

# Mesenteric panniculitis clinical presentations, management, and outcomes: a single institute experience of 89 patients

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## ABSTRACT

**Aims:** Mesenteric panniculitis is a rare, non-specific, chronic inflammatory disease with a reported incidence of 0.16-3.3% that primarily involves the mesenteric adipose tissue. We aimed to retrospectively analyze the clinical features of patients diagnosed with mesenteric panniculitis.

**Methods:** We retrospectively analyzed the reports of 941 patients who were examined in the Gastroenterology Clinic of Lokman Hekim Hospital and underwent abdominal computerized tomography (CT) between January 2019 and December 2021.

**Results:** Among CT scan reports of 941 patients, the diagnosis of mesenteric panniculitis was present in 89 (9.45%) patients (55 male and 34 female). The reasons for obtaining a CT scan in those patients were as follows: severe abdominal pain in 53 (59.6%) patients, weight loss in 16 (17.9%) patients, bloating, distention, and suspicion of sub-ileus in 12 (13.5%) patients, and alterations in abdominal movements (constipation or diarrhea) in 8 (8.9%) patients. Among patients with mesenteric panniculitis, autoimmune diseases were also analyzed 21 were having Hashimoto thyroiditis, 2 were having vitiligo, 2 were having Sjögren's disease, 1 was having primary biliary cholangiopathy, and 1 was having a diagnosis of celiac disease.

**Conclusion:** Mesenteric panniculitis is not a very rare disease, diagnosed with mainly CT findings. Although the disease may be associated with some autoimmune diseases and malignancies, the disease outcomes are generally fine. However, there are still many unknown points, especially about the etiology and outcomes of the disease.

**Keywords:** Mesenteric panniculitis, chronic inflammatory disease, autoimmune diseases, computerized tomography, inflammation

## INTRODUCTION

Mesenteric panniculitis is a rare, non-specific, chronic inflammatory disease with a reported incidence of 0.16-3.3% that primarily involves the mesenteric adipose tissue. In some rare conditions, inflammation may extend through the omentum and mesocolon.<sup>1</sup> The patients are usually asymptomatic and mesenteric panniculitis is diagnosed incidentally in some imaging techniques, especially computerized tomography (CT), performed for another reason. However, mesenteric panniculitis may also cause some symptoms such as abdominal pain, a palpable abdominal mass, nausea, vomiting, or rarely bowel perforation or obstruction.<sup>2</sup>

There are two main forms of mesenteric panniculitis; the classical inflammatory type and retractile panniculitis. In the classical form, there is inflammation, necrosis, and degeneration of fat tissue. On the other hand, in the retractile form, there is a prominent fibrosis of mesentery with

retraction of the adjacent structures. Mesenteric panniculitis was mainly associated with some etiological conditions such as abdominal surgery, abdominal cancer, mainly lymphoma, colon cancer or genitor-urinary cancers, previous abdominal trauma, and/or some autoimmune diseases.<sup>3</sup>

In previous literature, the data regarding the clinical presentation, management, and outcomes of mesenteric panniculitis is limited. Our study aimed to retrospectively examine the clinical features of patients diagnosed with mesenteric panniculitis.

## METHODS

This is a retrospective observational study. The study was carried out with the permission of Lokman Hekim University Scientific Researches Ethics Committee (Date: 21.12.2022, Decision No: 2022/194). All procedures were carried out in accordance with the ethical rules

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and the principles of the Declaration of Helsinki. All of the patients had given written informed consent to participate in the study.

A total of 996 patients were planned to be included in the study. However, after excluding patients who did not accept to participate in the study, 941 patients were included. We retrospectively analyzed the reports of CT scans of 941 patients who were followed up and treated in our Gastroenterology Outpatient Clinic of Lokman Hekim Hospital and underwent abdominal tomography between January 2019 and December 2021.

The abdominal region of all patients was scanned with a 64-slice CT device. Scanning parameters; tube voltage, 120 kV; tube current, 250 MAS; matrix, 512 × 512; the section thickness 5 mm. Multiplanar reconstruction (MPR) images were created from these images.

The diagnosis of mesenteric panniculitis was defined by the same radiologist. The radiological diagnosis of mesenteric panniculitis was determined according to the typical CT findings in Coulier's study.<sup>4</sup> The five hallmarks of the Coulier's study were as follows: (1) mesenteric fat mass lesions, (2) mesenteric fat tissue density being higher than the surrounding abdominal tissue, (3) vascular and perimesenteric soft tissue nodules, (4) fat ring, and (5) annulus fibrosus. If 3 of these findings were positive, mesenteric panniculitis was diagnosed. The patients diagnosed with mesenteric panniculitis were determined and their demographic and clinical data were recorded from the hospital's electronic data recording system. Concomitant diseases, medications given for this disease, and the outcomes of the disease were obtained from the patient records. Before reporting the study, all patients diagnosed with mesenteric panniculitis were called by telephone and asked about the long-term outcomes of the disease.

**Statistical Analysis**

All statistical analysis were performed with SPSS statistics software version 21.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were performed for analyses. Quantitative data were expressed as mean±standard deviation (SD), median, and range. Categorical data were expressed as a percentage.

**RESULTS**

Among CT scan reports of 941 patients, the diagnosis of mesenteric panniculitis was present in 89 (9.45%) patients (55 male and 34 female). The male/female ratio of the patients diagnosed with mesenteric panniculitis was 1.61. The mean age of the patients was 57.71± 13.30 years (range: 29-84 years). The mean body mass index (BMI) of the patients was 30.78±6.14 kg/m<sup>2</sup> (range: 23.86 -38.42) (Table 1).

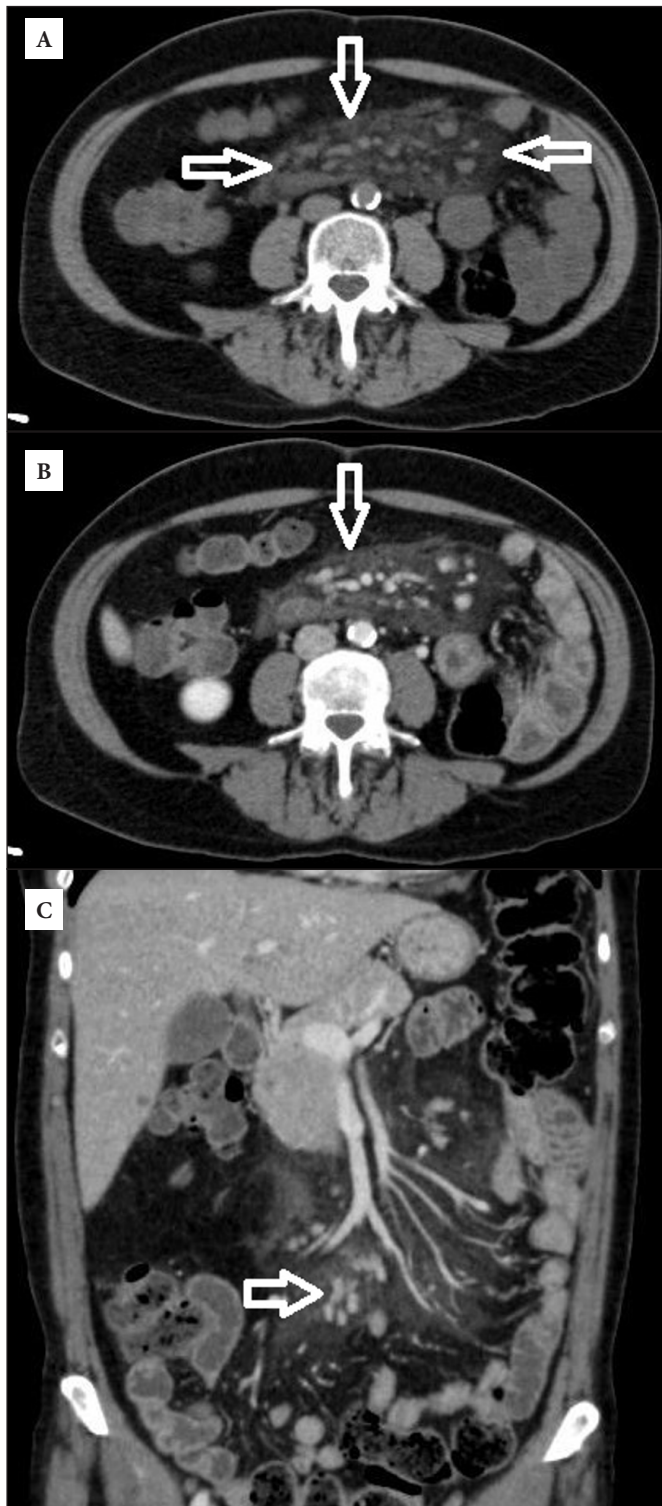
Male/female	55/34
Age (mean)	57.71± 13.30 (range: 29-84 years)
Body mass index (BMI) (mean)	30.78±6.14 kg/m <sup>2</sup> (range: 23.86 -38.42)
The reasons for obtaining a CT scan	Severe abdominal pain: 53 (59.6%) Weight loss: 16 (17.9%) Suspicion of sub-ileus: 12 (13.5%) Alterations in abdominal movements: 8 (8.9%)
The concomitant diseases	Malignancies: 27 (30.3%) Autoimmune diseases: 27 (30.3%) Abdominal surgery: 38 (42.7%)

The reasons for obtaining a CT scan in those patients were as follows: severe abdominal pain in 53 (59.6%) patients, weight loss in 16 (17.9%) patients, bloating, distention, and suspicion of sub-ileus in 12 (13.5%) patients, and alterations in abdominal movements (constipation or diarrhea) in 8 (8.9%) patients. We retrospectively analyzed the patient records and determined the concomitant diseases in those patients. Concomitant malignancies were present in 27 (30.3%) patients (colorectal cancer in 13 patients, pancreas cancer in 9 patients, ovarian cancer in 2 patients, ovarian cancer in 1 patient, gastric cancer in 1 patient, cholangiocellular cancer in 1 patient). Among patients with mesenteric panniculitis, autoimmune diseases were also analyzed 21 were having Hashimoto thyroiditis, 2 were having vitiligo, 2 were having Sjögren's disease, 1 was having primary biliary cholangiopathy, and 1 was having a diagnosis of celiac disease. Among participants, 4 (4.5%) had a new diagnosis of cancer in concurrence with their CT. Abdominal surgery history was present in 38 (42.7%) patients.

When CT images were evaluated according to the Coulier classification. All patients had mesenteric fat mass lesions and mesenteric fat tissue density being higher than the surrounding abdominal tissue. Vascular and perimesenteric soft tissue nodules were detected in 80 of the patients. Fat ring (65 patients), and annulus fibrosus (48 patients) were detected in fewer numbers. The findings are summarized in Table 2.

Signs	Fat mass lesions	Higher tissue density	Vascular and perimesenteric soft tissue nodules	Fat rings	Annulus fibrosus
Percentage of patients (%)	89 (100 %)	89 (100%)	80 (89.8%)	65 (73%)	48 (53.9%)

The medications given to the patients for the treatment are summarized in Table 3. The mostly prescribed treatment for those patients was antibiotics. And some patients obtained combination treatments such as antibiotics and anti-inflammatory medicines. It was determined that 22 patients did not get any treatment for this disease. CT scans of a patient's in our study are shown in Figures 1A-B and C.



**Figure 1.** 57-year-old male patient complaining of abdominal pain. Contrast and pre-contrast CT images show a fat mass lesion in the mesentery (A), increased mesenteric fat tissue density (B) and mesenteric lymph nodes in the perivascular region (C).

The mean follow-up period was  $9.42 \pm 4.32$  months (6-14 months). When the patients were asked about the outcomes of the disease; all of them reported that with or without treatment all their symptoms healed in a few weeks. Seven patients told that after this CT scan obtained in our hospital reporting mesenteric panniculitis, they again had an abdominal CT in one year and 2 of them having mesenteric panniculitis also reported in their new CT scan. None of the patients were diagnosed with a new malignancy or autoimmune disease, in this last year.

**DISCUSSION**

In the present study, we reported the clinical presentations, management, and treatment outcomes of 89 patients diagnosed with mesenteric panniculitis. We determined that; the main symptom of the patients was severe abdominal pain or discomfort, and the main concomitant diseases present were intraabdominal malignancies and autoimmune diseases. Although most of the patients were prescribed some medications, all patients, treated or untreated, got well in a few weeks. The disease did not re-occur in most of the patients in approximately 9 months follow-up.

In the present study, mesenteric panniculitis was more common in males, the patients were in their mid-to-late adulthood, with the main symptom of abdominal pain or discomfort which were similar to the previous literature.<sup>5,6</sup>

Etiological factors associated with mesenteric panniculitis include some malignancies, autoimmune diseases, abdominal trauma, and some infections.<sup>9</sup> Autoimmune diseases and autoimmune etiology are mostly accused factors in etiology.<sup>10,11</sup> In the present study, compatible with the previous literature, the most common concomitant diseases were malignancies and autoimmune diseases. Even though an association between intraabdominal malignancies and mesenteric panniculitis was questioned before, a direct association between mesenteric panniculitis and subsequent malignancy could not be confirmed before.<sup>12,13</sup> In a recent study, on 716 patients diagnosed with mesenteric panniculitis, concomitant malignancy was present in 354 (49.4%) patients and a history of abdominal surgery was present in 179 (25%) patients.<sup>14</sup> Our findings were also compatible with the previous data. Although CT is often the best choice for the diagnosis of mesenteric panniculitis, diagnosis can also be made with US and MRI. US finding is often an increase in volume along with a fat mass at the root of the mesentery. Oval-shaped or fatty mesenteric mass with convex anterior border is centrally located and has focal mesenteric increased echogenicity. Displacement of the intestinal loop and lymph nodes may also be observed.<sup>15</sup> On MRI, mesenteric fat tissue appears as a mass with medium signal intensity on T1-weighted

Table 3. Treatments were given for the mesenteric panniculitis	
Medications	Number of patients (%)
Antibiotics (Ciprofloxacin, metronidazole, or a combination of both)	54 (60.7)
Non-steroidal anti-inflammatory drugs (NSAIDs)	11 (12.4)
Steroid treatment	7 (8.5)
Colchicines	2 (2.2)
No treatment	22 (24.7)



images and high signal intensity on T2-weighted images.<sup>2</sup> CT also results in a mass-like area of heterogeneously enhanced fat attenuation that may displace local bowel loops but typically do not displace surrounding mesenteric vascular structures. Mesenteric lymph nodes often occur in the region of segmental mesenteric banding, and in a small percentage of cases the nodes may enlarge more than 1 cm. Fat ring (65 patients), and annulus fibrosus (48 patients) were detected in fewer numbers. Expansion, tortuosity and wall thickening may be observed in the mesenteric vascular structures. Additionally, thrombosis may occur in the mesenteric vascular structures. No thrombosis was detected in any of our patients. In a study by Wang and Li,<sup>16</sup> CT findings of mesenteric panniculitis were similar to our study. While mesenteric fat mass, increased density of fat mass, soft tissues consisting of vascular and perimesenteric fat tissue and lymph nodes were the most common findings, fat rings and annular fibrosis were less common.

In this study, mostly prescribed medications were antibiotics and NSAIDs. Although approximately a quarter of the patients did not get any treatment, all patients improved in a few weeks. In previous literature, antibiotics, NSAIDs, and corticosteroids were also mostly prescribed medications and the patients were responsive to these medications. The overall prognosis was usually good.<sup>17-19</sup> Sahin et al.<sup>17</sup> reported the treatment outcomes in 36 patients diagnosed with mesenteric panniculitis and reported that approximately 60% of the patients were treated with antibiotics and again approximately 60% of patients were treated with NSAIDs. Regarding these data, the role of antibiotics in treatment of mesenteric panniculitis should be evaluated in larger studies.

We can list the limitations of this study that should be noted as follows. The first of these was that it was a retrospective study. Secondly, the follow-up period was not long enough. Third, the study was single-center and may have some biases.

## CONCLUSION

Mesenteric panniculitis is not a very rare disease, diagnosed with mainly CT findings. Although the disease may be associated with some autoimmune diseases and malignancies, the disease outcomes are generally fine. However, there are still many unknown points, especially about the etiology and outcomes of the disease.

## ETHICAL DECLARATIONS

**Ethics Committee Approval:** The study was carried out with the permission of Lokman Hekim University Scientific Researches Ethics Committee (Date: 21.12.2022, Decision No: 2022/194).

**Informed Consent:** Because the study was designed retrospectively, no written informed consent form was obtained from patients.

**Referee Evaluation Process:** Externally peer reviewed.

**Conflict of Interest Statement:** The authors have no conflicts of interest to declare.

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**Author Contributions:** All the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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