

Subcutaneous shoulder hibernoma presenting as an atypical lipomatous tumor – a case report

F. Ghieh, P. Beaineh, A. Ibrahim

Division of Plastic and Reconstructive Surgery, American University of Beirut Medical Center, Beirut, Lebanon

Summary

Hibernomas are soft tissue tumors derived from remnants of brown fat. They are rare masses that can have variable presentations ranging from incidental asymptomatic masses to pain due to nerve compression. We present the case of a 52-year-old male presenting with an atypical lipomatous mass on ultrasound and magnetic resonance imaging. The mass was excised and sent for pathology with the result being a hibernoma. We should be vigilant in the treatment of such tumor presentations as they may be a low grade liposarcoma in disguise. Surgical biopsy or excision is the best treatment for achieving a definite diagnosis.

Key words

hibernoma – atypical lipomatous tumor – upper extremity tumors

Ghieh F, Beaineh P, Ibrahim A. Subcutaneous shoulder hibernoma presenting as an atypical lipomatous tumor – a case report. Acta Chir Plast 2022; 64(2): 86–88.

Introduction

A hibernoma is a benign adipocytic tumor originating from remnants of brown fat. This tumor has an increased occurrence in the thighs, upper trunk, and neck of middle aged individuals [1]. Hibernomas might present as atypical lipomatous tumors or liposarcomas, the fact that may lead to their misdiagnosis and mismanagement [2]. The versatility of the location of presentation may cause further uncertainty to the diagnosis as hibernomas have been reported as subcutaneous, intraosseous, intradural spinal, mediastinal, and vulvar [2–6]. They have also presented as incidental masses on examination, symptomatically such as causing nerve compression, or in locations suggestive of malignancy or adenopathy such as the axilla [7–9]. Despite advances in imaging, even magnetic resonance imaging (MRI) cannot clearly diagnose a hibernoma and it is sometimes misdiagnosed as an atypical lipomatous tumor; a hiber-

noma is mostly seen as a heterogeneous slightly hypo-intense (to subcutaneous fat) mass with possible increased vascularity, mimicking atypical lipomatous tumors [10,11]. Definite diagnosis is only by histology after a biopsy or surgical excision. Hence, the usual treatment of a hibernoma would be surgical excision except in cases where a definite histological diagnosis is made by biopsy. When completely excised, the risk of recurrence is low. We present the case of a 52-year-old male who presented with a shoulder atypical lipomatous mass on MRI and was managed by surgical excision going through the presentation, imaging, and pathological diagnosis. STROBE guidelines have been applied in this manuscript.

Case presentation

The patient is a 52-year-old man presenting with a right shoulder lump of a few-year duration. The patient reports that it is not painful and there is no history of

infection. The patient has a history of thrombocytopenia, hypertension, dyslipidemia, resolved diverticulosis, and seasonal allergic rhinitis. On physical exam, the patient had a right shoulder mass of $5 \times 5 \times 2$ cm that is nontender, immobile, and soft in consistency. There were no overlying skin changes. Upon presentation, the patient had already done an ultrasound of the mass that showed a subcutaneous, predominantly hyperechogenic lesion, with thin echogenic lines, measuring $4 \times 1.8 \times 5$ cm with some internal increased flow on power Doppler exam (Fig. 1). The ultrasound was compatible with either a lipoma or an atypical lipomatous tumor. After the ultrasound, the primary doctor requested a magnetic resonance imaging (MRI) for both the mass and pain in the right shoulder. Concerning the mass, the MRI showed a 5.8×1.6 cm subcutaneous lesion showing high T1 and T2 signal and a loss of signal on the fat suppressed sequences, with faint signal ab-



Fig. 1. Ultrasound showing a subcutaneous hyperechoic lesion.

normalities suggestive of lipoma with atypical features (Fig. 2). The patient was admitted and the mass was excised with primary closure of the wound (Fig. 3). Pathology showed complete resection of a hibernoma (Fig. 4). The patient had complete healing at follow up with no complications.

Discussion

Lipomatous lesions are usually benign lesions in nature, with a malignancy

rate of 1% in encountered cases; they range from benign lipomas to poorly differentiated liposarcomas. Hibernomas are a rare subtype of lipomas that is usually silent and characterized by slow growth [2]. First described in 1914 with their resemblance to brown fat in hibernating animals, hibernomas are most commonly found in the thighs of adults in the third or fourth decades of life with an equal sex distribution [1,7].

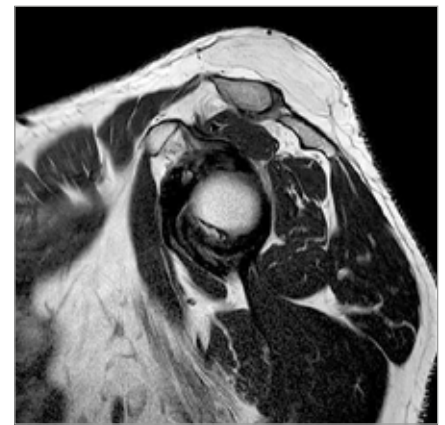


Fig. 2. Magnetic resonance imaging showing a subcutaneous lesion with faint signal abnormalities suggestive of a lipoma with atypical features.

Generally asymptomatic, hibernomas can present in a wide spectrum of symptoms ranging from incidental masses to pain from nerve compression [7]. Their diagnosis can present a clinical challenge, especially when discovered incidentally [2]. On computed tomography scans, hibernomas are characterized by a well circumscribed hyperdense appearance [2]. On MRI, lipoma-like hibernomas present as isointense lesion that contains thin tortuous vascular structures while non-lipoma like hibernomas are hypointense on T1 associated with prominent septa and enhancement [11].



Fig. 3. Excised specimen.

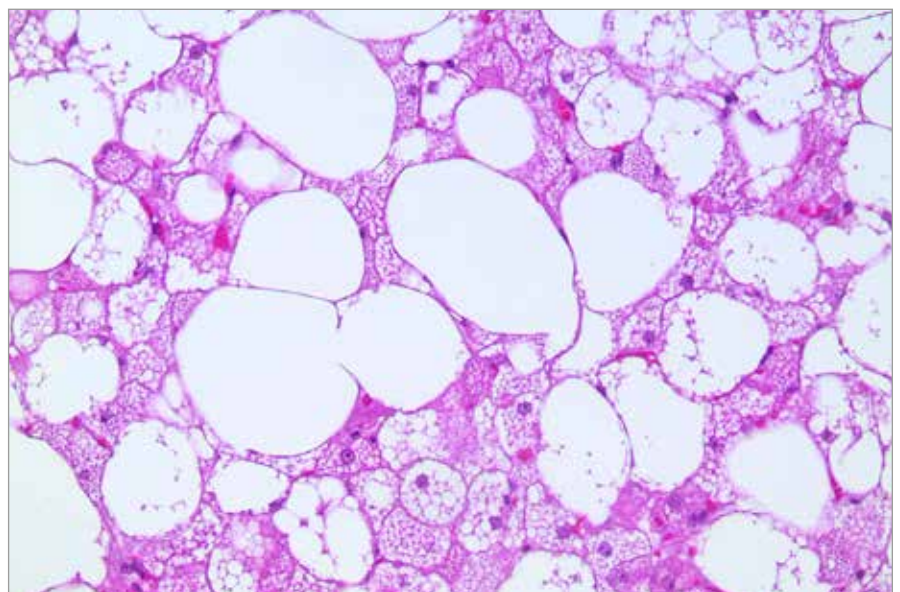


Fig. 4. Pathology slide showing a hibernoma.

Despite all the advancement in radiological modalities, incisional or excisional biopsies are usually needed in order to confirm the diagnosis of hibernomas [2]. Fine needle aspiration can be used as a tool of accurate diagnosis and is considered safer than incisional biopsy with less risks of bleeding. However, it is important to mention that hibernomas may have variable histopathological characteristics which necessitates an adequate specimen to differentiate between hibernomas and other lipomatous tumors [7].

Microscopically, hibernomas present with tumor cells arranged in lobules that are separated by fibrous septa [1]. No cytologic atypia, mitoses, or areas of necrosis are histologically commonly observed.

It is of uttermost importance to differentiate between hibernomas and atypical lipomatous tumors, as the latter harbors a local recurrence rate of around 30%, whereas the risk with hibernomas is almost null [1]. To solve this dilemma, wide local excision of the lesions with negative margins provides a definitive diagnosis and treatment modality that diminishes the risk of future recurrence [2].

Conclusion

A thorough understanding of the clinical presentation of hibernomas is es-

sential in dealing with these cases. The difficulty in confirming diagnosis presents a challenge to most physicians. With all the new diagnostic modalities and the advancement in the field of radiology, wide local excision remains the gold standard to confirm the diagnosis and prevents any future recurrence and complications.

Role of authors: All authors have been actively involved in the planning, preparation, analysis and interpretation of the findings, enactment and processing of the article with the same contribution.

Disclosure: The authors have no conflicts of interest to disclose. The authors declare that this study has received no financial support. All procedures performed in this study involving human participants were in accordance with ethical standards of the institutional and national research committee and with the Helsinki declaration and its later amendments or comparable ethical standards.

References

1. Al Hmada Y., Schaefer I-M., Fletcher CD. Hibernoma mimicking atypical lipomatous tumor: 64 cases of a morphologically distinct subset. *Am J Surg Pathol.* 2018, 42(7): 951–957.
2. AlQattan AS., AlAbdrabnabi AA., AlDuhileb MA., et al. A diagnostic dilemma of a subcutaneous hibernoma: case report. *Am J Case Rep.* 2020, 21: e921447.
3. Bonar SF., Watson G., Gragnaniello C., et al. Intraosseous hibernoma: characterization of five cases and literature review. *Skeletal Radiol.* 2014, 43(7): 939–946.

4. Chitoku S., Kawai S., Watabe Y., et al. Intradural spinal hibernoma: case report. *Surg Neurol.* 1998, 49(5): 509–512; discussion 512–513.
5. Baldi A., Santini M., Mellone P., et al. Mediastinal hibernoma: a case report. *J Clin Pathol.* 2004, 57(9): 993–994.
6. Zhao JM., Tafti D., Kao E., et al. Rare case of vulvar hibernoma treated with resection. *Cureus* 2020, 12(7): e9111.
7. Kovitwanichkanont T., Naidoo P., Guio-Aguilar P., et al. Hibernoma: a rare benign soft tissue tumour resembling liposarcoma. *BJR Case Rep.* 2018; 4(3): 20170067.
8. Huang C., Zhang L., Hu X., et al. Femoral nerve compression caused by a hibernoma in the right thigh: a case report and literature review. *BMC Surg.* 2021, 21(1): 30.
9. Kallas KM., Vaughan L., Haghighi P., et al. Hibernoma of the left axilla; a case report and review of MR imaging. *Skeletal Radiol.* 2003, 32(5): 290–294.
10. Lee JC., Gupta A., Saifuddin A., et al. Hibernoma: MRI features in eight consecutive cases. *Clin Radiol.* 2006, 61(12): 1029–1034.
11. Ritchie DA., Aniq H., Davies AM., et al. Hibernoma--correlation of histopathology and magnetic-resonance-imaging features in 10 cases. *Skeletal Radiol.* 2006, 35(8): 579–589.

Assoc. Prof. Amir Ibrahim, MD
Division of Plastic and Reconstructive Surgery
Department of Surgery
American University of Beirut Medical Center
Cairo Street
Beirut
Lebanon
e-mail: amir.ibrahim78@gmail.com

Submitted: 20. 12. 2021

Accepted: 6. 6. 2022