one week. On the follow-up visit, she denied having any complaints, and the examination was also unremarkable. Due to cost constraints, no repeat imaging was done.

The consent of the patient, as well as the attendants (daughter and son), was taken prior to the writing of this manuscript.

Discussion

The diagnosis of Chilaiditi syndrome is made by X-ray of the abdomen or CT scan of the abdomen. The first three cases of Chilaiditi syndrome were reported by Demetrius Chilaiditi in 1911. He described three patients in whom the hepatic flexure of the colon was abnormally interposed between the diaphragm and the liver, which was detected on radiographic imaging. These cases were initially identified through abdominal X-rays, showing an apparent elevation of the right hemidiaphragm caused by the interposed bowel loops.[5]

Most cases are asymptomatic and diagnosed incidentally on computed tomography scan.[4] However, it is important to keep this differential in mind as it may create confusion with pneumoperitoneum, diaphragmatic hernia, intestinal obstruction, and hydatid cyst and may lead to unnecessary surgical intervention. The symptoms of Chilaiditi syndrome are abdominal pain, nausea, and vomiting. The current patient presented with symptoms of abdominal pain, weight loss, and chronic constipation which is the risk factor for development.[6] Very few cases have been reported from across the world and none from Pakistan. This is the first reported case of Chilaiditi syndrome from Pakistan. Almost all the reported cases were managed conservatively with only a few requiring surgical intervention. The differential diagnosis for Chilaiditi syndrome include volvulus, intussusception, appendicitis, diverticulitis, diaphragmatic hernia, and pneumo-peritoneum. Rate of complication is not well documented in literature. Caecal perforation and volulus are reported very rarely. While reviewing literature, one case was treated with minimally invasive coloplexy and one with exploratory laparotomy as the patient also had sigmoidal volvulus.[7] However, if the conservative management fails then the option of surgical intervention may be considered. Surgical indications in Chilaiditi syndrome are intestinal obstruction, ischaemia, or intestinal perforation. The surgical techniques available to treat patients with this rare syndrome are hemicolectomy, i.e. dissecting or removing the portion of colon, and hepatopexy, i.e. giving support to the liver and abdominal wall.

Conclusion

This case highlights the importance of recognising Chilaiditi syndrome as a rare but significant differential diagnosis in elderly patients presenting with abdominal pain and chronic constipation. Early identification based on imaging prevented unnecessary surgical intervention in our patient. The successful conservative management also underscores that awareness of such anatomical variations can guide optimal, non-invasive care. This report, possibly the first from Pakistan, reinforces the clinical value of correlating radiological findings with the patient's presentation.

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Author Contribution:

SS: Concept, design, data acquisition, analysis, interpretation, final approval and agreement to be accountable for all aspects of the work.
RF: Drafting and agreement to be accountable for all aspects of the work.
SA & AS: Drafting and revision.
IA: Final approval.