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【 CASE REPORT 】

Lesser Omental Panniculitis

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Abstract:
A 44-year-old woman presented to our hospital with abdominal pain. Abdominal ultrasonography and computed tomography showed a mass-like change in the lesser omentum between the liver and stomach. Esophagogastroduodenoscopy revealed a submucosal tumor-like change, and endoscopic ultrasonography (EUS) revealed that the mass was located outside of the stomach wall. We performed EUS fine-needle aspiration and diagnosed panniculitis of the lesser omentum. Based on these findings, we suggest that mass-like lesions in the lesser omentum and submucosal tumor-like changes in the anterior wall on the lesser curvature side of the stomach be evaluated for the possibility of panniculitis of the lesser omentum.

Key words: lesser omentum, panniculitis, endoscopic ultrasonography

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Introduction

Panniculitis is an inflammatory disease of the subcutaneous adipose tissue and rarely occurs in the abdominal cavity. The etiology and pathogenesis are unclear, and the pathological characteristics of the disease are nonspecific. In addition, in most reported cases, intra-abdominal panniculitis is found in the mesentery (1, 2). Intra-abdominal panniculitis involving the omentum is infrequent.

We herein report an extremely rare case of panniculitis of the lesser omentum.

Case Report

A 44-year-old woman presented to our department with complaints of epigastric pain and upper left quadrant abdominal pain. She had a fever for only one day, which occurred a few days before the hospital visit. Her medical history included rheumatoid arthritis, which was treated with methotrexate, folic acid, and golimumab.

A physical examination showed epigastric tenderness without rebound tenderness or muscular defense. A laboratory examination revealed a normal white blood cell count of 8,800/μL, but her C-reactive protein level was elevated at 4.98 mg/dL. Abdominal ultrasonography showed a hyperechoic mass of 44 mm ×16 mm in diameter, which was in contact with the side of the lesser curvature of the stomach (Fig. 1). The mass was thought to be intraperitoneal, adjacent to the lesser curvature of the stomach, or a submucosal tumor of the stomach. Furthermore, abdominal contrast-enhanced computed tomography (CT) showed a mass-like lesion with marked heterogeneity and inflammatory changes. The mass-like lesion was located in the lesser omentum between the liver and stomach (Fig. 2). For this mass-like lesion, abdominal magnetic resonance imaging (MRI) showed moderate signal intensity on T1-weighted in-phase imaging, a low signal intensity on out-of-phase imaging, and moderate signal intensity on T2-weighted imaging. Abdominal contrast-enhanced MRI revealed a relatively uniform and mild contrast effect from the early to equilibrium phase. In the fat-suppression phase, the lesion was depicted as a high-intensity area, with the same findings noted on diffusion-weighted imaging (Fig. 3). Esophagogastroduodenoscopy (EGD) was performed because the mass was in contact with the stomach. EGD revealed a submucosal tumor-like smooth-surface swelling of approximately 40 mm in diameter in the anterior wall on the lesser curvature side of the stomach (Fig. 4). On endoscopic ultrasonography (EUS), the mass was located outside of the stomach wall, and the submucosal tumor-like lesion was considered to be an extramural compression on the stomach wall. The internal echo of

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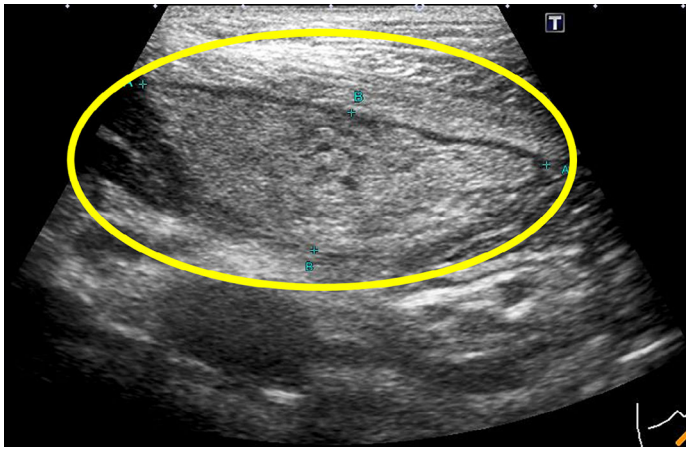

Figure 1. **Abdominal ultrasonography image showing a hyperechoic mass lesion (circle).**

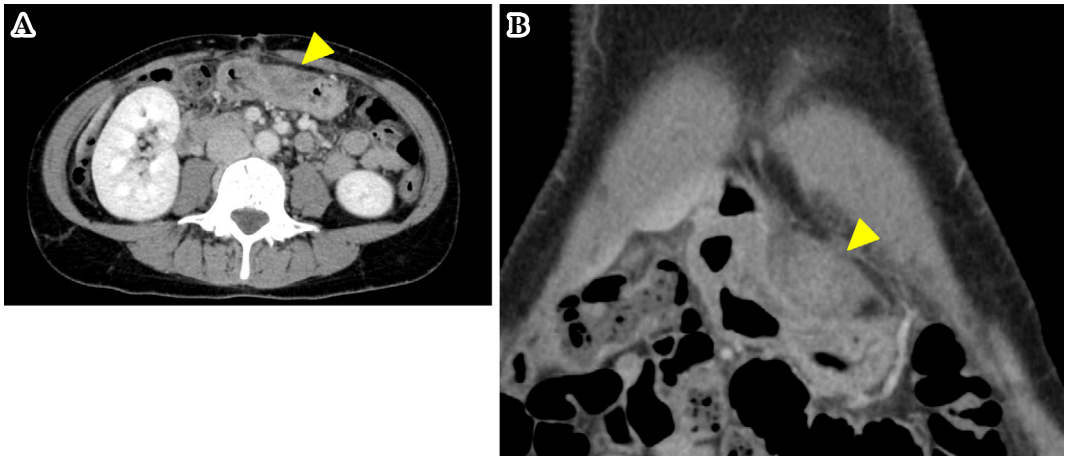

Figure 2. **Computed tomography (CT) image of the abdomen showing the mass located in the lesser omentum (arrow) in the axial image (A) and coronal image (B).**

the mass was relatively uniform, and the mass was hypovascular on color Doppler (Fig. 5A, B). Based on these findings, a mass lesion formed by a lesser omental panniculitis was suspected. However, it was considered necessary to generate a differential diagnosis and to exclude neoplastic lesions.

Therefore, EUS fine-needle aspiration (FNA) was performed (Fig. 5C), and the findings showed the presence of only adipose tissue, inflammatory cells, and fibrosis with no dysmorphic cells, leading to a diagnosis of panniculitis of the lesser omentum (Fig. 6). The patient's symptoms disappeared after about two weeks with conservative treatment with an analgesic. CT performed after eight weeks and five months showed that the lesion of panniculitis had improved, and the patient followed an uneventful course (Fig. 7).

Discussion

Intra-abdominal panniculitis is a rare entity of unknown etiology characterized by inflammation of abdominal adipose tissue. The most frequently affected site in the abdomen is the small-bowel mesentery, but panniculitis also rarely involves other adipose tissues (omental, retroperitoneal, mesocolonic, peripancreatic, and pelvic) (1, 2). Isolated omental panniculitis is a rare form of intra-abdominal panniculitis, mainly involving the mesenteric adipose tissue of the small intestine or colon (3). Isolated omental panniculitis mostly develops in the greater omentum, whereas panniculitis of the lesser omentum is extremely rare (4). In this case, panniculitis occurred in the lesser omentum. Furthermore, the preoperative diagnosis of intra-abdominal panniculitis is difficult because of its rarity. However, the increased use of abdominal CT has increased the frequency of a diagnosis of intra-abdominal panniculitis, including omental panniculitis (5).

The characteristic CT findings of mesenteric panniculitis, the most frequent form of intra-abdominal panniculitis, include a tumoral pseudocapsule (a fatty mass separated from the base of the mesentery), an adipose ring (a normal adipose tissue surrounding the mesenteric vessels), and an intra-abdominal mass displacing the adjacent bowel loops without invasion (6-8). Grenier et al. reported characteristic

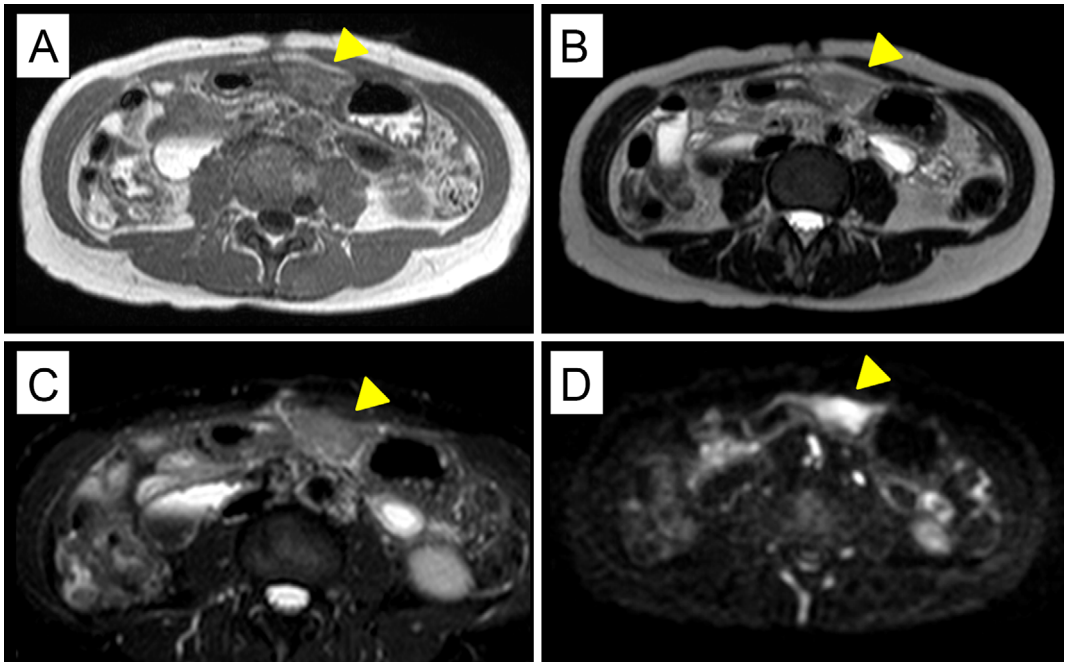

Figure 3. **Abdominal magnetic resonance imaging showing a moderate-intensity mass (arrow) on T1 (A), a low-intensity mass on T2 (B), a high-intensity mass on fat-suppression imaging (C), and a high-intensity mass lesion on diffusion-weighted imaging (D).**

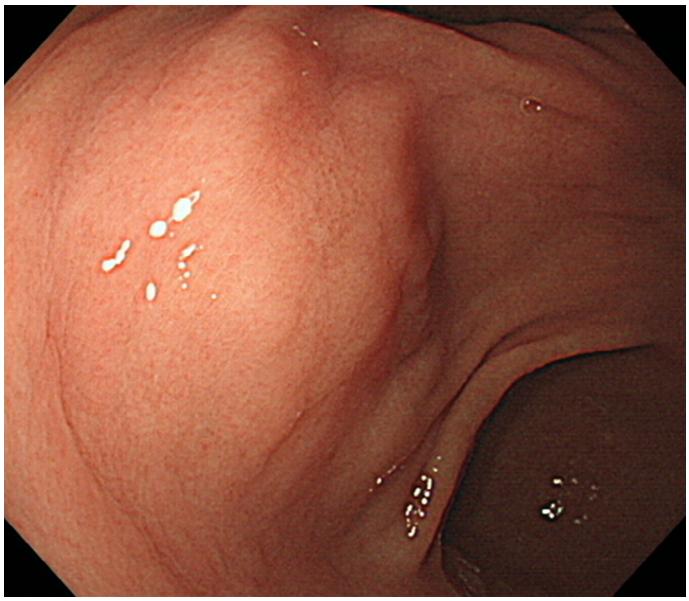

Figure 4. **Endoscopy image showing a submucosal tumor (SMT)-like change of approximately 40 mm in diameter in the anterior wall on the side of the lesser curvature of the stomach.**

findings of panniculitis of the greater omentum on CT as an encapsulated heterogeneous mass of fatty density with fibrous bands and fascial thickening (9). Furthermore, Miyoshi et al. reported the endoscopic and radiographic findings of compression of the lesser curvature of the stomach and findings of a mass-like lesion in the lesser omentum, and inflammatory changes were revealed by abdominal ultrasonography and CT (4).

In the present case, abdominal ultrasonography and CT revealed a mass-like lesion in the lesser omentum and the resultant compression of the lesser curvature of the stomach. In addition, EGD revealed a submucosal tumor-like change in the anterior wall on the lesser curvature side of the stomach. The findings in this study were consistent with previously described features of panniculitis of the lesser omentum (4).

A definitive diagnosis of panniculitis can be made by a pathological examination. In previous reports of omental panniculitis, the diagnoses were made by surgery, such as a surgical biopsy, partial excision of the mass lesion, subtotal

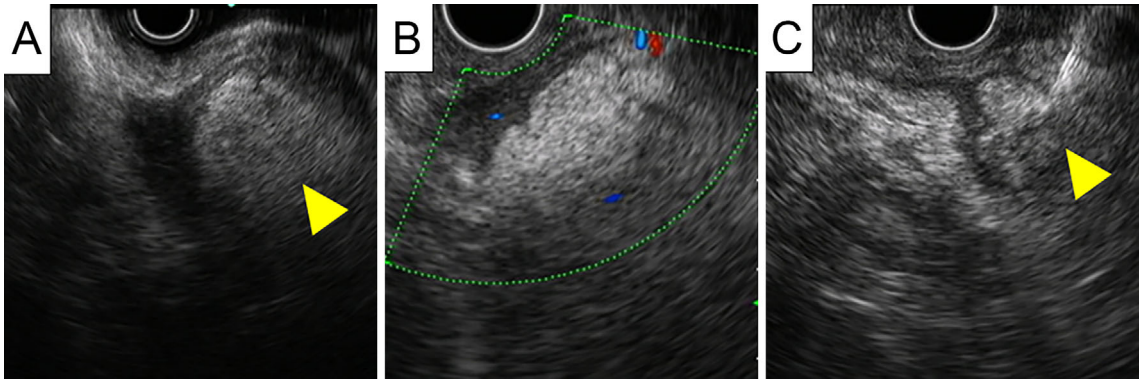

Figure 5. **Endoscopic ultrasonography (EUS) revealed that the mass was located outside of the stomach wall (arrow). (A) The internal echo of the mass was relatively uniform, and the mass was hypovascular on color Doppler (B); EUS-FNA was performed (arrow) (C).**

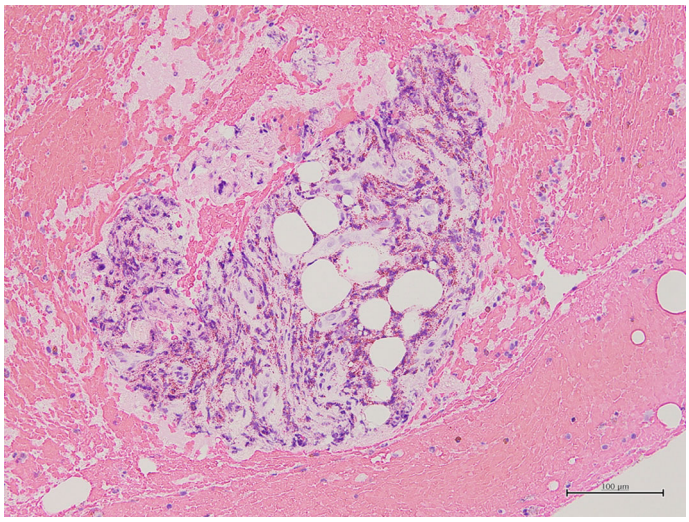

Figure 6. **Hematoxylin and Eosin staining showing the presence of only adipose tissue, inflammatory cells, and fibrosis.**

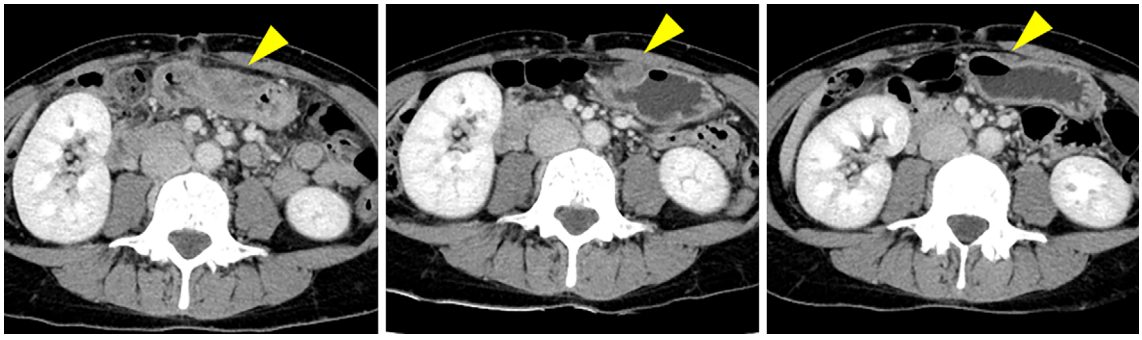

Figure 7. **CT image on admission (left), after 8 weeks (middle), and after 5 months (right).**

omentectomy, and partial colectomy along with excision of the mass of the greater omentum (10-13). However, it has been reported that a percutaneous CT-guided biopsy can avoid the need for invasive surgical procedures to diagnose omental panniculitis (5). In the present case, we selected tissue sampling via EUS-FNA as the diagnostic procedure, based on the imaging features of panniculitis of the lesser omentum and the presence of tumor-like changes adjacent to the lesser curvature of the stomach. EUS-FNA was considered to be safer than a percutaneous CT-guided biopsy, as it reduces the risk of damaging intra-abdominal organs because the mass was in contact with the stomach. However, there are limitations associated with this method. Malignancy cannot be completely ruled out with EUS-FNA, as only small samples can be obtained. In the present case, only a small amount of sample was obtained, which may

have been insufficient for the evaluation. However, the histological features seen on EUS-FNA were consistent with the previously reported CT-guided biopsy and surgical findings of panniculitis of the lesser omentum, suggesting lesser omental panniculitis. To rule out malignancy and confirm the reduction of the mass-like lesion, a short follow-up CT scan was required. The mass-like lesion had improved, and we diagnosed the patient with lesser omental panniculitis.

As the use of EUS-FNA increases, the frequency of a diagnosis of omental panniculitis is expected to rise, suggesting that invasive diagnostic procedures, such as surgery, can be avoided in patients with suspected panniculitis of the lesser omentum.

Conclusion

This case showed the characteristic imaging findings of omental panniculitis. Cases with a mass-like lesion in the lesser omentum and a submucosal tumor-like change in the anterior wall on the lesser curvature side of the stomach should be evaluated for the possibility of panniculitis of the lesser omentum. This study also suggests that EUS-FNA may be useful for the diagnosis of panniculitis of the lesser omentum. The results of this case report suggest that EUS-FNA can be used to avoid highly invasive procedures, such as exploratory laparotomy and a laparoscopic biopsy, for the diagnosis of panniculitis of the lesser omentum. In addition, follow-up of the inflammation in the lesion can be performed using ultrasonography and CT, as the imaging characteristics become clear.

The authors state that they have no Conflict of Interest (COI).

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