



Mesenteric Panniculitis Mimicking Acute Appendicitis: A Rare Presentation

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Abstract

Mesenteric panniculitis is a rare, benign and chronic fibrosing inflammatory disease that affects the adipose tissue of the mesentery. Clinical symptoms of mesenteric panniculitis are highly variable. Due to its variable clinical presentation and rarity, the diagnosis of mesenteric panniculitis is often delayed or missed. Here we present a rare presentation of mesenteric panniculitis, i.e. right iliac fossa tenderness mimicking acute appendicitis. This report describes the case of a 59-year-old female who presented to the ER with acute abdominal pain and vomiting. The pain was initially localised to the epigastric region but subsequently migrated to the right iliac fossa (RIF) region. The patient was clinically diagnosed with Acute Appendicitis and scheduled for pre-anaesthetic check-up and elective surgery. Meanwhile, an ultrasound was performed which was found to be inconclusive and the contrast enhanced CT scan showed a long appendix which wasn't inflamed. Instead, the CT revealed signs of Mesenteric Panniculitis. The surgery was cancelled and she was treated conservatively. The patient clinically improved, her right iliac fossa tenderness decreased in severity and finally disappeared. She was then discharged in a stable hemodynamic condition with advice to follow up with a repeat CECT whole abdomen after 6 months.

Introduction

Mesenteric panniculitis is a rare, benign and chronic fibrosing inflammatory disease that affects the adipose tissue of the mesentery. It belongs to a continuum of idiopathic disorders of the mesentery and peritoneum grouped under the umbrella term "sclerosing mesenteritis". Although mesenteric panniculitis is known to be associated with other idiopathic inflammatory disorders such as retroperitoneal fibrosis and sclerosing cholangitis, specific etiology of the disease is unknown. Clinical symptoms of mesenteric panniculitis are highly variable. The disease is often asymptomatic. The symptoms when present

include anorexia, abdominal pain, abdominal fullness, nausea, pyrexia, and weight loss. Due to its variable clinical presentation and rarity, the diagnosis of mesenteric panniculitis is often delayed or missed. Abdominal CT is an effective method for diagnostic evaluation. The radiological features are typically that of a heterogenous mass or a region of the mesentery with increased fatty attenuation displacing the local bowel loops without displacing the adjacent vessels. It has a characteristic soft tissue attenuating band around it separating it from the normal mesentery and the mass is seen to spare the fat around the mesenteric vessels.

Case Report

A 59-year-old non-diabetic non-hypertensive female presented to the Emergency department of Apollo Gleneagles Hospital Kolkata with complaint of abdominal pain for 7 days accompanied by multiple episodes of vomiting in the first 2 days which stopped thereafter. The patient stated that initially the pain was localized to the epigastric region during the first 2 days, which was followed by pain predominantly in the RIF region. She had no history of fever, headache, retro-orbital pain, cough, weight loss, shortness of breath, diarrhoea or burning sensation during micturition. She had a history of allergy to penicillin, sulfur group of drugs and certain food items. She also had a history of occasional constipation for last 2 years. She underwent hysterectomy 2 years back. On clinical examination, she was alert, conscious, cooperative and afebrile with a blood pressure of 140/80 mm of Hg. Her chest was clear bilaterally, she was maintaining an SpO2 of 99% in room air. On abdominal palpation, there was sharp tenderness noted in the RIF and on auscultation, peristaltic sounds were present. Her preliminary blood investigations were within normal limits (Table 1).

Table 1

Parameter	Value
Hemoglobin	12.6 gm/dl
Total leucocyte count	5600/ cu.mm.
Platelet count	1.90 lakhs/ cu.mm.
Urea	9 mg/dl
Creatinine	0.7 mg/dl
Sodium	141 mEq/L
Potassium	4.3 mEq/L
Chloride	106 mEq/L
Bicarbonate	26 mEq/L
Total bilirubin	0.6 mg/dl
Direct bilirubin	0.1 mg/dl
AST	55 U/L
ALT	33 U/L
ALP	94 U/L

She was started on conservative management with IV Ciprofloxacin, IV Metronidazole (for coverage of Gastrointestinal infection), IV Pantoprazole and IV Ondansetron. The General Surgery team of Apollo Gleneagles Hospital was consulted who,

after examining the patient, clinically diagnosed her to have acute appendicitis. An Ultrasound was performed but it was inconclusive. She was scheduled for priority pre-anaesthetic check-up, followed by an elective appendicectomy the next day.

Meanwhile, a contrast enhanced CT scan of whole abdomen was ordered by the treating physician before proceeding for surgery. It revealed that the appendix was long but not inflamed. The CT scan showed a focal area of heterogeneously increased fat attenuation that was displacing the adjacent bowel loops but was not displacing the surrounding mesenteric vessels (Misty Mesentery). A peripheral thin soft-tissue attenuating curvilinear band was seen circumscribing the heterogeneous mesenteric mass and limiting it from the adjacent normal mesentery (Tumour Pseudocapsule). In addition, there was preservation of the normal fat attenuation in the tissue immediately around the mesenteric vessels (Fat Ring). Lymphadenopathy was also noted, the largest being 1.2 mm in short axis. There was no evidence of calcification. The impression in CECT whole abdomen was of mesenteric panniculitis.



Fig 1: An Axial section of the CECT showing features of mesenteric panniculitis: A. Misty mesentery, B. Tumour Pseudocapsule, and C. Fat Ring sign.

The Surgery was cancelled, the patient was continued on conservative management; only the

IV Ciprofloxacin was changed to IV Ceftriaxone, along with judicious use of laxatives for her chronic constipation. It is important to note that no form of steroid was used to treat the patient. The patient clinically improved, her right iliac fossa tenderness decreased in severity and finally disappeared, she was then discharged in a stable hemodynamic condition with the advice to follow up with a repeat CECT whole abdomen after 6 months.

Discussion

The mesentery is a double fold of peritoneal tissue that suspends the small intestine and large intestine from the posterior abdominal wall. Mesenteric panniculitis is a rare, benign and chronic fibrosing inflammatory disease that affects the adipose tissue of the mesentery^[1]. It belongs to a continuum of idiopathic disorders of the mesentery and peritoneum grouped under the umbrella term “sclerosing mesenteritis”. Although mesenteric panniculitis is known to be associated with other idiopathic inflammatory disorders such as retroperitoneal fibrosis and sclerosing cholangitis, specific aetiology of the disease is unknown. Clinical symptoms of mesenteric panniculitis are highly variable. The disease is often asymptomatic. The symptoms when present include anorexia, abdominal pain, abdominal fullness, nausea, pyrexia, and weight loss^[2]. The most common symptom of mesenteric panniculitis is abdominal pain followed by systemic symptoms including fever, malaise, weight loss, and altered bowel habits^[3]. A palpable abdominal mass may be seen in 35 to 50 percent of patients. These masses tend to be deep-seated and poorly defined^[4]. Other findings include abdominal tenderness in about one-third of cases and distension. Due to its variable clinical presentation and rarity, the diagnosis of mesenteric panniculitis is often delayed or missed.

Abdominal CT is an effective method for diagnostic evaluation. The CT appearance of mesenteric panniculitis is variable and can range from a subtle increased attenuation to a solid mass

with soft tissue attenuation in the mesentery^[5]. The most commonly encountered presentation of sclerosing mesenteritis is in the form of a soft tissue mass in the small bowel mesentery, although infiltration of the region of the pancreas or porta hepatis is also possible. The mass may envelop the mesenteric vessels, and, over time, collateral vessels may develop. There may be preservation of fat around the mesenteric vessels, a phenomenon that is referred to as the “fat ring sign”^[5]. This finding may help distinguish sclerosing mesenteritis from other mesenteric processes such as lymphoma, carcinoid tumour, or carcinomatosis. In addition, Sabate et al described the presence of a tumour pseudocapsule in 50% of patients with mesenteric panniculitis. Any process that infiltrates the mesentery can result in a misty mesentery. Therefore, in addition to mesenteric panniculitis, haemorrhage, oedema, or tumour (lymphoma) can have a similar appearance.^[6] Calcification may be present at the centre of the mass and is thought to be related to fat necrosis. Cystic components within the mass has also been described and is thought to occur because of venous or lymphatic obstruction^[7]. Enlarged mesenteric lymph nodes have also been found to be associated.

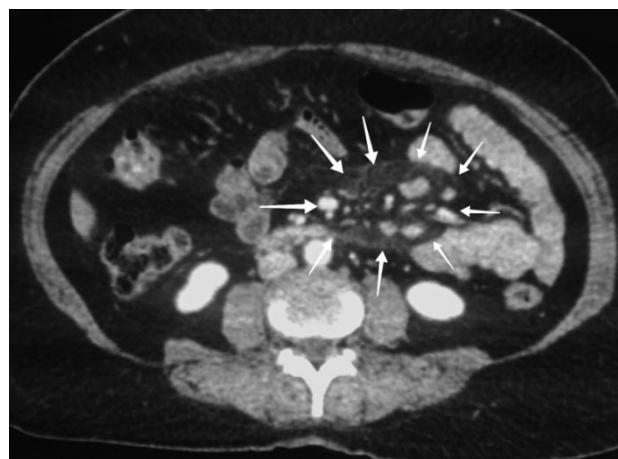


Fig 2: Misty Mesentery sign: A margined area of increased attenuation in the small bowel mesentery.

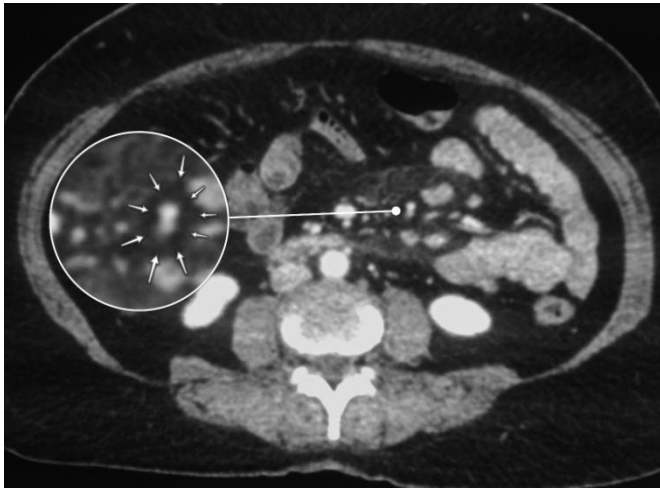


Fig 3: Fat Ring or Fat Halo Sign – Preservation of the densitometric value of the fat surrounding the mesenteric vessels (Perivascular fat sparing).

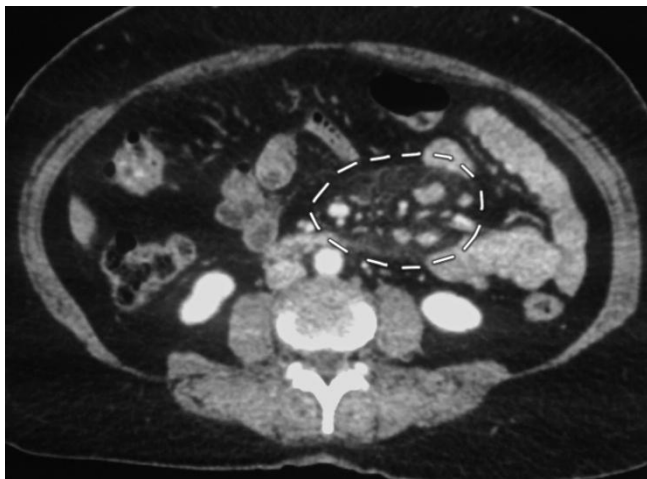


Fig 4: Tumour Pseudocapsule– A hyperattenuated stripe surrounding the inflammation and separating it from the normal appearing mesentery.

There are several conditions that can mimic mesenteric panniculitis such as lymphoma, carcinoid tumour, mesenteric carcinomatosis, primary mesenteric mesothelioma and mesenteric oedema^[8]. In recent study, about 28% of patients with abnormal CT of the mesentery suggestive of mesenteric panniculitis had known history of cancer or were newly diagnosed with cancer. The most common cancers with mesenteric panniculitis like abnormalities on CT scan are lymphomas^[9]. The CT appearance of Lymphoma and Carcinoid tumour can closely resemble that of mesenteric panniculitis, but the presence of the Fat ring sign caused by sparing of the perivascular

favours the diagnosis of mesenteric panniculitis. Carcinomatosis and primary mesenteric mesothelioma may mimic mesenteric panniculitis but in these two conditions, the disease process is not limited to the root of mesentery and they can involve other parts of the mesentery, gut loops and solid organs in the abdomen. In addition to that, the aforementioned two conditions frequently show ascites which is not seen in mesenteric panniculitis.

It is recommended that pathological confirmation be obtained in all cases of suspected sclerosing mesenteritis which present with a mass but the role of biopsy in patients with only mesenteric inflammation (misty mesentery) is controversial. In such cases, biopsy is not routinely performed for definitive diagnosis as the risks of biopsy outweigh the benefits.

The course of mesenteric panniculitis is favourable in most cases^[10]. Generally, individuals with no symptoms are not treated, but are regularly monitored to see whether the disorder progresses on abdominal imaging (watch and wait approach). For patients with symptoms related to chronic mesenteric inflammation, anti-inflammatory agents, especially corticosteroids are the initial treatment of choice. Treatment has been attempted with a variety of drugs including cyclophosphamide, colchicine, azathioprine, tamoxifen, or radiotherapy, with different degrees of success^[11]. Low dose naltrexone (LDN) is also a promising new therapy for mesenteric panniculitis. It appears to work by modulating immune system and by increasing blood levels of enkephalins and endorphins^[12]. Surgery is recommended only for advanced irreversible inflammatory changes or in cases of bowel obstruction^[1].

This case presented with abdominal pain which is the second most common presentation of mesenteric panniculitis and it was accompanied by vomiting and right iliac fossa (RIF) tenderness. The ultrasound examination proved to be inconclusive. Mesenteric panniculitis was not one of the initial diagnosis which were considered. In

our case, our decision to admit the patient promptly and treat with antibiotics and antiemetics was based on the clinical judgement that this patient had acute appendicitis. It was only after the CT images were examined that the diagnosis of mesenteric panniculitis was established. Unlike acute appendicitis, uncomplicated mesenteric panniculitis does not require surgery and its initial management is conservative. It is thus important for clinicians to be aware of this entity which can present with right iliac fossa pain since a delay in diagnosis may lead to avoidable hospital stay, antibiotic usage and surgical intervention.

Although several cases of mesenteric panniculitis are diagnosed, not many of them present with an abdominal pain that migrates to the RIF mimicking acute appendicitis. There should be an awareness of the possibility of an entity such as mesenteric panniculitis presenting with RIF pain. A diagnosis of mesenteric panniculitis should be included within a list of differential diagnoses for RIF abdominal pain after other commoner causes have been excluded.

Conclusion

Unlike acute appendicitis, uncomplicated mesenteric panniculitis does not require surgery and its initial management is conservative. It is thus important for clinicians to be aware of this entity which can present with right iliac fossa pain since a delay in diagnosis may lead to avoidable hospital stay, antibiotic usage and unnecessary surgical intervention.

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