

Normal Positron Emission Tomography-Computerized Tomogram in a Patient with Apparent Mesenteric Panniculitis: Biopsy Is Still the Answer

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Key Words

Mesenteric panniculitis · Positron emission tomography · Mesentery · Mass · Lymphoma · Biopsy

Abstract

Mesenteric panniculitis (also known as sclerosing mesenteritis) is a chronic inflammatory disease of the mesenteric connective tissue. It is known to have a wide spectrum of clinical and radiological presentations. In general, biopsy is recommended for diagnosis; however, a recent study proposed that a negative positron emission tomography-computerized tomography (PET-CT) scan is accurate in differentiating benign and neoplastic mesenteric processes [Br J Radiol 2006;79:37–43]. The following case report questions the accuracy of PET-CT in this setting and confirms the requirement for biopsy to rule out the presence of mesenteric lymphoma.

Introduction

Mesenteric panniculitis (MP) is a rare disease associated with inflammatory and fibrotic changes within the mesentery [1]. Its pathogenesis is unknown although the condition is clearly an autoimmune disorder [2]. MP has a wide variety of clinical presentations. It may occur as an incidental finding on CT scanning for other conditions such as nephrolithiasis. Alternatively, patients with MP may develop abdominal pain, nausea/vomiting, weight loss, fever, and bowel habit changes [3]. Physical examination

may reveal the presence of an abdominal mass [3, 4]. Laboratory testing may demonstrate elevated erythrocyte sedimentation rate and/or increased C-reactive protein [5]. Characteristic CT scan findings in MP include inflammatory mass with hyperattenuation of fat and the appearance of small mesenteric nodules. Radiographically, the mesenteric vasculature appears to be spared in MP (also known as the ‘fat-ring’ sign), and this finding has been suggested to differentiate MP from lymphoma and other neoplasms. Nonetheless CT findings such as this are nonspecific and are generally not recommended to rule out the presence of a neoplastic process such as lymphoma. A surgically obtained biopsy is required to confirm the diagnosis of MP [1]. However, a recent study by Zissin et al. [6] suggested that positron emission tomography-computerized tomography (PET-CT) imaging may be used to differentiate between benign and neoplastic processes of the mesentery. Those authors examined 19 patients with known malignancy and incidental findings of MP on CT scan with PET-CT evaluation. The absence of F-fluorodeoxyglucose (FDG) uptake within the areas of panniculitis in 11 of the 19 patients was found to be indicative of a nonneoplastic process after clinical evaluation and follow-up. No false-negative results were reported.

In this report, we describe a patient with symptoms and CT findings of MP and a negative uptake of FDG on PET-CT scan who was subsequently found to have lymphoma on biopsy of the mesentery. We continue to recommend that a biopsy should be performed in patients presenting with a mesenteric mass.

Case Report

The patient is a 52-year-old Caucasian female who was found to have milky-appearing ascites during routine vaginal hysterectomy and repair of an uterovaginal prolapse. Analysis of the peritoneal fluid was not performed. Abdominal CT scan was pursued for further workup of unexplained ascites (fig. 1). This showed the typical features of MP, including strand-like and patchy densities in the mesenteric fat surrounding but not infiltrating the mesenteric vasculature in the mid-abdomen. The patient was referred to our practice for further evaluation and treatment. She described episodes of severe abdominal pain occurring about every 3 months for 2–3 years. Episodes of bloating and nausea also occurred on a weekly basis. Physical examination revealed a soft, nontender undistended abdomen with normal bowel sounds. There was no organomegaly, palpable mass or localized adenopathy present. Mesenteric Panniculitis Symptom Assessment Score (MPSAS) was 24, suggestive of moderately symptomatic disease [5].

Laboratory examination included: hemoglobin = 14.7 g/dl, hematocrit = 43.7%, white blood cell count = 5,200, platelet count = 235,000, erythrocyte sedimentation rate = 13 mm/h, C-reactive protein = 0.2 mg/dl, sodium = 141 mmol/l, chloride = 106 mmol/l, potassium = 4.0 mml/l, bicarbonate = 33 mmol/l, glucose = 85 mg/dl, blood urea nitrate = 11 mg/dl, creatinine = 0.9 mg/dl, calcium = 9.6 mg/dl, albumin = 4.5 g/dl, SGOT = 27 U/l, SGPT = 26 U/l, alkaline phosphatase = 75 U/l, bilirubin = 0.8 mg/dl.

A PET-CT scan ordered by another practitioner demonstrated no abnormal FDG uptake in the affected mesentery or any surrounding lymph nodes (fig. 2). Laparoscopy showed a thickened segment of mesenteric fat (fig. 3). Biopsies were obtained which demonstrated a B-cell non-Hodgkin’s lymphoma of follicular origin (fig. 4, fig. 5).

Discussion

Abdominal pain and bloating are the most common symptoms occurring in patients with MP [3]. These symptoms are frequently encountered in clinical practice and especially when chronic, may not warrant aggressive evaluation. Radiographic evaluation with CT scanning was performed in this case due to the incidental finding of

milky-appearing ascites during a gynecologic procedure. Although the fluid was not analyzed, this patient most likely developed chylous ascites. Fourteen percent of the ninety-two patients with MP recently described in the series by Akram et al. were noted to have chylous ascites [3]. Our group has also described the natural history of chylous ascites in a patient with MP [7]. Chylous ascites would more commonly be associated with intraabdominal malignancies, including lymphoma, that interrupt and obstruct flow of lymphatics [3, 8]. Combination of CT and PET as a single test has been commonly used in clinical practice [9]. This modality allows precise location of FDG uptake in a rapidly performed, well-tolerated procedure. It is most useful for staging of known malignancies [10]. In patients with a known diagnosis of lymphoma, PET-CT can be utilized to find disease within and outside of lymph nodes that would otherwise be missed by conventional CT scanning [9]. In general, PET-CT is not used in the initial diagnosis of malignancy [9].

Recently, Zissin et al. have reviewed PET-CT findings in 19 patients with known malignancy that were found to have CT findings consistent with malignancy. Five of these had the procedure for staging purposes, while the other 14 patients underwent the procedure to evaluate suspected recurrent tumor [6]. These authors used the common CT findings of MP to establish their study group. These findings included a well-defined, inhomogeneous fatty mass, preserved perivascular fat, and a pseudotumor capsule [6]. Following the CT, PET scanning was immediately performed. They divided patients into two groups. Eight patients had increased FDG uptake (positive PET scan), and 11 patients did not have increased FDG uptake (negative PET scan). All 11 patients with negative PET scanning had no change in imaging results for an average follow-up of 10.5 months, suggesting that the mesenteric findings were benign and therefore consistent with MP alone. The authors suggested that PET-CT scanning could have a role in the evaluation of mesenteric masses in oncologic patients and that ‘PET-CT can be used to correctly exclude mesenteric tumor involvement when no FDG uptake is seen within typical CT features of MP’ [6]. They did not describe any false-negative PET-CT scans in their case series.

As our case suggests, in patients presenting de novo with a mesenteric mass, without a history of malignancy, PET-CT alone may miss the diagnosis of lymphoma. Biopsy of the mesenteric mass, preferably by laparoscopy, is advisable to confirm the diagnosis of MP and to rule out a neoplastic process.

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Fig. 1. Patchy densities in the central mesenteric fat, suggestive of MP, on CT scan.



Fig. 2. No abnormal areas of uptake on PET scan.

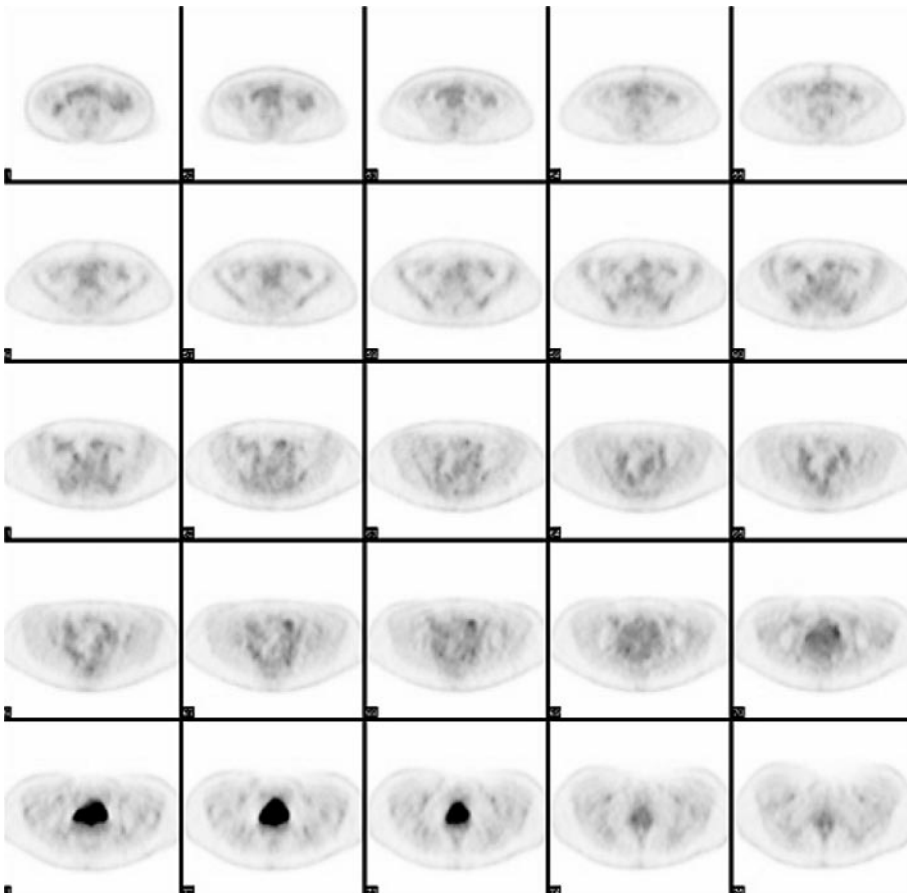


Fig. 3. Large, amorphous thickening of the mesenteric fat, which did not invade into the adjacent organs, visualized during laparoscopic biopsy.



Fig. 4. Biopsy of mesenteric fat. Neoplastic lymphoid follicles, composed predominantly of small, cleaved lymphocytes, with loss of normal follicle architecture. HE, 200×.

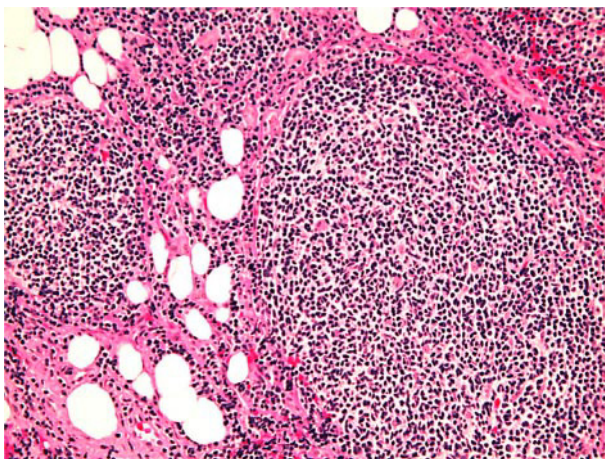
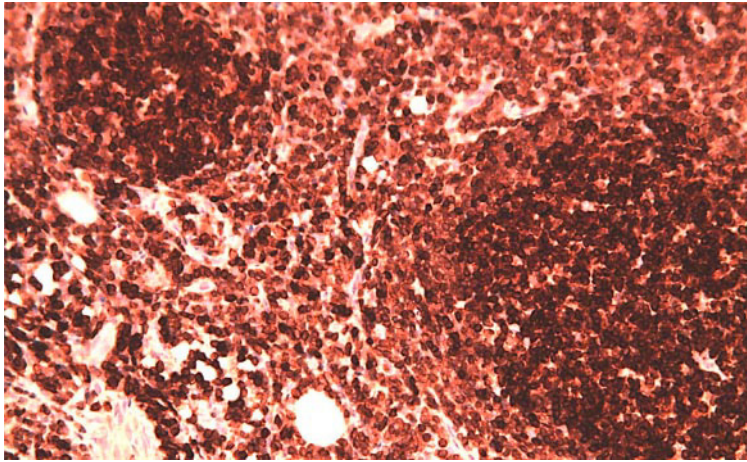


Fig. 5. The neoplastic follicles are composed of B lymphocytes, as shown by staining with CD20. Immunohistochemistry, 200×.



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