Case Report

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Hyaline-Vascular Variant of Castleman's Disease Mimicking a Gastric Submucosal Tumor

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Castleman's disease is a rare lymphoproliferative disorder with unknown underlying cause. Three histologic variants (hyaline-vascular, plasma cell and mixed) as well as 2 clinical groups (localized and multicentic) have been described. Most patients with the hyaline-vascular variant are asymptomatic other than localized pressure from the mass. Hyaline-vascular Castleman's disease was commonly found as intrathoracic presentation. Extrathoracic lesions have been reported in the retroperitoneum, mesentery, central nervous system, orbit, pelvis, neck, axilla, and skeletal muscles. Herein, we report a case of hyaline-vascular Castleman's disease mimicking a gastric submucosal leiomyoma that has rarely been reported in English literature review. The lesion was not actually developing from the stomach, however, the clinical presentation was mimicking a submucosal gastric tumor. Furthermore, the patient in this case had both chronic hepatitis C and splenosis. The relationship between the underlying diseases and the development of the CD deserves further investigations.

Key Words
chronic hepatitis C;
giant lymph node hyperplasia;
stomach neoplasms

Castleman's disease (CD) was first described in 1956 in a group of patients who presented with mediastinal masses that were initially assumed to be thymomas.[1] It was characterized by hyperplasia of lymphoid follicles, with or without germinal center formation, as well as capillary proliferation with endothelial hyperplasia. CD is currently classified into 2 major subgroups: the more common unicentric (localized) CD and multicentric (disseminated) CD. There are 3 histologic variants: hyaline-vascular, plasma cell, and transitional type, also designated as mixed type.[2] For localized disease, surgical intervention is almost curative regardless of the histologic type. On the other hand, multicentric disease is currently regarded as a potentially malignant lymphoproliferative disorder with aggressive clinical presentation and systemic treatment as chemotherapy is often needed.[3] Unlike the plasma-cell variant that usually presents fever, weight loss and pruritus during the course of illness, hyaline vascular variant is typically characterized by a benign clinical course without constitutional symptoms other than localized pressure from the mass. Intrathoracic distribution of CD is commonly seen[2], and extrathoracic distribution of CD is relatively rare. Retroperitoneum, mesentery, central nervous system, orbit, pelvis, neck, axilla and skeletal muscle have been reported as extrathoracic CD lesions.[3-6] To our best knowledge, the present case is extremely rare that presented as a gastric submucosal tumor.[7]

CASE REPORT

A 51-year-old female visited our outpatient department due to the history of chronic hepatitis C with

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persistent abnormal liver function tests. She underwent splenectomy 20 more years before due to traumatic spleen rupture in a traffic accident. Pre-operative laboratory survey including liver function tests was essentially normal. However, non-A non-B post-transfusion hepatitis was noted later in the outpatient clinic. In 1990, the presence of serum antibody to hepatitis C virus (anti-HCV) was confirmed by her regular follow-up tests. On her routine abdominal sonography examination in 1999, a hypoechoic mass sized 2 cm in diameter over epigastric area adjacent to left hepatic lobe was incidentally found. The following abdominal computed tomography revealed a well-defined mass lesion, sized about 4 × 3 cm abutting to the gastrohepatic ligament and esophageogastric junction (Fig. 1). Another soft tissue mass measuring 4 × 2.5 cm over left adrenal region was also noted and was considered as an accessory spleen.

Upper gastrointestinal endoscopy was performed later to show a nodular submucosal lesion over gastric fundus, sized 2 cm in diameter with intact mucosa. Gastric submucosal tumor was considered for clinical priority. Surgical treatment was performed after thorough discussion with the patient. During the operation, a 4 × 4 × 3 cm solid tumor with pedicle over the greater curvature side (anterior wall of fundus) without gastric wall involvement was noted. The mass was completely removed. Microscopic findings of the excised mass revealed lymph node tissue with germinal centers, which also demonstrated well-developed vascular hyaline changes without notable gastric tissue in the specimen (Figs. 2 and 3). The final pathological diagnosis was Castleman's disease of hyaline-vascular type.

Magnetic resonance imaging of upper abdomen was performed later for the suspicious lesion over left adrenal gland. It disclosed a 3.5 × 2 × 3.5 cm mass in left subphrenic space behind the gastric fundus, which was isointense on T1 and T2-weighted images before and after intravenous administration of Gd-DTPA. The mass showed inhomogeneous enhancement in the arterial phase and became homogeneously hyperintensive in the delayed phase,

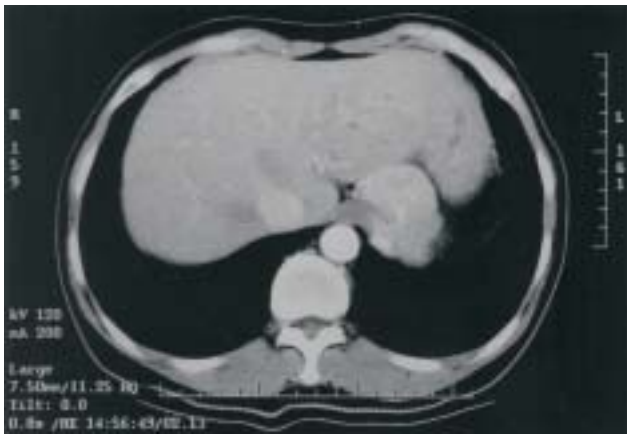

Fig. 1. Post-contrast abdominal computed tomography in arterial phase revealed a well-defined mass lesion about 4 × 3 cm in size with stronger enhancement than liver parenchyma, abutting to the gastrohepatic ligament and esophageogastric junction.

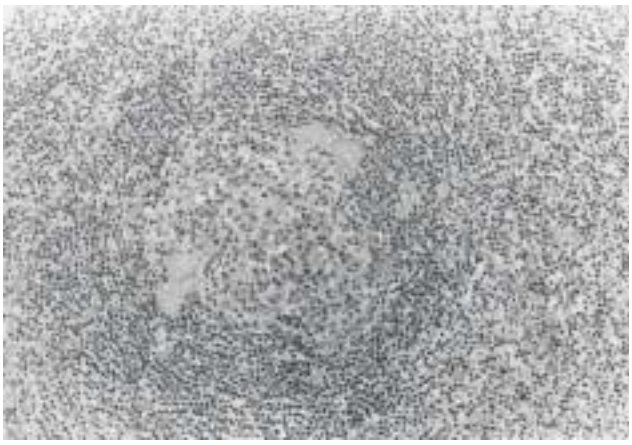

Fig. 2. The follicle showing marked vascularity and hyalinization of the germinal center. There is a tight concentric layering of lymphocytes at the periphery of the follicles (corresponding to the mantle zone) resulting in an onion-skin appearance.

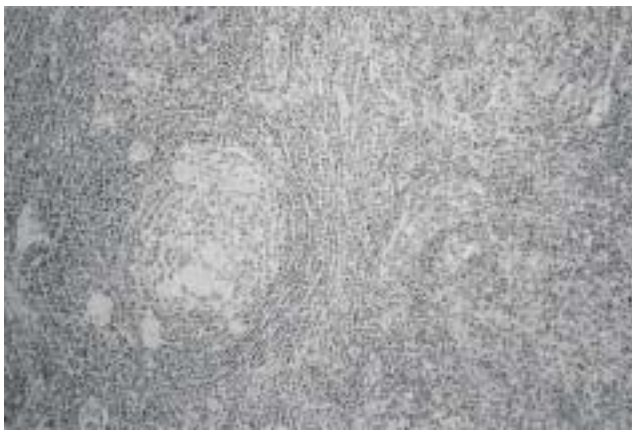

Fig. 3. Microscopic exam of the resected mass showing a follicle with regressively transformed germinal centers surrounded by concentrically arranged mantle zone lymphocytes. Interfollicular vascularity is prominent.

which was compatible with post-splenectomy splenosis. Moreover, the spleen nuclear scintigraphy scan with Tc-99m- tagged red blood cell showed an ovoid area measuring about 2.8 cm in diameter with progressive accumulation of radioactivity in the left posterior upper quadrant of abdomen, and the impression of splenosis implant was confirmed.

The patient was discharged from our hospital with good recovery and no notable recurrence of Castleman's disease on routine radiographic survey was disclosed during her regular follow-up for chronic hepatitis C.

DISCUSSION

CD is a rare lymphoproliferative disorder with predominantly intrathoracic involvement. In this presenting case, it is interesting to recognize the CD mimicking a gastric submucosal tumor. However, another mass lesion located in the left suprarenal area on the imaging studies was simultaneously found with the CD lesion. This suprarenal mass was later confirmed as a splenosis, which may be the consequence of splenic rupture.[8] It is important to distinguish between this CD and the splenosis. According to imaging studies, the splenosis implant, about 4 cm in diameter, was found at the left subphrenic space posterior to the gastric fundus. The other mass lesion of CD was first discovered by abdominal sonography at epigastric area adjacent to left hepatic lobe, which was then interpreted as a possible submucosal leiomyoma on the computed tomography. The following upper gastrointestinal endoscopy also indicated a possible gastric submucosal lesion. Subsequently, a surgery was performed to find a mass sized 5 × 4 × 3 cm on surface of greater curvature side of the stomach, and Castleman's disease of hyaline-vascular type was finally conformed by pathology.

Although the accessory spleen and the CD share some similar microscopic characteristics, CD has its distinctive features. CD consists of regressively transformed germinal centers surrounded by variably-sized mantle zones and a prominent interfollicular vascularity in the absence of sinuses. On the other hand, the spleen has 2 major anatomic parts: the white pulp and the red pulp-separated by an ill-defined interspace known as the marginal zone. The white pulp is made up of T and B lymphocytes, the former located in the periarteriolar lymphoid sheath and the latter eccentrically to the sheath in the form of primary lymphoid follicles. These lymphoid follicles contain germinal centers, particularly in children. The red pulp consists of a complex network of venous sinuses and cords. In the present case, the microscopic finding of the excised specimen revealed the above features of CD without presence of red pulp or sinuses. The splenosis was confirmed by both magnetic resonance imaging and spleen nuclear scintigraphy scan.

Chronic hepatitis C infection was known as being prone to develop some lymphoproliferative diseases.[9] CD is known as a lymphoproliferative disease as well. However, CD lesion was not noted in our patient when she received splenectomy. The history of blood transfusion during splenectomy more than 20 years before may be the possible route of her hepatitis C virus (HCV) infection. The CD lesion should develop after she was infected by HCV, since patients with chronic HCV infection were likely to associate with lymphoproliferative diseases such as CD. Consequently, there was probably some, although not well-established, relationship between her chronic hepatitis C infection and the later development of CD. The possibility that CD can be another extrahepatic manifestation of chronic HCV infection deserves further investigations.

In conclusion, we presented a rare case of CD with hyaline-vascular variant, which initially mimicked a gastric submucosal tumor, and the relationship between chronic HCV infection and the development of CD needs to be elucidated.

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