Cystic lymphangioma is a rare benign submucosal tumor of the stomach thought to originate from sequestered lymphatic tissue that fails to communicate with the normal lymphatic system. The most commonly used method of evaluation for cystic lymphangioma of the stomach is an endoscopic ultrasonography. We report the multidetector-row computed tomography findings of a cystic lymphangioma of the stomach in a 46-year-old man along with a literature review.

Index words: Lymphangioma, cystic
Stomach
Tomography, X-Ray Computed

Case Report

A 46-year-old man was admitted with abnormal gastric endoscopy findings. At the time of screening, the patient had no symptoms or any previous remarkable medical history, including gastritis or peptic ulcer disease. Also, a physical and routine laboratory examination, including a complete blood count and chemistry profile, was unremarkable. The gastric endoscopy examination showed a well-defined lobulated mass with normal covering mucosa. The size was of the mass was about 3.5 cm in diameter and was located in the greater curvature side of the gastric antrum (Fig. 1A). The lesion was soft enough to be compressed with biopsy forceps. Hence, the examining gastroenterologist concluded that the most probable diagnosis of this lesion would be a benign submucosal tumor (e.g. gastrointestinal stromal tumor or cystic lesion).

After admission, an endoscopic ultrasonography (EUS) was performed for further characterization of the lesion. The EUS was performed using the EUM-30 endoscope (Olympus, Japan). The results of the EUS
demonstrated that the lesion had a homogeneous anechoic cystic mass confined to the submucosal layer. In addition, no septation or solid component was identified within the lesion [Fig. 1B]. Next, a MDCT was performed to assess the extent of the lesion as well as the associated findings in the abdomen. The CT scan was performed using a MDCT scanner (Lightspeed VCT, GE Healthcare, Milwaukee, WI, U.S.A.) with 64 detectors. MDCT scans were obtained using the following parameters: 290 mA, 120 kVp, a section thickness of 5 mm, a reconstruction interval of 5 mm, and a pitch of 0.984:1. The direct multiplanar reformation function was used to generate coronal and sagittal reformations using a section thickness of 3 mm as well as a reconstruction interval of 3 mm. For the axial image, a 3.5 cm low density mass was demonstrated in the anterior wall of the gastric antrum (Fig. 1C). In addition, the sagittal reformation showed the mass with a smooth surface and a broad base on greater curvature side of the gastric antrum. Moreover, it had a thin enhancing wall covering representing the normal mucosal layer and was confined to the stomach [Fig. 1D]. We could clarify an exact extent and location of the lesion using a multiplanar reformation of the MDCT. The mean Hounsfield unit

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**Fig. 1.**

A. The gastric endoscopy examination indicates a well-defined lobulated mass with normal covering mucosa in the greater curvature side of the gastric antrum [arrow].

B. The endoscopic ultrasonography revealed a homogeneous anechoic cystic mass confined to the submucosal layer [arrow]. No internal septation or solid component was present within the lesion.

C. The MDCT axial image shows a small low density mass [arrows] in the anterior wall of the gastric antrum, which has a thin enhancing wall covering representing the normal mucosal layer.

D. The sagittal reformation image shows the mass [arrow] with a smooth surface and a broad base on the greater curvature side of the gastric antrum, which is confined to the stomach.
(HU) of the low density portion of the mass was about 20 HU. This measurement represented the cystic mass, which was slightly higher than gastric fluid. Moreover, there was no perigastic fat infiltration around the mass and regional lymph node enlargement. Considering these imaging findings, we considered a duplication cyst, ectopic pancreas with cystic change, cystic lymphangioma, and other benign tumors with cystic change as part of the suite of differential diagnosis. The patient underwent a wedge resection of the stomach. Upon light microscopic examination, unusual dilated lymphatic channels were identified in the submucosal area (Fig. 1E). The overlying endothelial cells of the lymphatic channels were positive for D2-40, which represented a lymphatic endothelial immunohistochemical marker (Fig. 1F). These findings were consistent with cystic lymphangioma. After surgery, the patient was discharged without any complications.

Discussion

Cystic lymphangioma is a benign malformation of the lymphatic system. The vast majority (-95%) of lymphangiomas are found in the neck and axilla regions. Other locations include the mediastinum, omentum, mesentery, retractor site and bone (5). Cystic lymphangioma of the stomach and duodenum is very rare. Histologically, this lesion consists of irregularly dilated lymphatic channels lined with benign-appearing endothelial cells. Cystic lymphangioma are thought to be developmental malformations arising from sequestered lymphatic tissue (6). Furthermore, these lesions often have a cystic appearance because of the progressive accumulation of fluid.

Clinically, most cases of cystic lymphangiomas are asymptomatic and are detected incidentally. On occasion, they are large enough to cause obstruction or intussusception, depending on the size and location of the mass (7). A cystic lymphangioma can be demonstrated as a submucosal tumor with overlying normal musoca by a gastric endoscopy. However, it is difficult to differentiate cystic lymphangioma from other submucosal tumors such as leiomyoma, lipoma, carcinoid tumor, solitary submucosal varix, as well as others (8). As a result, the EUS has become a standard tool in assessing gastric submucosal tumors since it can provide an assessment of the internal components of submucosal tumors in the stomach (4). Tsai et al. (9) reported that the characteristic EUS findings of cystic lymphangiomas were anechoic cystic lesions located in the submucosal layer with multiple inner septations. As a result, the conventional CT could not delineate the inner septations due to poor image resolution compared with EUS. In effect, cystic lymphangioma may appear as a non-enhancing submucosal mass with an internal homogeneous low density which renders it difficult to differentiate from other cystic lesions of the stomach (e.g., enteric duplication, resolving hematoma, necrotic tumor, and cystic change of the heterotopic pancreas) (10).

Recently, the introduction of MDCT enables the accu-
rate evaluation of the type of stomach tumor. A MDCT also provides improved spatial resolution, which in turn provides good quality multiplanar reformation compared to the single detector CT. In our case, a MDCT properly demonstrated the extent and location of cystic lymphangioma and its internal component; however, no internal septation was seen in the cystic mass on MDCT findings. This was consistent with our EUS and pathologic findings. The treatment of gastric cystic lymphangioma depends on the size, location, and complications associated with the tumor. In the case of a large lesion, surgical resection is usually the modality of choice. However, observation or endoscopic manipulation is also considered as possible treatment modalities in the case of small cystic lesions [8].

In this case report, we describe the MDCT findings of cystic lymphangioma in the stomach using a multiplanar reformation. Although cases of gastric cystic lymphangioma are highly unusual, it should be considered in the differential diagnosis of the various types of cystic lesions of the stomach. Cystic lymphangioma is presented as a well-defined low density cystic lesion with an intact overlying thin normal mucosa with or without internal septations on MDCT.

References