

Mesenteric panniculitis - a rare disorder: radiological features

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ABSTRACT

Objectives: The main objective of this study was to assess the key computed tomographic features of various types of mesenteric panniculitis and to assess their etiology.

Methods: In this retrospective study, the radiological scans of seven patients were evaluated, the computed tomographic features and etiology were assessed. The Coulier's criteria were used for the radiological inclusion of a patient as a case of mesenteric panniculitis.

Results: Four of the patients had a history of some procedure or surgery performed 6 weeks to six months before presenting with panniculitis. Two of the seven cases were idiopathic while the seventh case presented after an episode of pyonephrosis. Mesenteric panniculitis is one of the broad range of disorders that may result in imaging finding of misty mesentery on computed tomography. The key computed tomography finding seen in all these cases was regional increase in mesenteric fat density that was seen at abdominopelvic computed tomography.

Conclusion: Computed tomography has a particular picture in the cases of mesenteric panniculitis and forms one of the most sensitive non-invasive modality of investigation in the diagnosis of mesenteric panniculitis.

Keywords: Mesenteric panniculitis, computed tomography, fibrosis

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Mesenteric panniculitis is an acute benign fibrosing and inflammatory condition that involves the adipose tissue of the mesentery. It can be categorized according to three pathological changes: chronic nonspecific inflammation, fat necrosis and fibrosis [1]. If inflammation and fat necrosis predominate over fibrosis, the condition is known as mesenteric panniculitis, and when fibrosis and retraction predominate, the result is retractile mesenteritis. Mesenteric panniculitis is one of the broad range of disorders that may result in imaging finding of misty mesentery on computed tomography (CT). The term 'misty mesentery' refers to regional increase in mesenteric fat density that is seen frequently at abdominopelvic CT. The

main aim of this study is to describe the key CT findings associated with mesenteric panniculitis and to assess their etiology.

METHODS

The present study included seven patients who were diagnosed with mesenteric panniculitis on CT and were retrospectively studied. The patients presented with symptoms of pain abdomen with a vague mass / lump in abdomen. Mean age of presentation was 35 years. Four of the cases were male and three females. X ray and ultrasound examinations



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were done and was followed by CT of the abdomen using reconstructed slice thickness of 5 mm after oral and intravenous contrast administration. The CT features of all these cases were noted and compared to each other and based on that analysis, they were classified.

The Coulier CT criteria were used for radiologic inclusion. Mesenteric panniculitis was considered confirmed if three out of five criteria were present: (A) Fatty mass lesion in the small intestinal mesentery, (B) hyper attenuation of the fat, (C) lymph nodes in the fatty mass (D) halo surrounding lymph nodes or vessels and (E) pseudo capsule. The images were graded using a scoring system based on the five diagnostic criteria (A-E). Scores 0-3 were given for each criterion. Zero corresponded to no pathological findings and 3 to extensive findings. A total score of 3-4 represented mild, 5-10 moderate and 11-20 extensive radiological changes.

RESULTS

The contrast enhanced computed tomography examination of the abdomen revealed the presence of masslike region of heterogeneously increased fat attenuation but without displacing surrounding



Figure 2. CT examination revealed right sided pyonephrosis (star) with inflamed mesentery in right lumbar region with intervening linear soft tissue bands consistent with mesenteric panniculitis.(arrow).

mesenteric vascular structures; consistent with mesenteric panniculitis. Four of the patients had history of some procedure or surgery performed 6weeks to six months before presenting with panniculitis - one following a caesarian delivery about 2months back, 6 weeks after cholecystectomy, 3months post-appendicectomy while the fourth one followed percutaneous nephrolithotomy. Two of the seven cases were idiopathic in whom no obvious cause was found while the seventh case presented after an episode of pyonephrosis. Mean age of presentation was 35 years. Four of the cases were male and three females. X-ray and ultrasound revealed no significant abnormality in five patients while two of them presented with an ill-defined mass.

CT revealed the diagnosis of mesenteric panniculitis in all patients (Figures 1-5).

DISCUSSION

Mesenteric panniculitis is a rare, nonspecific, benign and chronic fibrosing inflammatory disease that affects the adipose tissue of the mesentery of the small intestine and colon [2, 3]. Most of the cases are idiopathic. Autoimmune response to unknown sources and ischemia of the mesentery have been proposed as pathogenetic mechanisms. Recent surgery especially cholecystectomy and appendicectomy apparently predispose to its development [2]. The diagnosis is suggested by computed tomography and is usually



Figure 1. CT image of a case with previous caesarian delivery with stranding in the supra-umbilical and right hypochondriac region, which was most probably inflammatory in origin and suggestive of mesenteric panniculitis (arrow).

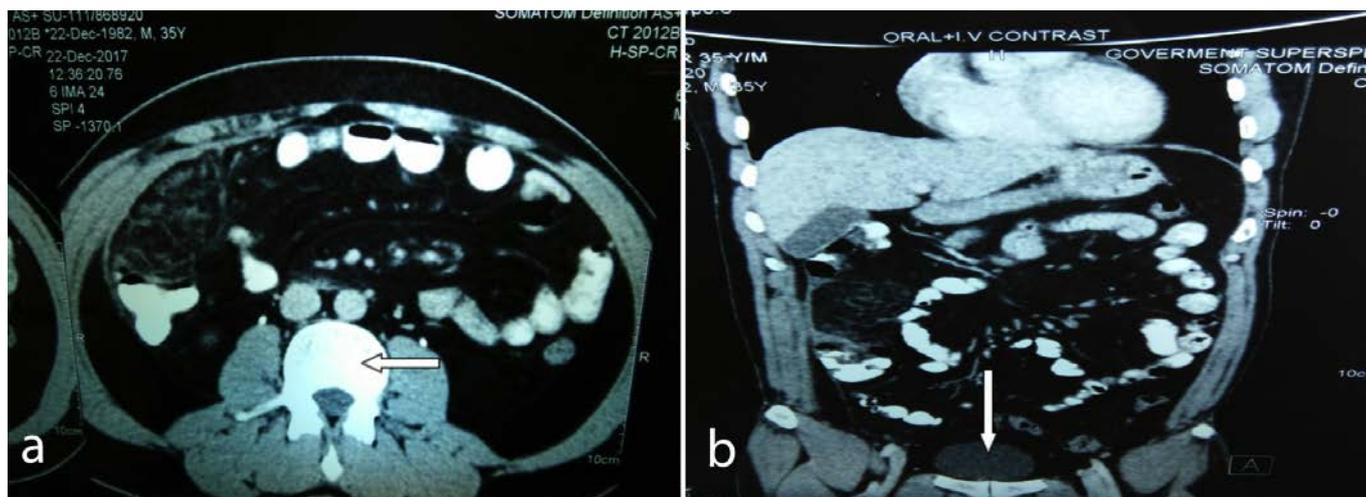


Figure 3a&3b. CT revealed an inflammatory mass of mesentery in the right mesocolic region with vessels passing through it as thin cords with the halo ring sign specific for mesenteric panniculitis (arrow).

confirmed by surgical biopsies. The cause of the disease is unclear. Whether mesenteric panniculitis occurs independently or in association with other disorders has been a subject of discussion. The disease has been related to a variety of conditions such as vasculitis, granulomatous disease, rheumatic disease, malignancies, and pancreatitis [3].

The disease is more common in men. The condition is mostly described in middle or late adulthood with a slight male predominance and several reports have indicated it to be more common in Caucasian men. Incidence increases with age, and pediatric cases are exceptional, probably because children have less mesenteric fat when compared to adults [4].

Patients had a history of abdominal trauma or

surgery. Furthermore, the disease is related to other factors, such as mesenteric thrombosis, mesenteric arteriopathy, drugs, thermal or chemical injuries, vasculitis, avitaminosis, autoimmune disease, retained suture material, pancreatitis, bile or urine leakage, hypersensitivity reactions, and even bacterial infection [4, 5]. Other factors, such as gallstones, coronary disease, cirrhosis, abdominal aortic aneurysm, peptic ulcer, or chylous ascites, have also been linked to this disease [6].

The mean clinical progression is usually 6 months, ranging from 2 weeks to 16 years. The disease is often asymptomatic. When present, clinical symptoms vary greatly, and may include anorexia, abdominal pain,

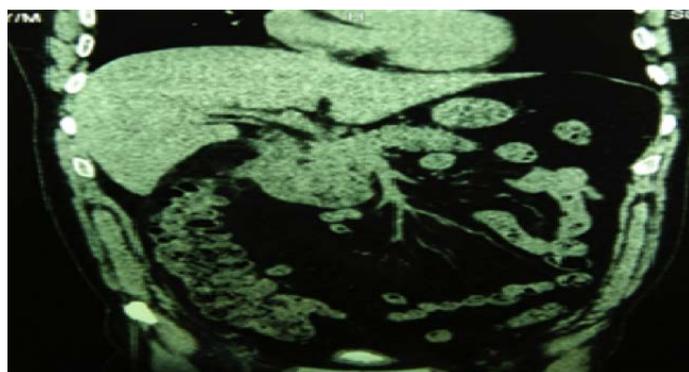


Figure 4. Mesenteric panniculitis presenting in a patient after laproscopic cholecystectomy.

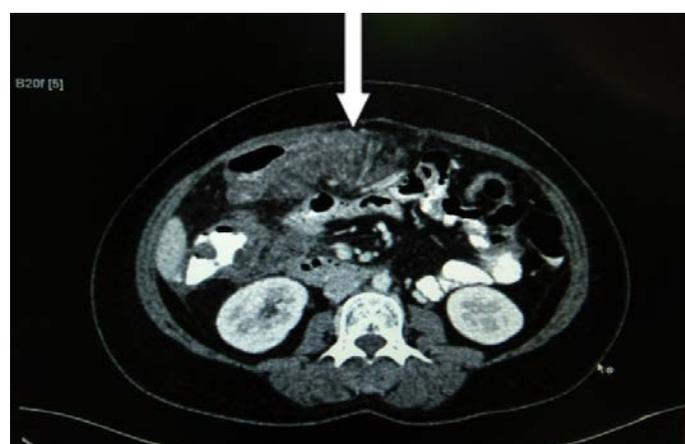


Figure 5. Case of mesenteric panniculitis showing increased CT density of mesentery forming an ill-defined mass (arrow).

abdominal fullness, nausea, pyrexia, and weight loss [7]. On occasions, the disease may also present with merely a single or multiple palpable mass. Symptoms may be progressive, intermittent, or absent. Laboratory findings, including elevation in erythrocyte sedimentation rate and anemia, are absent or nonspecific. CT or magnetic resonance imaging, distinguishing mesenteric panniculitis from other mesenteric diseases with similar imaging features such as carcinomatosis, carcinoid tumor, lymphoma, desmoid tumor, and mesenteric edema seems possible and feasible. The imaging appearance of mesenteric panniculitis varies depending on the predominant tissue component (fat necrosis, inflammation, or fibrosis) [8]. It is visualized usually as a heterogeneous mass with a large fat component and interposed linear bands with soft tissue density in cases of mesenteric panniculitis, or as a homogeneous mass of soft tissue density in cases of retractile mesenteritis [9, 10].

Mesenteric panniculitis results in a masslike area of heterogeneously increased fat attenuation on CT that may displace local bowel loops but typically does not displace the surrounding mesenteric vascular structures [11]. Mesenteric lymph nodes are often seen within the region of segmental mesenteric stranding and nodes may be enlarged to greater than 1cm in a small percentage of cases [12]. Approximately 90% of cases involve the small bowel mesentery [13] and changes are more commonly centered to the left of the midline corresponding with the jejunal mesentery.

Mesenteric panniculitis resolves spontaneously in most cases; however, palpable masses may often be found between 2 and 11 years after diagnosis, especially in patients with associated comorbidity [4].

CONCLUSION

Mesenteric panniculitis is a very rare disorder usually occurring post-operative with various radiological appearances. The computed tomography forms the most sensitive modality available for the diagnosis.

Conflict of interest

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