Spontaneous gastrosplenic fistula: a rare complication of splenic diffuse large cell lymphoma

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Abstract
A gastrosplenic fistula is a very rare complication with a gastric or splenic lesion. Splenic, diffuse, large cell lymphoma may be one cause of this distinctive complication. We present a patient with spontaneous gastrosplenic fistula secondary to pathologically proven diffuse splenic large cell lymphoma, with radiography and computed tomography.

Key words: Fistula, gastrosplenic—Splenic malignancies, lymphoma—Computed tomography.

Case report
A 24-year-old man was admitted to our hospital for left upper quadrant abdominal pain, where a huge mass was palpable. He had lost approximately 3 kg during the previous month. Routine abdominal radiography at admission showed a large mass in the left upper quadrant, with internal, mottled air densities (Fig. 1A). The gastric fundus was medially displaced by the mass. Abdominal CT showed a large, necrotic, splenic mass with a thin fistulous tract between the gastric lumen and the air-filled splenic cavity (Fig. 1B). The gastric fundus wall abutted the splenic mass without an intervening fat plane, representing invasion. The splenic mass extended to the splenic hilum, with splenic artery encasement and splenic venous thrombosis. We diagnosed a splenic malignant lymphoma with a spontaneous gastrosplenic fistula. Upper gastrointestinal endoscopy confirmed a deep, ulcer-like opening in the gastric fundus. Histopathologic results of endoscopic biopsy and ultrasound-guided biopsy were consistent with malignant lymphoma, diffuse large cell type. Half-dose chemotherapy was performed to reduce tumor size. After chemotherapy, follow-up abdominal radiography clearly delineated a radiolucent fistulous tract between the gastric fundus and the left upper quadrant mass (Fig. 2A). Follow-up abdominal CT showed regression of the splenic mass, with prominent central necrosis. A gastrosplenic fistula was well delineated as a focal wall defect (Fig. 2B). The patient underwent splenectomy, gastric wedge resection, and distal pancreatectomy. The gastrosplenic fistula was confirmed in the gross specimen.

Discussion
Some gastric or splenic diseases may have the unique complication of a gastrosplenic fistula, resulting in air
bubbles within the spleen. Splenic lymphoma, gastric adenocarcinoma, Crohn disease, and benign gastric ulcer are known causes [2]. For gastrosplenic fistula formation in splenic lymphoma, extensive central necrosis and gastric wall invasion are required. For this reason, there have been case reports of gastrosplenic fistula after chemotherapy [1, 2]. However, as in our case, this complication can occur spontaneously without chemotherapy.

Harris et al. suggested that diffuse, large cell lymphoma is a distinctive clinical and pathological entity that has a characteristic, large, destructive mass with extensive central necrosis and easy capsular penetration [4]. In their clinicopathologic study of 10 cases, nine cases of splenic, large cell lymphoma transgressed the capsule. The CT appearance of splenic, large cell lymphoma was named splenomegaly, with large solitary or multiple areas of low attenuation, by Meyer et al. [5]. However, they did not emphasize the tendency of adjacent organ invasion, although they had cases of diaphragmatic, gastric, and pancreatic invasions. We think that these characteristic features of splenic, diffuse, large cell lymphoma may contribute to gastrosplenic fistula formation.

If there are air bubbles within the spleen, differentiation between an abscess and the fistula to the gastrointestinal tract is important for treatment planning. Moreover, clinical findings of the splenic lymphoma itself are confused with splenic abscess. Thus, radiologists should be aware of this unique complication as one manifestation in a patient with splenic, diffuse, large cell lymphoma. The fistulous tract can indicate the proper diagnosis because the presence of air does not exclusively indicate an abscess. CT visualization of the fistulous tract or retrograde

**Fig. 1.** A 24-year-old man with pathologically proven splenic diffuse large cell lymphoma at admission. A Abdominal radiography shows a large mass in the splenic area. Mottled air densities (arrows) are seen in the upper portion of the mass. The gas-filled gastric fundus is mediially displaced by the mass (arrowheads). B Abdominal CT shows a large necrotic splenic mass with internal air bubbles. A thin fistulous tract (arrows) is seen between the gastric lumen and the air-filled splenic necrotic cavity.

**Fig. 2.** After chemotherapy. A Follow-up abdominal radiography clearly shows a radiolucent fistulous tract (arrows) between the gastric lumen and the splenic mass. B Follow-up abdominal CT shows prominent central necrosis of the splenic mass with an air–fluid level. A gastrosplenic fistula (arrow) is clearly visible.