

Small-Bowel Obstruction Caused By Rare Combination Of Chilaiditi And Fitz-Hugh Curtis Syndrome – A Case Report

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Citation

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Abstract

Fitz-Hugh Curtis syndrome is a condition we commonly come across in patients with history of Pelvic Inflammatory Disease (PID). We present a rare case of small-bowel obstruction (SBO), in a female patient with no abdominal or pelvic surgical history, due to Chilaiditi Syndrome (hepatodiaphragmatic incarceration) of the small bowel entrapped by perihepatic adhesions of Fitz-Hugh-Curtis syndrome. Small-bowel obstruction secondary to adhesions from Fitz-Hugh Curtis syndrome is one etiology of which every surgeon should be aware.

INTRODUCTION

Small-bowel obstruction (SBO) is a common medical condition faced by many physicians today. Patients with intestinal obstruction generally present with colicky abdominal pain, abdominal distension, nausea, vomiting, and absence of bowel movements or flatus. The most common causes of small-bowel obstruction include adhesions, tumors, and hernias. Adhesions are responsible for approximately 60% of bowel obstruction cases in the US, and are most commonly of iatrogenic etiology due to prior abdominal or pelvic surgery¹. SBO presentation in patients with no abdominal or pelvic surgical history is particularly alarming because it more likely suggests a malignant cause. However, other causes of SBO in these patients should be considered including inflammatory bowel disease, intra-peritoneal abscess, gallstone ileus, radiation, congenital and traumatic injury¹.

In this case presentation, our patient was found to have small-bowel obstruction secondary to perihepatic adhesions of Fitz-Hugh Curtis syndrome. Our patient was a 78-year-old female with history of mild dementia and no previous known history of PID. Fitz-Hugh Curtis syndrome is a perihepatic inflammation of the abdominal peritoneum and liver capsule, most commonly caused by *C. trachomatis* and *N. gonorrhoeae*. Transparent lesions, known as “violin string adhesions,” form between the liver capsule and parietal peritoneum². These adhesions are most likely benign requiring no intervention. As demonstrated by this case and other cases in the past, one complication of perihepatic

adhesions is small-bowel obstruction³⁻⁵.

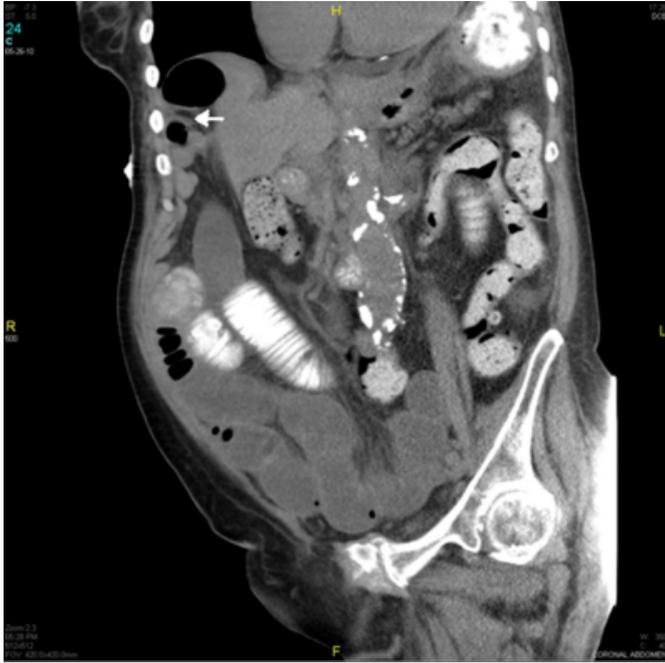
CASE PRESENTATION

A 78-year-old female presented to the Emergency Department with a chief complaint of generalized abdominal pain that was colicky in nature with nausea, and vomiting for one week's duration. The patient had not had a bowel movement or flatus for two days prior to admission. The patient had a past medical history of hypertension, with no history of PID or family history of cancer. She denied smoking, alcohol, or drug use.

Her vital signs were stable, and she was afebrile. On physical exam, the abdomen was distended, soft, non-tender, with high-pitched bowel sounds. The patient's physical exam did not reveal any hernia. Serum chemistry, CBC, liver function tests, amylase, and lipase were normal. A CT scan of the abdomen and pelvis showed grossly dilated small-bowel loops with possible transition zone in the right upper quadrant above the liver (Fig. 1).

Figure 1

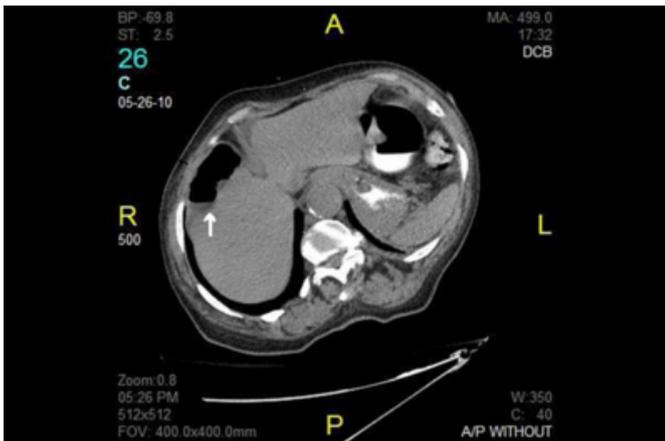
Fig. 1: CT scan showing Chilaiditi sign and small-bowel obstruction with transition zone anterior to the liver



Additionally, a loop of bowel was seen in between the liver and diaphragm on the right side. The patient was admitted with an initial diagnosis of small-bowel obstruction with possible Chilaiditi syndrome (Fig. 2).

Figure 2

Fig. 2: CT scan showing Chilaiditi syndrome.



The patient was managed conservatively with nasogastric (NG) tube to wall suction, intravenous fluids, strict monitoring of intake and output and serial abdominal examination for the first 24 hours. The NG tube drained nearly two liters of feculent material. After 24 hours, NG output was around 1.5 liters. The patient continued to have mild abdominal distension, with no bowel movements or

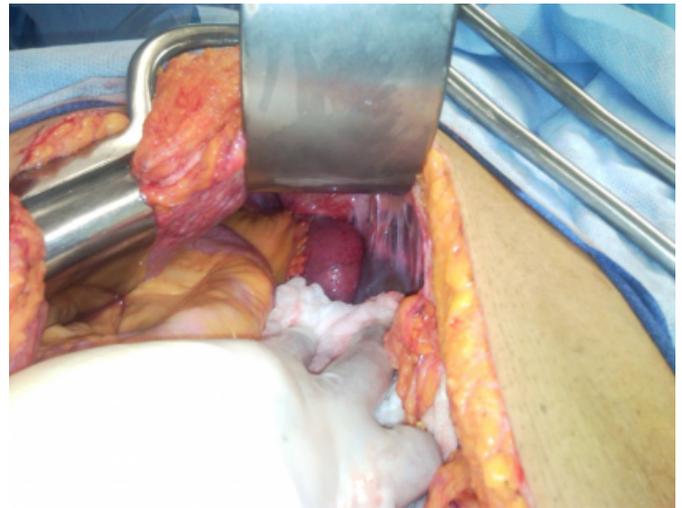
passing of flatus. An obstruction series showed persistently dilated small bowel loops suggestive of high-grade small-bowel obstruction.

With no clinical or radiologic improvement in small-bowel obstruction and no prior history of abdominal surgery, the patient was taken to the operating room for exploratory laparotomy.

The abdominal cavity was entered with a midline laparotomy. Exploration of the abdominal cavity revealed multiple transparent adhesions between liver and anterior abdominal wall in a “violin string” pattern suggestive of Fitz-Hugh Curtis syndrome (Fig. 3).

Figure 3

Fig. 3: Intra operative picture: loop of dilated small bowel adherent to the antero-superior surface of the liver with “violin string” adhesions.



A loop of small bowel was found incarcerated between these adhesions. The adhesions were sharply lysed which relieved the incarcerated bowel. Further dissection revealed a stricture at the incarcerated segment of small bowel (Fig. 4). The strictured segment of small bowel was resected, and the small bowel was anastomosed.

The resected segment of small bowel was negative for malignancy. The patient recovered post-operatively and was discharged home.

Figure 4

Fig. 4: Intra-operative picture: Loop of small bowel showing a chronic stricture with proximal dilated and inflamed bowel and distal normal-looking bowel.



DISCUSSION

SBO presentation in patients with no abdominal or pelvic surgical history is particularly alarming because it more likely suggests a malignant cause. However, other causes of SBO in these patients should be considered including inflammatory bowel disease, intra-peritoneal abscess, gallstone ileus, radiation, congenital, and traumatic injury¹. We present a case with two rare conditions which, in combination, presented as small-bowel obstruction in a patient who had a “virgin abdomen”. Our patient presented with small-bowel obstruction due to Fitz-Hugh Curtis syndrome, which radiologically presented as Chilaiditi syndrome. Literature review revealed only 3 cases in which closed loop intestinal obstruction occurred secondary to Fitz-Hugh Curtis syndrome with radiological appearance of Chilaiditi syndrome. Of the three, two cases were diagnosed and treated at laparotomy¹⁸ and the 3rd case was managed laparoscopically.²⁰

Patients who present with small-bowel obstruction and no previous history of abdominal surgery almost certainly warrant operative management. In these patients, adhesions are much less likely, but incarcerated hernia, tumor, or the index presentation of previously undiagnosed Crohn's disease should be considered. Goals of the operation should include correction of the obstruction and appropriate management of the underlying etiology. The operative intervention is either exploratory laparotomy or laparoscopic treatment.¹ Both procedures have their own indications and can readily diagnose and treat the underlying condition.

Perihepatitis in the presence of pelvic inflammatory disease secondary to *Neisseria gonorrhoeae* has been referred to as

the Fitz-Hugh-Curtis syndrome. In recent years, *C. trachomatis* was recognized as another, more common, causative agent of this syndrome.¹⁶ The syndrome occurs in about 10% to 15% of patients with pelvic inflammatory disease¹⁶⁻¹⁸ of those, about two thirds will have symptoms of right upper quadrant pain, but the remaining one third are asymptomatic.¹⁴ The treatment of Fitz-Hugh-Curtis syndrome is usually medical with antibiotic therapy. Surgical, most commonly laparoscopic, intervention is sometimes indicated in the acute phase in order to establish the diagnosis, relieve non-resolving right upper quadrant pain secondary to adhesions¹⁸ or treat small bowel obstruction resulting from adhesions and peritonitis. The typical violin string adhesions between the anterior liver surface and diaphragm or anterior abdominal wall are a late manifestation of capsular inflammation. They are usually asymptomatic and inconsequential and are discovered incidentally at subsequent surgery.^{16,19}

The term “Chilaiditi syndrome” is used for symptomatic hepatodiaphragmatic interposition of the bowel loop. In 1910, Chilaiditi described three patients with temporary hepatodiaphragmatic interposition of colon, and thereafter the term “Chilaiditi syndrome” has been commonly used.⁸ Most cases with hepatodiaphragmatic intestinal interposition are asymptomatic and known as “Chilaiditi sign,” which is an incidental finding recognized on radiologic examination, with an estimated incidence lower than 3% in the general population^{6,21}. Chilaiditi's sign could be mistaken for pneumoperitoneum, resulting in an unnecessary exploratory laparotomy. Therefore, these radiological finding merits further consideration. Chilaiditi's syndrome occurs when this abnormal positioning of the bowel produces symptoms. A wide spectrum of symptoms may exist, including emesis, abdominal pain, distension, and constipation. The incidence of this syndrome has been reported at 0.025-0.28 per cent of the general population.⁷ This abnormality of bowel location is generally prevented by normal intact colonic, hepatic, and diaphragmatic anatomy; thus, any disruption of these structures may result in Chilaiditi's sign and subsequently Chilaiditi's syndrome.⁸ Increased colonic mobility, reduced liver volume, lax suspensory ligaments, phrenic nerve palsy, and even obesity⁹ may allow a loop of bowel to be misplaced to position itself into the normal hepatic space. Diagnosis of both the sign and syndrome is dependent on radiological evidence. Numerous reports list requirements for proper diagnosis. Three findings are the key on radiograph.¹¹ First; the right hemidiaphragm must be adequately elevated by

bowel above the liver. Second, the bowel must be distended by air to visualize the pseudoperitoneum. Third, the liver must be depressed to the extent that the superior margin is below the level of the left hemi-diaphragm.¹² Distinction between free air and air in a loop of bowel can be made based on visible haustra or plicae circulares.¹⁰ The treatment modality of the syndrome can be non operative or operative. The non-operative mode is more common as noticed in most series where the non-operative intervention was quoted as 82% of the time and operative intervention in the rest of 7%.¹² However, surgical intervention is necessary in case of bowel ischemia or obstruction.¹³

CONCLUSION

The case discussed in this report represents a case of small bowel obstruction secondary to late adhesions from Fitz-Hugh-Curtis syndrome in conjunction with Chilaiditi's syndrome that was diagnosed and treated surgically in a virgin abdomen. The obstruction was considered secondary to Chilaiditi's syndrome pre operatively, but intra operatively we found a loop of small bowel incarcerated within the violin string adhesions anterior to the liver. We also noticed a chronic stricture at the site of incarceration. We approached the case with exploratory laparotomy as it was deemed unsafe to proceed laparoscopically due to massive distension of the abdomen. We do not recommend lysis of these adhesions when found incidentally. However, this condition should be suspected in women with signs and symptoms of small bowel obstruction and a history of pelvic inflammatory disease with or without clinical perihepatitis. CT scan of the abdomen is helpful in demonstrating small bowel obstruction as well as Chilaiditi's syndrome.

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