

Case Report

A rare case of benign fat tumor: Hibernoma

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Abstract

A hibernoma is a rare benign neoplasm of vestigial brown fat. This lesion has been called a fetal lipoma, lipoma of embryonic fat or a lipoma of immature fat. The morphologic features and behavior of this tumor should not be confused with atypical lipomas or well-differentiated liposarcoma. We describe a 45 year old female with hibernoma of right thigh.

Keywords: Soft tissue tumor, lipoma, hibernoma

1. Introduction

A hibernoma is a rare benign neoplasm of vestigial brown fat, a term originally used by Gery in 1914¹. This lesion has been called a fetal lipoma, lipoma of embryonic fat or a lipoma of immature fat². They mainly occur in adults, slightly predominant in women, and are commonly seen in the subcutaneous regions of the back, especially periscapular and interscapular region, neck, axilla, shoulder, thorax, thigh, and retroperitoneum.^{3,4,5} A hibernoma usually manifests as a slowly growing, pain less, soft tissue mass. It is well-defined, soft, and mobile and the color varies from tan to red brown, depending on the amount of intracellular lipid. Microscopically it is characterized by multi vacuolated cells with eccentric nuclei, uni-vacuolated cells with peripheral nuclei, and smaller round cells.^{6,7} The treatment consists of complete surgical resection and the postoperative prognosis is excellent.⁴

2. Case Study

A 45 year old female presented with mass in right thigh since 6 months. The patient was healthy and completely asymptomatic. The overlying skin of the mass was freely moveable and there was no lymphadenopathy. Clinically the diagnosis of lipoma was made. Fine needle aspiration cytology was not helpful. The mass was completely excised and examined histopathologically. (Figure 1,2,3)

Grossly red brown irregular encapsulated soft to firm tissue mass measuring 11×7.5×4.5 cm. microscopically several section reveals lobules of adipocytes showing foamy cytoplasm, round to oval peripheral nuclei are seen. Intervening fibrous tissue is scanty and shows few lymphocytes. Congested capillaries are also seen. Histological features were suggestive of hibernoma. (Figure 4)

Figure 1



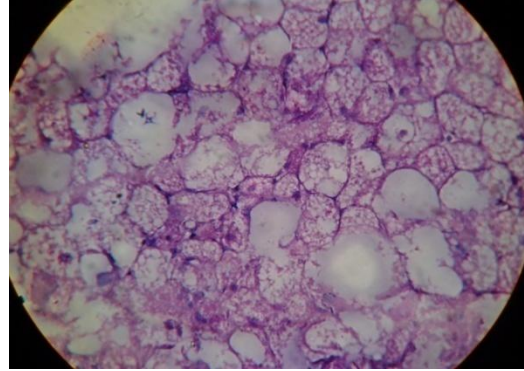
Figure 2



Figure 3



Figure 4



3. Discussion

Hibernomas are uncommon benign, slow growing soft tissue tumors consisting of brown fat. While tumors arising from white adipose tissue are among the most common soft tissue lesions, hibernomas are among the rare.

Tumor was first described by Merkl in 1906 as being composed of brown adipose tissue.⁸ Most hibernomas occur in sites where brown fat persists beyond fetal life (usually in the interscapular region or thigh), but they also occur in sites where brown fat is usually absent.⁹ Hibernomas are slow-growing, painless neoplasms which do not recur. Furlon *et al*² reviewed 170 cases of hibernoma and evaluated the morphologic features and the behavior of this tumor and should not be confused with atypical lipomas or well-differentiated liposarcoma.

Among the diagnostic procedures performed, CT scan and angiography provided the most helpful information. Because hibernomas are fatty, solid, and vascular, they appear clearly on CT as contrast-enhancing densities, and in this respect, CT is superior to USG in localizing the mass. This hypervascularity also makes angiography an ideal tool for evaluation, but at the same time can mislead clinicians into suspecting a malignant process. Total excision is advocated, as there is no known malignant potential.³

Magnetic Resonance Imaging (MRI) can yield a large differential diagnosis for lipomatous tumors. Imaging can vary in relation to the proportional components of white and brown fat within the hibernoma. Positron Emission Tomography (PET) has been used to demonstrate increased uptake of hibernomas, due to high metabolic activity of brown adipose tissue.¹⁰

4. Conclusion

Hibernoma is a very rare tumor, and this case exhibits its salient clinical and pathological features. Although the hyper vascularity on angiography may be suggestive of malignancy and make preoperative biopsy unfeasible, hibernoma should be considered in the differential diagnosis of fatty soft tissue tumors, since the surgical management can be conservative and the postoperative prognosis is excellent.

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