Sclerosed Hemangioma of the Liver: a rare variant of hemangioma

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ABSTRACT

Sclerosed hemangioma is a rare variant of hemangioma. We present herein a case of hepatic sclerosed hemangioma. Imaging studies including ultrasonography (US), computed tomography (CT) and magnetic resonance imaging (MRI) showed a mass located between the liver and the stomach, with marginally streaky enhancement. A malignant neoplasm originating from the mesentery was suspected preoperatively. After surgical resection, the pathological diagnosis was sclerosed hemangioma, a rare variant of hemangioma. The radiological features of sclerosed hemangioma are different from those seen in typical hepatic hemangiomas, and sclerosed hemangioma is usually considered a malignancy preoperatively. The radiological features of the rare neoplasm were identified in this case.

CASE REPORT

A 54-year-old male was admitted for work-up of an abdominal tumor, which was found during a health check-up. Ultrasonography (US) showed a well-defined hypoechoic tumor, 5x4 cm, possibly in the lateral segment of the left hepatic lobe. Physical examination and laboratory data at admission showed unremarkable findings. Tumor markers including α-fetoprotein (AFP), CA125, CA19-9 and carcinoembryonic antigen (CEA) were normal.

Triphasic abdominal CT performed for further work-up revealed a hypodense soft tissue mass, 8 × 6 × 5 cm, located between the left hepatic lobe and the stomach. Streaky enhancement in the peripheral zones of the tumor was noted in the arterial phase, becoming slightly prominent in the portal venous phase (Fig. 1). The tumor appeared to be of a low signal intensity on T1-weighted and a high signal intensity on T2-weighted magnetic resonance imaging (MRI) scans. Only rim and scant streaky enhancement were noted after intravenous administration of GD-DTPA (Fig. 2). Based on these radiological findings, an extrahepatic malignant neoplasm originating from the mesentery was suspected preoperatively.
At laparotomy, the mass was found to be mostly extrahepatic with a peduncle connecting to segment one of the liver. On section, it was solid, whitish and soft, with a myxoid consistency and focal hemorrhage (Fig. 3). Microscopic examination revealed scant thin-walled or ectatic vessels set among a diffusely hyalinized stroma. Most of the vessels were completely obliterated. Loosely-arranged spindled or stellate stromal cells were observed. The final diagnosis was sclerosed hemangioma.

DISCUSSION

Cavernous hemangiomas possess abundant endothelial-cell-lined vascular spaces and usually have specific findings on CT and MRI. Progressive contrast fill-in on delayed CT and MRI and a very high signal intensity on T2-Weighted MRI are the most typical features [7, 8]. Sclerosed hemangioma, however, results in very different radiological findings. Yamashita et al. reported a case with marginal enhancement on CT and MRI, mimicking hepatic metastasis [9]. Mathieu et al. described a lesion with peripheral linear enhancement on delayed MRI images [10]. Doyle et al. summarized 10 sclerosed hemangiomas, and found features suggestive of sclerosed hemangiomas, including the geographic pattern, capsular retraction, a decrease in size over time, loss of previously seen regions of enhancement, transient hepatic attenuation difference, rim enhancement, and nodular regions of intense enhancement [4]. Indeed, most cases are difficult to differentiate from adenocarcinoma or cholangiocarcinoma, because hyaline and fibrosis,
which occupy the most part of a sclerosed hemangioma as a result of degeneration, are hypovascular. A residual non-thrombosed vascular component may present as nodular or marginal enhancement. These microscopic findings determine the radiological features.

In our case, the lesion was more special, because it was pedunculated. The tumor was outside the liver and no obvious pedicle could be identified on either CT or MRI.

**Figure 2.**

- **Figure 2a.** The tumor was hypointense on the T1-weighted MRI scan 160ms/4ms/80° (TR/TE/flip angle).
- **Figure 2b.** On the T2W MRI scan 8000ms/90ms/2 (TR/TE/excitations), the tumor had a high signal intensity.
- **Figure 2c–e.** Post-contrast MRI scans 3.8ms/1.8ms/12° (TR/TE/flip angle) in the arterial phase (Fig. 2c), portal venous phase (Fig. 2d) and venous phase (Fig. 2e) revealed that the tumor was poorly-enhanced. Nodular and streaky enhancement was observed (black arrows in Fig. 2e).
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scans. A preoperative diagnosis of mesenteric malignant neoplasm was made. Adenocarcinoma was less likely and cholangiocarcinoma was not considered because of the location. Retrospectively, the radiological findings such as the hypodensity of the lesion on plain CT, marginal streaky enhancement on CT and MRI scans, and slightly high signal intensity on T2-weighted images, are similar to those reported in other studies [4, 5, 7, 8].

Sclerosed hemangioma is a benign entity and is considered as the ultimate form of degeneration of a cavernous hemangioma. Understanding the characteristics of sclerosed hemangioma may avoid unnecessary hepatectomy. A perihepatic tumor with atypical radiological features may also be this rare benign entity, like the case we present.

REFERENCES

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Figure 3. a. A large well-circumscribed mass with a resected peduncle (black arrow). b. Histology showed ectatic and obliterated vessels (arrowheads) embedded in the hyalinized and edematous stroma. Severely-compressed liver parenchyma became the capsule (black arrow) around the tumor.