Hibernoma of Thigh: A Case Report of 39-Year-Old Male

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Learning Point of the Article:
In order to prevent the clinical consequences of delayed diagnosis and for the positive outcome, Hibernoma should be evaluated by biopsy as it is a rare benign lipomatous tumor.

Abstract

Introduction: Hibernoma is an uncommon benign lipomatous tumor that originates from residual brown fat. It commonly affects adult patients aged between 30 and 40 with a slight predominance in male more than female and usually seen in the thigh, shoulder, back, chest, axilla, and neck [1]. The present report aimed to highlight on a viable differential diagnosis of thigh mass including liposarcoma and atypical lipoma.

Case Presentation: This is the case report with detailed history, examination of 39-year-old male patient with hibernoma over medial aspect of thigh. Marginal surgical resection was carried and sent to histopathology to confirm the diagnosis of hibernoma.

Conclusion: Hibernoma is a rare benign lipomatous soft tissue tumor with no known risk for malignant transformation or metastasis. Based on imaging examination, it can mimic malignant tumors such as, liposarcoma, in which we believe that biopsy is required in order to reach the diagnosis in most of the cases.

Keywords: Soft tissue tumor, hibernoma, brown fat, liposarcoma.

Introduction
Hibernoma is uncommon benign lipomatous tumor that originates from residual brown fat. It commonly affects adult patients aged between 30 and 40 with a slight predominance in male more than female and usually seen in the thigh, shoulder, back, chest, axilla, and neck [1]. Clinically, patient presents with slowly progressing painless mass. Diagnosis can be difficult; especially it can be confused with well-differentiated liposarcoma and atypical lipomatous tumor [2, 3]. The present case is hibernoma in the anteromedial aspect of the thigh in 39-year-old male patient.

Case Presentation

Clinical presentation and history
A 39-year-old male was referred to our clinic with right proximal thigh mass that was growing over the past 4 years, associated with numbness over medial aspect of the thigh. Moreover, He suffered from weight loss (20 kg) in the past 6 months. Apart from these, the patient denied respiratory and gastrointestinal symptoms. There was no history of constitutional symptoms. On presentation, he had no history of trauma and no family history of malignancy. There was no history of masses other was in his body.

Examination
Vital signs were stable, on local examinations, it showed a mass over anteromedial aspect of the thigh, overlying skin was intact. In approximation, the size of the mass was 7x10 cm, it was soft firm, and rubbery inconsistency. The mass was not mobile, neither tender nor pulsatile, or hot upon palpation. Sensation was decreased over the medial aspect of the thigh with the
distribution of the obturator nerve. No palpable lymph nodes were identified.

**Investigations and procedure**

Initial X-ray radiographs of the right femur and hip revealed a faint soft tissue swelling with no calcification or bony involvement. Computed Tomography showed a large soft tissue mass of fatty density in the right groin extending down to the upper medial compartment of the right thigh with the size of 8.7 × 8.6 × 11 cm with a displacement of the adjacent muscles (Fig. 1).

Magnetic resonance imaging with intravenous contrast enhancement showed large intramuscular anteromedial thigh mass arising from the psoas muscle invading the pectineus muscle; it is seen encasing the posterior division of the obturator nerve. On T1-weighted image isointense signals with a decreased T2-weighted image signal intensity and a heterogeneous enhancement of the non-soft tissue component, with no bony involvement (Fig. 2).

Chest X-ray was unremarkable. Subsequently, CT-guided biopsy was proceeded, the result of biopsy was in favor of hibernoma but well-differentiated liposarcoma cannot be ruled out. Hence, the patient was admitted electively and marginal resection of the mass was performed. Macroscopically, tan-red to brownish mass 11 cm in length, firm, and rubber in consistency (Fig. 3). On histopathology, multiloculated oval brown fat cells confirmed hibernoma-like lipoma variant.

**Postoperative management and follow-up**

Postoperatively, upon regular follow-ups in the clinic for 16 months, the patient is doing well, started to regain normal sensation over the medial aspect of the thigh with no sign of local recurrence.

**Discussion**

Hiberoma is a very rare benign lipomatous tumor in nature, originates from residual brown fat cells. It was first introduced by Merckl in 1906 as its composed of brown adipose tissue tumor and described this tumor as “pseudolipoma” [4]. Then proposed by Gery in 1914 with the term “hibernoma” [5]. Since the time when it was discovered, less than 250 cases were reported in the literature [6]. It arises where residual brown fat cells persist, mainly in the thigh, shoulder, back, chest, axilla, and neck. It slightly predominates in males more than females in their third or fourth decade, usually patients present as painless slowly growing mass, rarely symptoms are related to compression of adjacent structures. The size varies from 5 cm and it can reach up to 20 cm [1, 7]. Sometimes, associated with weight loss due to the effect of thermoregulation within the brown adipose tissues.

Radiographic examinations can be helpful to narrow your differential diagnosis. Hibernomas usually have a well-defined encapsulated mass with low signal intensity on T1-weighted images and incomplete fat suppression on STIR and T2-weighted images [8]. A contrast can show variable enhancement. It can be differentiated with a lipoma, as hibernoma shows more vascularity with large septa (>2 mm) while lipomas are less vascular and have a septa (<2 mm) on MRI with contrast enhancement [9, 10]. In comparison to hibernoma, a well-differentiated liposarcoma can have an...
Hibernoma is a rare benign lipomatous soft tissue tumor with no known risk for malignant transformation or metastasis. Based on imaging examination, it can mimic malignant tumors such as liposarcoma, in which we believe that biopsy is required in order to reach the diagnosis in most of the cases. Marginal resection is the treatment of choice and most of the time, diagnosis of hibernoma can be confirmed post-operatively from resected tumor after being evaluated in histopathology lab. To the best of our knowledge, there is no report of local recurrence with complete excision of the tumor.

**Clinical Message**

Diagnosing the cause of a thigh mass can be challenging. Certain tumors may present in unusual fashion. Although rare, hibernoma may present as abnormal thigh mass, a detailed evaluation is essential.

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Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient’s parents have given their consent for patient images and other clinical information to be reported in the journal. The patient’s parents understand that his names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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