Case Reports in Oncology

Case Rep Oncol 2017;10:438–441

DOI: 10.1159/000475708
Published online: May 9, 2017

Case Report

A Twenty-Four-Year-Old Woman with Left Flank Lipoma-Like Hibernoma

R.E. Shackelford[a] M. Al Shaarani[a] J. Ansari[b] E. Wei[a] J. Cotelingam[a]

[a]Department of Pathology, LSU Health Shreveport, Shreveport, LA, USA; [b]Department of Molecular and Cellular Physiology, LSU Health Shreveport, Shreveport, LA, USA

Keywords
Hibernoma · Lipoma-like hibernoma · Atypical lipoma · Well-differentiated liposarcoma

Abstract
A 24-year-old woman presented with a 5-month history of a left flank mass that was painful on palpation. Magnetic resonance imaging revealed a 10.0 × 6.0 × 2.5 cm mass consistent with lipoma. A fatty lobulated mass was excised and subjected to H&E staining and immunohistochemical analyses. The specimen consisted of mature univacuolated adipocytic cells, with intermixed multivacuolated eosinophilic granular cells. No atypia or hyperchromasia was identified. Most of the cells were S100 positive and Ki-67 immunonegative. A diagnosis of a lipoma-like hibernoma was rendered. Hibernomas are rare benign lipomatous tumors that show differentiation toward brown fat. The lipoma-like hibernoma subtype is rare and can be misdiagnosed as atypical lipoma or well-differentiated liposarcoma. Here we describe an example of this rare tumor.

Introduction

Hibernomas are rare tumors histologically resembling the brown fat of hibernating animals [1–4]. First described in 1906, hibernomas occur over a wide age range (2–75 years) and account for about 1.6% of lipomatous tumors [4]. Hibernomas range in size from 1.0 to 24 cm, averaging 9.3 cm, and commonly occur in the thigh, shoulder, back, neck, arms, chest,

Rodney E. Shackelford
Department of Pathology, LSU Health Shreveport
1501 Kings Highway
Shreveport, LA 71130 (USA)
E-Mail rshack@lsuhsc.edu

and retroperitoneum [2–4]. Hibernomas usually present as slow-growing, painless, soft, mobile palpable masses, or as incidental imaging findings [4]. They also often show hypervascularity, sometimes accompanied by locally increased skin temperature [2, 4]. Molecular analyses have shown that hibernomas consistently carry translocations and deletions involving chromosome 11q13–21, most commonly at 11q13.1 (the MEN1 gene locus), and one case report identified a t(9;11)(q34;q13) translocation in one hibernoma [5–7]. Histologically hibernomas show adipocytic cells with finely multivacuolated cytoplasm, eccentric vesicular nuclei with evenly dispersed chromatin, and a single central nucleolus [4]. They are usually S100 immunoreactive and show low to absent Ki-67 immunoreactivity due to their low mitotic rates [2, 4]. Hibernomas have four histologic variants including the typical (82%), myxoid (9%), lipoma-like (7%), and spindle cell variants (2%) [4]. The lipoma-like variant shows numerous univacuolated adipocytic cells with intermixed granular multivacuolated typical hibernoma cells [4].

Case Report

A 24-year-old woman with a history of lupus, rheumatoid arthritis, and sickle cell trait presented with a 5-month history of a slow-growing mobile left flank mass that was painful on palpation. Magnetic resonance imaging studies revealed a subcutaneous mass consistent with lipoma. The mass was surgically resected and consisted of fragments of adipose tissue, measuring 10.0 × 6.0 × 2.5 cm. It was analyzed at the Louisiana State University Department of Pathology, Shreveport, by H&E staining. The lesion consisted of univacuolated adipocytic cells with intermixed granular multivacuolated cells (Fig. 1a, b). Immunohistochemical staining for S100 and Ki-67 was performed on the specimen. The adipocytic and hibernoma cells were immunoreactive for S100, while Ki-67 immunoreactivity was virtually absent (Fig. 1c, d) [2, 4]. Following excision of the lesion, the patient recovered fully, and at 18-month follow-up, there was no recurrence of the lesion.

Discussion

Hibernomas are benign and carry no risk of malignant transformation or metastasis, although larger ones can exert deleterious effects due to compressive effects on nearby tissues [2, 4]. The lipoma-like hibernoma variant is rare and represented 7% of hibernomas in a large series of 170 tumors (12/170) [2]. The differential diagnosis for hibernomas includes fat necrosis, angiolipoma, giant cell tumor, rhabdomyosarcoma in children, and atypical lipoma/well-differentiated liposarcoma [2, 4]. Furlong et al. [2] pointed out that in the lipoma-like variant, the multivacuolated adipocyte-like cells can be mistaken for lipoblasts, leading to a serious misdiagnosis of well-differentiated liposarcoma. Interestingly, 23% of referral pathologists entertained this diagnosis when examining lipoma-like hibernomas [2]. However, lipoma-like hibernomas lack (1) significant atypia, (2) the often deeply scalloped nuclei of lipoblasts, (3) nuclear hyperchromasia, and (4) significant fibrous septa. Lipoma-like hibernomas also show cells with scattered finely multivacuolated eosinophilic cytoplasm, do not recur upon complete excision, and never dedifferentiate to more aggressive forms or metastasize, as can atypical lipomas/well-differentiated liposarcomas [2, 4]. Lastly, molecular analyses showed atypical lipomas/well-differentiated liposarcomas to carry 12q13–15 marker chromosomes, while hibernomas carry translocations and deletions involving chro-

mosome 11q13–21 [2, 4–6]. Taken together, these differences should allow the surgical pathologist to differentiate between these tumors and thus avoid a serious misdiagnosis.

Statement of Ethics

The authors followed the LSU Health Sciences Shreveport Ethical Guidelines in the writing of this case report.

Disclosure Statement

The authors have no conflicts of interest to report.

References

1 Brines OA, Johnson MH: Hibernoma, a special fatty tumor; report of a case. Am J Pathol 1949;25:467–479.
2 Furlong MA, Fanburg-Smith JC, Miettinen M: The morphologic spectrum of hibernoma: a clinicopathologic study of 170 cases. Am J Surg Pathol 2001;25:809–814.
3 Merkel H: On a pseudolipoma of the breast. Beitr Pathol Anat 1906;39:152–157.
4 Rosai J: Soft tissues; in Rosai J: Ackerman's Surgical Pathology, ed 8. Saint Louis, Mosby, 1996, vol 2, pp 2021–2134.
5 Mrózek K, Karakousis CP, Bloomfield CD: Band 11q13 is nonrandomly rearranged in hibernomas. Genes Chromosomes Cancer 1994;9:145–147.
6 Mertens F, Rydholm A, Brosjö O, Willén H, Mitelman F, Mandahl N: Hibernomas are characterized by rearrangements of chromosome bands 11q13–21. Int J Cancer 1994;58:503–505.
7 Turaga KK, Silva-Lopez E, Sanger WG, Nelson M, Hunter WJ, Miettinen M, Gatalica Z: A (9;11)(q34;q13) translocation in a hibernoma. Cancer Genet Cytogenet 2006;170:163–166.

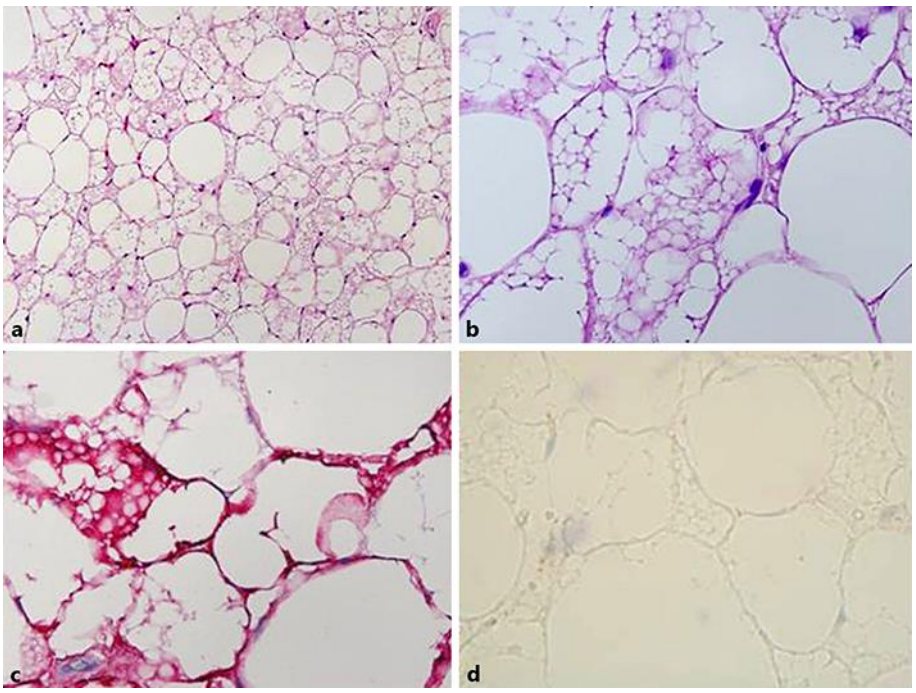

Fig. 1. Representative H&E and immunohistochemistry results for the lipoma-like hibernoma. **a**, **b** Low-power (**a**) and high-power (**b**) H&E views of the lipoma-like hibernoma. **c**, **d** High-power views of S100 (**c**) and KI-67 (**d**) immunohistochemistry. The Ki-67 immunohistochemistry shows only the counterstain.