A Rare Case Report of Chilaiditi’s Syndrome with Sigmoid Volvulus

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Abstract

Introduction: Chilaiditi’s syndrome is the hepatodiaphragmatic interposition of colon. It can be caused by any pathology of intestinal, hepatic and/or diaphragmatic factors. Any anatomic variations or functional abnormalities can increase the development of Chilaiditi’s syndrome. In most of the cases, it is usually asymptomatic and is found indecently on radiological studies. It is treated conservatively as long as any complications does not arise. This case of Chilaiditi’s syndrome was associated with sigmoid volvulus and multiple tubercles on its surface.

Case presentation: A 35-year-old male patient who presented to the OPD with complaints of weight loss, bilateral flank pain, abdominal distention, decreased appetite, vomiting and diarrhea. On CT scan, there was grossly distended loop of colon with sigmoid volvulus and Chilaiditi’s sign. Laparotomy was done, sigmoid volvulus was relieved and biopsy of tubercles was taken for histopathology and, colostomy was done. A follow up advised until the biopsy result come. The biopsy result showed abdominal tuberculosis. The patient came for his follow up to perform a colostomy reverse.

Discussion: Chilaiditi’s syndrome is usually treated surgically because it is associated with other complications in the gastrointestinal tract. Previous studies showed the management of cases by colonic resection with primary anastomosis, however there was one case which reported a mortality due to anastomosis leak.
Conclusion: This was a case of Chilaiditi’s syndrome associated with sigmoid volvulus and abdominal tuberculosis. It was managed surgically by colostomy. Biopsy showed abdominal tuberculosis. Patient then did a colostomy reversal and discharged.

Keywords: Chilaiditi’s Syndrome; Sigmoid Volvulus; Colostomy; Abdominal Tuberculosis
**Introduction**

Chilaiditi’s sign is the hepatodiaphragmatic interposition of the colon described by Chilaiditi in 1910 [1]. Chilaiditi’s sign along with clinical symptoms is referred to as Chilaiditi’s syndrome [2]. Chilaiditi’s sign is a rare finding seen incidentally on abdominal or chest radiographs with 0.025-0.28% incidence [3]. Pathogenesis of Chilaiditi’s syndrome can be caused by intestinal, hepatic and/or diaphragmatic factors. Interposition of colon between the diaphragm and liver is prevented by the colon’s fixation and suspensory ligaments which supports it. However, in rare cases, there are anatomical variations which includes pathologies such as congenital malposition, suspensory ligaments pathologies which includes elongation, laxity or its complete absence or dolichocolons. Furthermore, functional disorders can also lead to anatomical variations which can further lead to the developments of Chilaiditi’s syndrome. Functional disorders include constipation, cirrhosis of liver, obesity, multiple pregnancies, ascites, aerophagia, diaphragmatic paralysis and chronic lung disease. Mental abnormalities can also result in Chilaiditi’s syndrome such as schizophrenia or retardation [3-7]. In the majority of cases the condition is asymptomatic and mostly diagnosed on radiological investigations as an incidental finding but if symptomatic it shows mostly with pathological abdominal signs. Conservative treatment is limited to symptomatic relief only as it cannot change the course of disease as well as its complications and its recurrence in the future, for which invasive surgical techniques is the best modality of choice as compared to conservative options available even as a preventive measure [8-10].

**Case report**

A 35-year-old male patient who is a labor by occupation from tajabad Peshawar presented to the OPD on 17th September 2020 with chief complaints of weight loss from the first 3 months, and bilateral flank pain, abdominal distention, decreased appetite, vomiting and diarrhea from one and a half month. According to the patient he was apparently well 3 months back after which he had a progressive weight loss of 50 kg over past 3 months. The patient also complained of bilateral flank pain, gradual in onset, colicky in nature, radiating to the back, aggravating with food intake and relieved with IV analgesics. It was associated with vomiting after every meal, copious in amount, yellowish in color and mixed with mucus, and relieved after vomiting of food contents. Further complaints by the patient were abdominal distention, decreased appetite and diarrhea. Diarrhea frequency was 3 to 5 episodes per day, which was watery in nature. The patient's past medical and past surgical history was not significant. Patient during this pain couldn't sleep properly and has never taken addictive drugs. Furthermore, patient does not have any allergy to dust, food and medication. On general physical examination, the patient was well oriented in time and space, and there was no peripheral stigmata with blood pressure of 130/80mmHg, pulse 85 beats per minute, respiratory rate of 20 beats per minute, oxygen saturation 98% at room air. Other systemic examinations like cardiovascular, respiratory and CNS examinations were unremarkable. On abdominal examination, his abdomen was distended and there were no visible pulsations, veins, scars, mass, striations. The abdomen was soft, mild tender in the left lower quadrant and right upper quadrant region. On percussion abdomen was dull with positive fluid thrill. Bowel sounds were absent on auscultation. On digital rectal examination, rectum was empty. Baseline laboratory investigations were normal i.e. CBC, Urine RE, HBs Ag, HCV Ag and blood culture. Liver function tests also showed no significant findings. However, serum electrolytes revealed hyponatremia(122mEq/L), hypokalemia(2.37mEq/L) and hypochloremia(90.9mEq/L).
On radiological investigations, x-ray abdomen was done which showed sigmoid volvulus with severe dilation of sigmoid and transverse colon. Descending colon was also dilated and rectum was collapsed.
Figure 2: CT scan showing dilated sigmoid with twisting of mesentery and gross ascites

On CT liver dynamic study (covering chest) axial view, there was severely distended sigmoid colon (13.5 cm) and transverse colon (8 cm) with twisting of mesentery with whirling of mesenteric vessels which suggest sigmoid volvulus. Mesenteric vessels are patent. There was also gross ascites with diffuse peritoneal thickening and omental nodularity.

Figure 3: CT scan showing Interposition of the colon between liver and diaphragm
Chilaiditi’s syndrome was seen in the CT axial view with the part of large bowel in the right sub phrenic region. No focal lesion seen in liver, spleen, kidneys, pancreas, gall bladder and adrenals. There are a few tiny sub centimeter bilateral renal calculi. There are no large para aortic lymph nodes. No obvious osseous lesions seen. CT chest reveals few atelectasis bands in both lower lobes. Small pleural effusion was seen.

A diagnosis of sigmoid volvulus was made for which laparotomy was done. On exploration, sigmoid volvulus was examined and there were multiple tubercles present throughout abdomen for which biopsy was taken. Sigmoid colon was untwisted and part of it was resected because it was ischemic and had adhesions and, a double barrel colostomy was done. A 6 week follow up was advised to the patient. Biopsy result revealed abdominal tuberculosis for which anti-TB drugs were prescribed.

The patient came for his follow up after 6 weeks for his colostomy reversal. Medications provided for home and advise was given on how to properly dress the wound, mobilization of the patient, taking medications on time, to avoid heavy lifting and taking a healthy diet.

**Discussion**

Previous studies done by a separate research by A. Williams on Chilaiditi’s syndrome with colonic volvulus have shown that the treatment repeatedly given were partial colonic resection and a primary anastomosis was made thereafter of which one of them reported a mortality because of anastomosis leak. The patient in our study had Chilaiditi’s syndrome with sigmoid volvulus but also multiple tubercles were seen on sigmoid colon. Colostomy was done and biopsy taken. The patient was counselled afterwards and a follow up suggested when the biopsy report becomes available [11].

Case report study by Keles S reported a patient with chief complaint of shortness of breath. The patient of our study did not had this chief complaint [12].

Chilaiditi’s syndrome can cause numerous complications which includes volvulus of the cecum, splenic flexure, transverse and sigmoid colon, cecal perforation and subphragnostic appendicitis perforation. Undiagnosed Chilaiditi’s sign can increase risk of colonic perforation during procedure of colonoscopy and liver biopsy [14].

Chilaiditi’s syndrome alone can be managed conservatively. Therefore, thorough complete radiological workup must be done in order to exclude other differential diagnosis to prevent unnecessary intervention where it is not needed. Kamiyoshihara presented a case of a 75-year-old involved in a road traffic accident which was misdiagnosed as a case of diaphragmatic hernia. When an explorative laparotomy was performed, it turned out to be a Chilaiditi’s syndrome case which could have been managed conservatively [15].

**Conclusion**

In short, we presented a rare case of sigmoid volvulus with multiple tubercles present on its surface in an adult with Chilaiditi’s syndrome. As there are no guidelines as how to deal with such cases, we suggest surgical correction of sigmoid volvulus and taking biopsy of tubercles followed by colostomy and secondary anastomosis after arrival of biopsy results. In absence of volvulus or ischemia of colon, Chilaiditi’s syndrome should be managed conservatively.
References


