Case Report

Rediscovering the relevance of clinical medicine with a case of Chilaiditi's syndrome

Aritra Saha[1], Sofiur Rahman[1], Ajit Kumar Pegu[2], Jinku Ozah[1], Mayuree Thakuria[1]

From [1]Postgraduate Trainee, [2]Professor and Head, Department of Medicine, Assam Medical College and Hospital, Dibrugarh, Assam, India

ABSTRACT

Chilaiditi's sign is a rare radiological diagnosis characterized by colonic interposition between the diaphragm and the liver, and when symptomatic it is known as Chilaiditi's syndrome. We report that the case of a 55-years-old male, who was referred to our institution as a case of colitis, with the symptoms of recurrent vomiting, pain abdomen, and altered bowel habit, was eventually diagnosed to have Chilaiditi's syndrome with non-specific colitis, after carefully taking the history and clinically examining the patient.

Key words: Chilaiditi's syndrome, Clinical medicine, Non-specific colitis

Chilaiditi's sign is a relatively rare radiological finding, described over a century ago in Venice, characterized by the presence of air under the right dome of the diaphragm due to the interposition of the bowel between the liver and the diaphragm [1]. The patient can be asymptomatic and is often an incidental finding but may also present with gastrointestinal complaints such as abdominal pain, nausea, vomiting, and constipation. When symptomatic, it is known as Chilaiditi's syndrome [2]. Occasionally patients may also present with fatal complications such as cecal volvulus and intestinal obstruction [3]. As the manifestations of Chilaiditi's syndrome are non-specific, it may not be the first differential that comes to one's mind and may also mimic other diseases such as intestinal obstruction, volvulus, intussusception, diaphragmatic hernia, ischemic, and inflammatory bowel conditions such as diverticulitis [3,4].

Here, we present a case, who initially was referred to us as a case of colitis; however, as the clinical manifestations were more in favor of subacute obstructive pathology of the bowel, on further evaluation, the patient was eventually diagnosed to have Chilaiditi's syndrome.

CASE REPORT

A 55-year-old male, a resident of the upper part of the state of Assam, was referred to our institute from a peripheral hospital as a case of Colitis. The patient was symptomatic with altered bowel habits and abdominal discomfort for a month and recurrent episodes of vomiting for the past 3 days. The patient had no history of lower abdominal pain, tenesmus, passage of mucus, or blood in stool, which did not correlate well with the colonoscopy finding of colitis and clinically was more suggestive of a sub-acute bowel obstruction.

Clinical examination was unremarkable except on abdominal examination, the liver dullness was obliterated, although there was no tenderness and rebound tenderness, with normal bowel sounds.

X-ray abdomen was done to rule out gas under the diaphragm due to the resonant note in the right hypochondrium, which suggested the possibility of the presence of the transverse colon under the right diaphragm and multiple dilated bowel loops (Fig. 1). The colonoscopy that was done before hospitalization reported colitis in the ascending colon, although it was not very evident in the given images present in the report (Fig. 2) but the biopsy report was awaited at that time. All other investigations were essentially normal including hemoglobin, C-reactive protein, and fecal calprotectin. Meanwhile computed tomography (CT) scan of the abdomen was done, which showed herniated bowel loop in the sub-diaphragmatic region interposed between the liver and right diaphragm, without any features suggestive of colitis (Fig. 3). Biopsy of the colorectal tissue was suggestive of non-specific colitis (NSC), with inflammation but intact architecture, which again puts the validity of the biopsy report in doubt.

The patient was managed conservatively with nasogastric decompression, parenteral antiemetics, and crystalloids. As there was no evidence of acute or impending intestinal obstruction, surgical intervention was not necessary. The patient is currently

Access this article online	
Received - 04 December 2022 Initial Review - 15 December 2022 Accepted - 03 January 2023	Quick Response code
DOI: 10.32677/ijcr.v9i1.3753	

Correspondence to: Dr. Aritra Saha, Postgraduate Trainee, Department of Medicine, Assam Medical College and Hospital, Dibrugarh, Assam, India. E-mail: aritraofficial@gmail.com

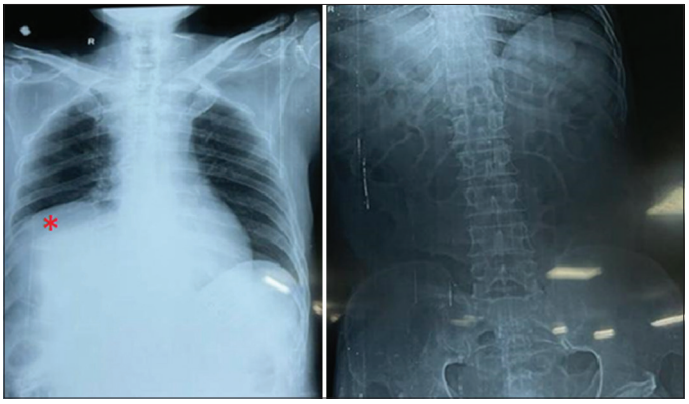

Figure 1: X-ray chest and abdomen: Bowel shadow under the right hemidiaphragm *with multiple dilated bowel loops

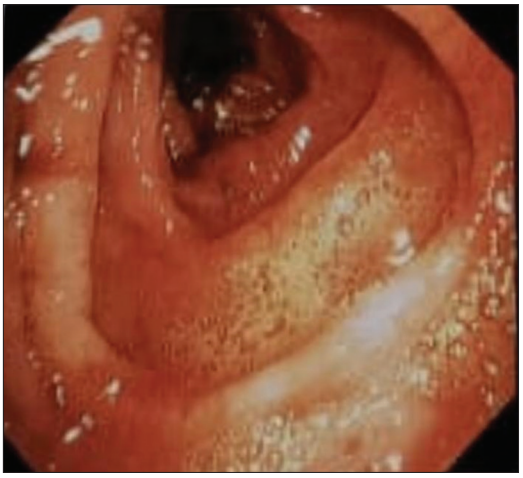

Figure 2: Colonoscopy showed the ascending colon

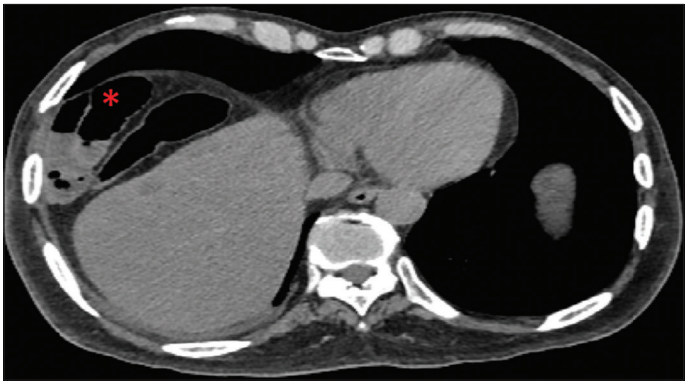

Figure 3: Computed tomography abdomen showed a loop of bowel (hepatic flexure and transverse colon) herniate into the subdiaphragmatic region*, interposed between the liver and right hemi-diaphragm with mild dilation of interposed bowel loops

under follow-up and is doing better. The patient has been explained the warning signs of a possible intestinal obstruction and has been advised to seek medical attention in such situations.

DISCUSSION

Chilaiditi's sign is a radiological sign first described by Demetrius Chilaiditi over a century ago in Venice, characterized by the presence of a segment of the large bowel or small bowel, interposed between the diaphragm and liver. However, if the patient is symptomatic, it is known as Chilaiditi's syndrome [1]. Chilaiditi sign is more common in elderly patients, with a female preponderance of 4:1 and an incidence of 0.025–0.28% worldwide [3,5].

Exact etiopathogenesis is not very well understood; however, normally due to the presence of suspensory ligaments and fixation of the colon, it is not usual for the segment of the intestine to get interposed between the diaphragm and liver [3]. Chilaiditi's syndrome can occur due to congenital and acquired causes. The congenital causes of Chilaiditi's syndrome included laxity, absence, or elongation of the suspensory ligaments [3]. However, certain acquired factors may be responsible for the distortion of the anatomy, such as chronic constipation, cirrhosis, aerophagia, multiple pregnancies, ascites, and diaphragmatic palsy [2,3]. Chilaiditi's syndrome can also occur as an iatrogenic complication of colonoscopy, feeding tube insertion, and bariatric surgery [6-8]. Chilaiditi's sign can be asymptomatic and is often an incidental diagnosis. Symptomatic patients, known as Chilaiditi's syndrome, present with gastrointestinal symptoms such as nausea, vomiting, pain abdomen, constipation, and may also less frequently present with respiratory distress and angina-like chest pain [2,3,9,10]. The gastrointestinal symptoms may vary from mild to severe and rarely may have multi-organ symptomatology [10].

Some of the known complications of Chilaiditi's syndrome are [2,3,6,7,11]: Volvulus of the caecum, splenic flexure or transverse colon; cecal perforation; subdiaphragmatic appendicitis; intestinal obstruction; Ogilvie's syndrome, and malignancies (colon, rectum, and stomach).

Diagnosing Chilaiditi's syndrome needs fulfillment of the following criteria [2]: The right hemidiaphragm must be adequately elevated above the liver by the intestine; the bowel must be distended by air to illustrate pseudo-pneumoperitoneum; and the superior margin of the liver must be depressed below the level of the left hemidiaphragm.

Asymptomatic individuals do not need any intervention, on the other hand, in symptomatic patients, initial management should include bed rest, intravenous fluids, bowel decompression, laxatives, and enema. A repeat radiograph must be obtained after the decompression, to look for the disappearance of air under the right diaphragm, which also aids in confirming the diagnosis [2]. Patients not responding to conservative management or with obvious obstruction need surgical intervention [12]. Our patient presented with recurrent vomiting, altered bowel habit, and abdominal discomfort with obliterated liver dullness and was referred to us as a case of colitis with non-specific changes.

NSC refers to an inflammatory condition of the colon that microscopically lacks the characteristic features of any specific form of colitis[13]. NSC is a common histological finding in patients undergoing colonic biopsy and has been considered an intermediate stage in the course of inflammatory bowel disease. The usual manifestations of colitis include abdominal pain, large bowel type of diarrhea, the passage of blood in stool, tenesmus, urgency, and may also have extra-intestinal manifestations such as arthropathy and skin changes, which were absent in

our case and therefore there was a discrepancy between clinical and colonoscopy findings, as clinically, it was suggestive of an obstructive pathology, rather than an inflammatory one.

Our case emphasizes the need to correlate the history and clinical examination findings with investigations, rather than blindly relying on the reports, which may lead to the actual diagnosis getting missed. Chilaiditi's sign is often an incidental finding and is most often asymptomatic; however, it is better to identify such patients, as they may later develop certain known complications described previously and also may complicate certain medical procedures such as colonoscopy and liver biopsy [2,3]. Clinical suspicion for the same ailment is also necessary, otherwise may lead to unnecessary surgical interventions if misdiagnosed as bowel perforation.

CONCLUSION

Chilaiditi's sign is an incidental finding and may be missed easily if a proper history is not elicited and a clinical examination is not done. The syndrome however is rare and so are its complications; yet, there is no harm in identifying such patients, for better management of the complications associated with the disease and to avoid certain complications following medical procedures performed around the anatomical region.

REFERENCES

1. Chilaiditi D. Zur frage der hepatoptose und ptose im allgemeinen im anschluss an drei falle von temporarer, partieller leberverlagerung. Fortschr Rontgenstr 1910;16:173-207.
2. Moaven O, Hodin RA. Chilaiditi syndrome. Gastroenterol Hepatol (N Y) 2012;8:276-8.
3. Kumar A, Mehta D. Chilaiditi syndrome. In: StatPearls. Treasure Island, FL: StatPearls Publishing; 2022. Available from: https://www.ncbi.nlm.nih.gov/books/nbk554565 [Last accessed on 2022 Nov 24].
4. Vallee PA. Symptomatic morgagni hernia misdiagnosed as Chilaiditi syndrome. West J Emerg Med 2011;12:121-3.
5. Alva S, Shetty-Alva N, Longo WE. Image of the month. Chilaiditi sign or syndrome. Arch Surg 2008;143:93-4.
6. Platz TA, Barker M, Carlo J, Lord J. Chilaiditi syndrome-an interesting complication in a bariatric surgery patient. Surg Obes Relat Dis 2006;2:57-8; discussion 59-60.
7. Yin AX, Park GH, Garnett GM, Balfour JF. Chilaiditi syndrome precipitated by colonoscopy: A case report and review of the literature. Hawaii J Med Public Health 2012;71:158-62.
8. Aldoss IT, Abuzetun JY, Nusair M, Suker M, Porter J. Chilaiditi syndrome complicated by cecal perforation. South Med J 2009;102:841-3.
9. Fisher A, Davis MW. An elderly man with chest pain, shortness of breath, and constipation. Postgrad Med J 2003;79:180-4.
10. Suárez-Grau JM, Cháves CR, Bernal FL, Ciuró FP. Colonic pseudo-colonic obstruction (Ogilvie syndrome) in a patient with Chilaiditi syndrome. Cir Esp 2011;89:e2.
11. Risaliti A, De Anna D, Terrosu G, Uzzau A, Carcoforo P, Bresadola F. Chilaiditi's syndrome as a surgical and nonsurgical problem. Surg Gynecol Obstet 1993;176:55-8.
12. Mantzaris GJ. What is the natural history of a patient with "non-specific" colitis on large bowel histology? Ann Gastroenterol 2018;18:116-8.
13. Emara MH, Salama RI, Hamed EF, Shoriet HN, Abdel-Aziz HR. Non-specific colitis among patients with colitis: frequency and relation to inflammatory bowel disease, a prospective study. Journal of Coloproctology. 2019;39:319-25.

Funding: Nil; Conflicts of interest: Nil.

How to cite this article: Saha A, Rahman S, Pegu AK, Ozah J, Thakuria M. Rediscovering the relevance of clinical medicine with a case of Chilaiditi's syndrome. Indian J Case Reports. 2023;9(1):11-13.