

Cavitating Mesenteric Lymph Node Syndrome in a Patient with Celiac Disease: Differential Diagnosis Based on Radiological Findings

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Abstract

Mesenteric lymph node syndrome is a rare condition characterized by cystic or cavitating changes in mesenteric lymph nodes. It is commonly associated with celiac disease. We present a case of a 59-year-old woman with known celiac disease who presented with abdominal pain, abdominal swelling, and weight loss, ultimately diagnosed with mesenteric lymph node syndrome. This case highlights the importance of radiological findings when considering rare complications of celiac disease in the differential diagnosis.

Keywords: mesenteric lymph node syndrome, celiac disease, cavitating lymph node

Dear Editor,

Cavitating mesenteric lymph node syndrome (CMLNS) is an uncommon but poor-prognosed complication of celiac disease, characterized by the development of cystic or cavitating lesions within the mesenteric lymph nodes [1]. In advanced cases, fat-fluid levels may be observed in the lymph nodes. The precise connection between CMLNS and celiac disease remains a subject of ongoing research. However, some reports suggest that due to mucosal damage in the small intestines, mesenteric lymph nodes undergo cystic or cavitory changes as a result of increased exposure to antigens [2].

The pathogenesis of CMLNS is not clearly understood. Patients often present with symptoms such as weight loss, diarrhea, fatigue, and abdominal pain [3]. It may be accompanied by

splenic atrophy [4]. The diagnosis of CMLNS is based on clinical and radiological findings including computed tomography (CT), ultrasonography (US), and magnetic resonance imaging (MRI) [2]. Tuberculosis, lymphoma, necrotic metastases, Whipple disease, and germ cell tumors should be considered in the differential diagnosis of hypodense mesenteric lymph nodes [5]. In the literature, studies related to CMLNS typically exist in the form of case presentations or case series. Despite the previously described radiological findings of the disease, with this case, we aimed to illustrate the defining features of advanced disease in more detail.

Patient's history

A 59-year-old female patient presented to our hospital with an abdominal pain, marked weight loss, gastrointestinal complaints, abdominal distention, weakness, and cough. Notably, she

was diagnosed with celiac disease approximately two years prior, following a period of persistent diarrhea, occurring up to 6-7 times a day. The definitive diagnosis of celiac disease was established through endoscopic biopsy, which revealed characteristic mucosal changes in the small intestine.

Although the initial diagnosis, the patient struggled to adhere to a strict gluten-free diet. For the past year, she experienced a precipitous decline in her health, with an astonishing weight loss of 35 kilograms, bringing her current body weight to a mere 35-40 kilograms. This dramatic weight loss led to a state of cachexia and weakness. The patient's presentation, with abdominal pain, uncontrolled celiac disease, and a history of severe weight loss raises concerns about potential complications.

Examination and investigation

Laboratory investigations indicated elevated inflammatory markers, leukocytosis, hyponatremia, and hypochloremia. The other complete blood count and biochemistry parameters were within normal range.

In the thorax CT taken for respiratory symptoms, cystic and cylindrical bronchiectasis areas, peribronchial consolidations, and occasional mucus plugs were observed in both lungs. After the detection of mass-like heterogeneous lesions on abdominal US, contrast-enhanced abdominal CT was recommended to the patient. In abdominal CT, predominantly filling the left upper quadrant, extending to the right of the midline, conglomerate masses with the largest measuring 130x90mm were observed. These lesions show dense content and exhibit fluid-fat levels. The jejunal segments have been compressed towards the periphery (Fig. 1). There was free fluid present in the Douglas pouch at a depth of 3cm. Additionally, there was an appearance compatible with an atrophic spleen in the splenic chamber, approximately 30x12 mm in size. In the abdominal CT image taken at another hospital eight months ago, low-density (5-10 Hounsfield units) conglomerate lymph nodes with the largest measuring 25x20mm were observed in the left upper quadrant at the mesenteric root (Fig. 2).

Treatment

The diagnosis was confirmed based on the patient's history and characteristic imaging findings. The patient, who was hospitalized and placed under intensive care for monitoring, was planned to receive antibiotic therapy and supportive treatment

for electrolyte imbalances. The patient received clarithromycin for nine days and piperacillin/tazobactam for eleven days. Following a consultation with a dietitian, it was determined that the daily calorie requirement was 1200 kcal, and a plan was made for the patient to receive 1500 kcal daily for weight gain. Total parenteral nutrition therapy was initiated for the patient. Electrolyte values were closely monitored through daily observations.



Figure 1. Axial and coronal contrast-enhanced abdominal CT images on September 2023 show conglomerate cavitating lymph nodes containing fat-fluid levels (avg HU:-61.62 and 6.58) and reaching large sizes (130x90mm). The intestinal segments appear to be pushed peripherally.

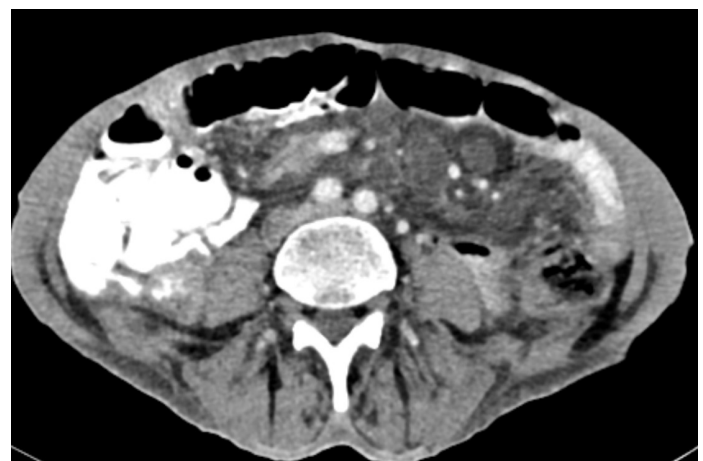


Figure 2. The abdominal CT performed on 15 January 2023 showed that the lymph nodes in the mesenteric root were smaller. In the patient who did not comply with the diet, it was observed that the lymph node size increased 5 times within 8 months.

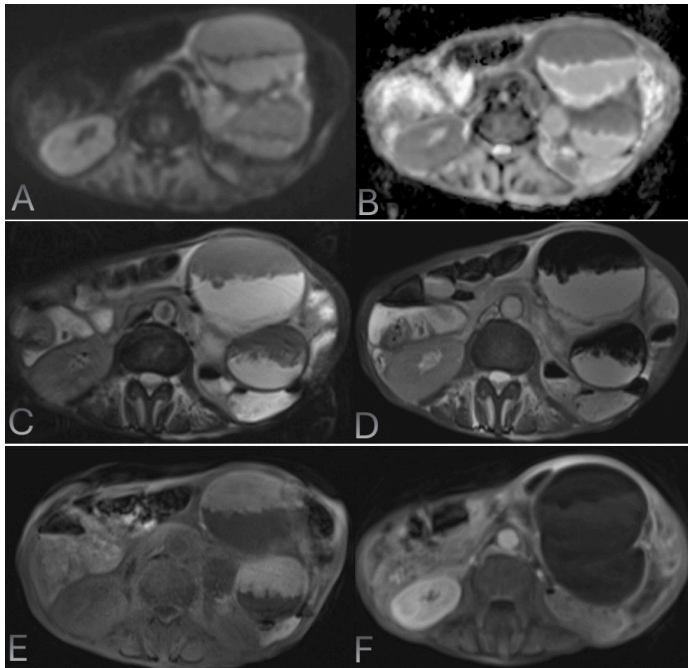


Figure 3. MRI performed six weeks after treatment showed mild regression of the cavitating mesenteric lymph nodes. The axial sequences are as follows: A) DWI, B) ADC C) T2W-fat saturated, D) T2W-TRUFI, E) T1W, F) T1W-fat saturated+contrast enhanced.

Follow-up

The patient, whose condition stabilized, was advised on a gluten-free diet during discharge. When the patient came for a follow-up visit six weeks later, since the patient described pain in the right upper quadrant, an abdominal MRI were performed. The MRI images showed cavitary mesenteric lymph nodes, with the largest measuring 100x90mm and containing fluid-fat levels (Fig 3). The findings were interpreted in favor of minimal regression in the patient who adhered to the diet.

DISCUSSION

This case report presents the advanced disease of CMLNS in detail. There is limited literature information on this rare condition. This report stands out because it contains the most revealing radiological findings, thus facilitating differential diagnosis.

In a previous study by Keer et al, a multicyclic complex lesion with the largest measuring 43x37 mm in the anterior region and reaching a total size of 116x69mm was reported [3]. In our patient, the largest singular mesenteric lymph node size

detected on abdominal CT was 130x90 mm. The development of CMLNS in patients with celiac disease is considered to be associated with a poor prognosis [6]. In our patient, abdominal CT taken 8 months ago showed mesenteric lymph nodes much smaller, with a maximum size of 25x20 mm. However, in the patient who did not adhere to a gluten-free diet, there was rapid progression, reaching a huge size.

The pathogenesis of CMLNS, which was first described by Hemet et al. in 1969, is not clearly understood [7]. Patients often present with symptoms such as weight loss, diarrhea, fatigue, and abdominal pain [3]. Our patient was complicated by bronchiectasis and pneumonia, along with these similar symptoms. The cachexia caused by this disease is expected to trigger recurrent infections and increase complications. As mentioned in the literature, splenic atrophy may also accompany this disease, and in our patient, the spleen size measured 30x12 mm.

Although mesenteric lymph nodes with fat-fluid levels are typically seen in CMLNS, which is a complication of celiac disease, differential diagnosis of similar-looking lymph nodes should be made. In lymphadenopathy associated with tuberculosis, central caseation-related hypodensity and calcification are frequently observed in lymph nodes. In the early stages, the affected lymph nodes often have a regional location near the cecum. In cases of abdominal involvement by tuberculosis, most patients show thickening of the intestinal wall and the presence of ascites [8]. Tuberculous lymph nodes generally shows peripherally enhancement [9].

In lymphoma-related abdominal lymph node involvement, the involvement is often characterized by regionally located, multiple, well-defined lymph nodes that occasionally coalesce to form a mass-like appearance, showing mild homogeneous contrast enhancement. In some cases, rim enhancement may also be present. The majority of these patients have extranodal abdominal disease, with involvement in the gastrointestinal system in more than half of the cases [10].

Lymph nodes containing fatty density can also be observed in Whipple's disease. Whipple's disease, also known as intestinal lipodystrophy, is a rare infectious disorder that primarily affects the small intestine. Adenopathies can occur not only in the mesenteric region but also in the cervical, retrocrural, and retroperitoneal regions [11].

Germ cell tumors are a type of neoplasm that can occur in various parts of the body, most often in the gonads. Teratomas in this group typically present a heterogeneous appearance with features such as fat, calcifications, and soft tissue density [12].

CONCLUSION

It is important to be aware of the radiological features of CMLNS, a rare complication of celiac disease, for an accurate diagnosis. Using radiological imaging methods to monitor the development of this condition and determine treatment strategies can play a critical role in the management of patients.

Regards

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During the preparation of this work the authors used ChatGPT to translate parts of the manuscript. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Author Contributions

SO was involved in writing and study design. HK was involved in data collection and literature review. MH provided editing and review of the manuscript.

Conflict of Interest

The authors declare no competing interests.

Data Availability Statement

No data available.

Informed Consent

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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