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Diagnostic Imaging

Hibernoma in the clavicular fossa: A case report and literature review

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ABSTRACT

A hibernoma is a benign soft tissue tumor consisting of brown adipose tissue. The tumors are mostly located in the thigh, back, and shoulder region. They are rarely found in the supraclavicular fossa. We report a 39-year-old woman who presented with a painless, slow-growing mass on the left supraclavicular fossa for nearly 15 years. Magnetic resonance imaging (MRI) showed an inhomogeneous round mass with a slightly hyperintense signal on fat-suppression T2-weighted imaging that compressed the adjacent tissues and subclavian vessels. Computed tomography angiography indicated a rich blood flow signal. Postoperative histology confirmed the diagnosis of a hibernating tumor. Although comprehensive imaging is important in the determination of tumor for the size, location, and nature, computed tomography angiography provides clear indication of the vascularity of the tumor, which provides vital clinicopathologic data for surgeons.

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Case

A hibernoma is a benign soft tissue tumor consisting of brown adipose tissue. The tumors are mostly located in the thigh, back, and shoulder region [1]. They are rarely found in the supraclavicular fossa. A 39-year-old Chinese woman was hospitalized for a nonsymptomatic, slow-growing left clavicular fossa mass

that was first noticed 15 years ago. Physical examination revealed a palpable soft, nontender mass, approximately 6 × 4 × 4 cm in size. The local skin temperature did not notably increase.

Laboratory studies, including routine blood evaluation, hematocrit, liver and renal functions, electrolytes, coagulation function, routine urine test, and cardiac and pulmonary functions were normal. Computed tomography (CT) of the chest

Competing Interests: The authors have no ethical/legal conflicts related to the article.

Compliance with Ethical Standards: The patient provided written informed consent for the publication of these case details, and the consent procedure was approved by the Human Ethics and Research Ethics committees of the Third Hospital of Hebei Medical University.

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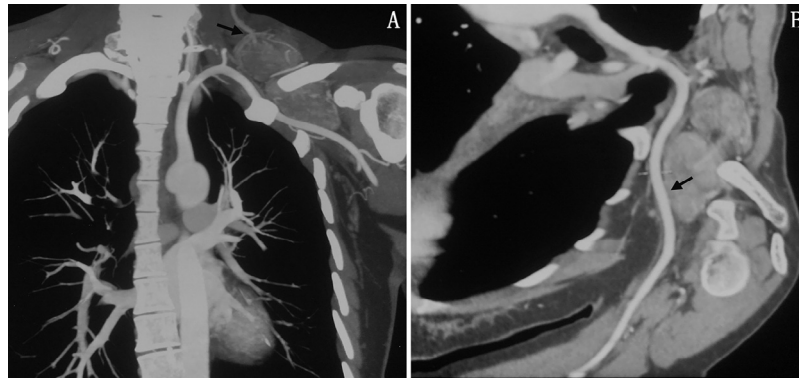


Fig. 1 – (A) CTA of supraclavicular fossa hibernoma. (B) Coronal CTA showing clear imaging of proximal blood vessels. CTA, computed tomography angiography.

revealed a heterogeneous low-density shadow with sharp margins extending to the left axilla. The CT attenuation value was -4 to 9 HU. Magnetic resonance imaging showed an inhomogeneous round mass with a hypointense signal on T1-weighted imaging, a hyperintense signal on T2-weighted imaging, and a slightly hyperintense signal on fat-suppression T2-weighted imaging [2]. The mass distinctly compressed adjacent structures and the subclavian vessels. To clarify the blood supply of the mass, the patient consented to undergo computed tomography angiography, which revealed a rich blood flow signal around the mass (Figs. 1 and 2). Resection was performed to relieve pressure symptoms and to clarify the pathology. Intraoperative visualization revealed the strong adherence of the tumor to the brachial plexus nerves and compression against the subclavian vasculature. Careful resection was performed with a sufficient surgical margin after cutting off the clavicle. The fracture ends were repaired using a locking plate and a screw (Fig. 3).

On gross morphologic examination, the surgical specimen comprised a well-circumscribed reddish brown mass in a thin transparent membrane and some normal soft tissue. The whole mass measured $12.5 \times 6.5 \times 4.0$ cm. The cut surface was yellow, fatty, and lobulated, and showed focal pale fibrous tissues. Postoperative pathologic examination showed the adipose cells had abundant, multivacuolated eosinophilic cytoplasm, and moderately defined cytoplasmic borders (Fig. 4). These histologic features were consistent with those of a hibernoma.

Discussion

A hibernoma is occurs most commonly in adults at 40-70 years of age, with a mean age of 38.0 years (range, 2-75 years) [3]. Pediatric hibernoma is rarely seen. According to a clinical pathologic study of 170 patients with hibernomas carried out by Furlong et al in 2001, the morbidity was slightly higher in men than in women, and the tumors were located mostly in the thigh (29.4%), shoulder (11.8%), back (10.0%), neck (9.4%), chest

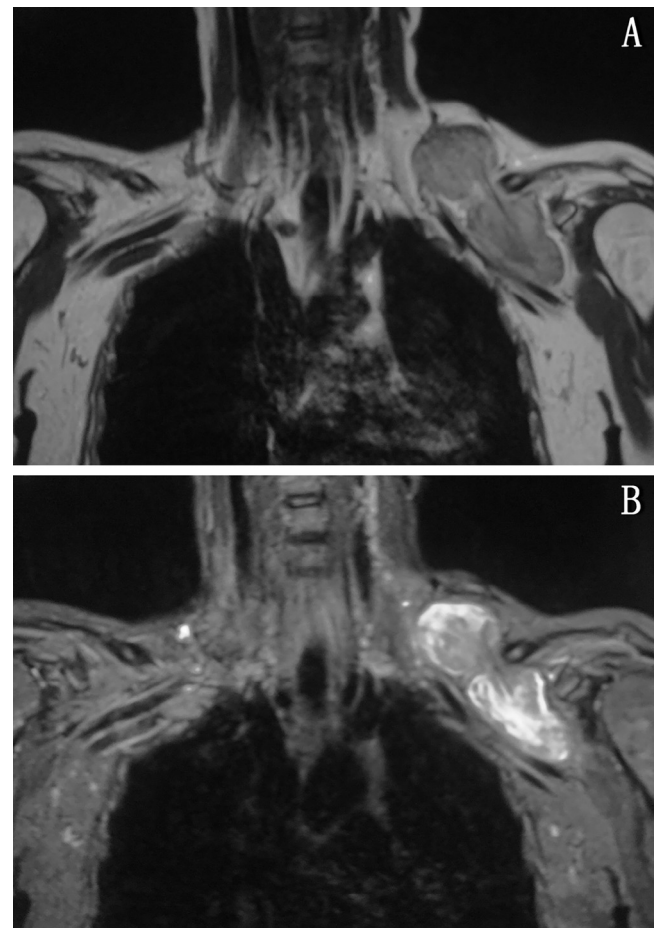


Fig. 2 – Axial CTA showing subclavian vascular compression caused by the mass. MRI of the neck. (A) Coronal MRI showing the presence of a supraclavicular fossa mass with an inhomogeneous round mass low T1-weighted imaging signal. (B) T2-weighted MRI showing a well-defined mass with a high T2-weighted imaging signal. CTA, computed tomography angiography; MRI, magnetic resonance imaging.

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