

Cavernous hemangioma arising from the lesser omentum: MR findings

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Received: 1 December 1999/Accepted: 12 January 2000

Abstract

We report the magnetic resonance findings of an unusual hemangioma in the lesser omentum. A well-circumscribed, large mass was identified between the stomach and the left lobe of the liver, with compression of adjacent liver parenchyma. The mass showed low signal intensity (SI) on T1-weighted images, high SI on T2-weighted images with multiple septa, and slightly decreased SI on out-of-phase T1-weighted images. After gadolinium contrast administration, septa within the mass showed minimal enhancement on 30-s T1-weighted images and mild enhancement on 5-min T1-weighted images. The mass was histopathologically diagnosed as a cavernous hemangioma comprised of multiple vascular spaces, fibrotic tissue, and adipocytes.

Key words: Hemangioma—Lesser omentum—Magnetic resonance imaging.

Hemangioma is the most common type of benign hepatic neoplasm [1, 2] and is also detected in the other abdominal organs such as the spleen, retroperitoneum, adrenal gland, colon, mesentery, mesocolon, and mesoappendix [3]. Reported tumors arising from the lesser omentum include leiomyoma, cystic lymphangioma, neurogenic tumor, angioleiomyoma, and fibroma [4, 5]. To our knowledge, there has been no report of hemangioma arising from the lesser omentum. We report the magnetic resonance (MR) findings of a case of hemangioma arising from the lesser omentum.

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Case report

A 34-year-old female presented with a complaint of intermittent abdominal pain and indigestion. Abdominal ultrasound suggested a mass between the lateral segment of the liver and the stomach. On computed tomography, the mass showed a slightly lobulated border, with minimal enhancement on the postcontrast delayed images, hypodense in relation to liver parenchyma. MR imaging demonstrated a 5-cm well-circumscribed tumor in the lesser omentum, compressing the adjacent liver parenchyma. The mass showed slightly low signal intensity (SI) on T1-weighted images (Fig. 1A) and very high SI on T2-weighted images, with a lobulated margin and multiple septa (Fig. 1C). The mass showed slightly decreased SI on out-of-phase T1-weighted images (Fig. 1B), indicating internal fatty composition. On postcontrast dynamic images, the mass had minimal septal enhancement on 30-s postgadolinium T1-weighted images and irregular mild enhancement on 5-min postgadolinium T1-weighted images (Fig. 1D). Resection of the tumor was performed, with surgical confirmation of the location within the lesser omentum and identification of a free margin adjacent to but not involving the liver. Histologic assessment confirmed a cavernous hemangioma. The mass had multiple vascular spaces and fibrosis and was unusual in that there was a considerable amount of adipocytes intermingled within the tumor (Fig. 1E).

Discussion

On MR imaging, hepatic hemangiomas typically have high SI on T2-weighted images and a characteristic enhancement pattern on postgadolinium T1-weighted images [6], showing peripheral, discontinuous nodular enhancement on the early phase and progressive, complete or nearly complete central filling enhancement on delayed images.

Cavernous and venous hemangiomas typically show a uniform high SI on T2-weighted images, whereas capillary hemangiomas tend to be less intense because of T2 shortening due to different degrees of fibrosis and hemosiderin deposition [7]. In general, venous hemangiomas are indistinguishable from cavernous hemangiomas on T2-weighted MR images. Cavernous hemangiomas are



Fig. 1. A 34-year-old woman with a cavernous hemangioma in the lesser omentum. **A** On the T1-weighted image, a well-circumscribed lobulated mass, with slightly low SI and multiple septa, is seen in the lesser omentum, posterior to the left lobe of liver. **B** On the out-of-phase T1-weighted image, the SI of the mass is decreased comparing with that of the liver parenchyma, indicating internal fatty composition. **C** On the T2-weighted image, the mass shows the very bright SI, with lobulated border and internal septa. **D** On the 5-min postgadolinium T1-weighted image, the mass shows irregular, mild enhancement, without evidence of central filling of contrast agent. **E** Histology shows the wide vascular spaces with red blood cells, intermingled with abundant adipocytes and fibrotic tissues (hematoxylin and eosin, 100 \times).

composed primarily of large vascular lakes and channels. Some of these channels can undergo thrombosis and fibrous organization [1].

Hemangiomas generally have long T1 and T2 values, thus maintaining SI on longer echo times (e.g., >120 ms) [8]. However, T2 measurements are substantially shorter than those of cysts. Linear, punctate, and serpentine struc-

tures representing feeding arteries or cavernous elements may show early filling by contrast medium and manifest as flow-void areas on delayed contrast-enhanced images. Our case, however, did not show the typical enhancement pattern but rather demonstrated minimal septal enhancement on 30-s postgadolinium images and irregular and mild enhancement on 5-min postgadolinium images.

Previously, nonenhancement of hepatic hemangiomas has been attributed to slow flow in the central sinusoids, central fibrosis, central thrombosis, or hemorrhage [1]. However, in the present case, we postulate that the central, irregular, and mild enhancement may be due to an abundance of adipocytes within the hemangioma, demonstrated on MR as decreased SI on out-of-phase T1-weighted images, and confirmed at histopathology.

In conclusion, hemangioma should be included as a rare tumor in the differential diagnosis of a mass arising from the lesser omentum.

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