

Journal of Oncology Research Forecast

Intramuscular Soft Tissue Hemangioma of the Thigh: A Case Report

Aziza Al-Ghafri¹, Asem Shalaby² and Mohamed Mohamed Elawdy^{3*}

¹Department of Radiology, Ministry of Health, Sultanate of Oman

²Department of Pathology, Sultan Qaboos University Hospital, Sultanate of Oman

³Department of Surgery, Ministry of Health, Sultanate of Oman

Abstract

Intravascular hemangiomas are rare tumors that account for less than 1% of all hemangiomas. We reported a 37-year-old female who presented with a mass on the upper thigh. The radiologic criteria were classic for hemangioma; phleboliths on plain X-ray and hypoechoic mass with the US. MRI confirmed the diagnosis – the mass was hypointense on T1 and hyper intense on T2-weighted images. The mass was surgically removed with good functional and aesthetic results with no evidence of recurrence after 2 years of follow up.

Keywords: Hemangioma; Vascular Malformations; Soft Tissue Hemangioma; The Thigh

Introduction

Soft tissue hemangiomas are benign vascular lesions that comprise 7% of all benign tumors [1]. Intramuscular hemangiomas are rare tumors that account for approximately less than 1% of all hemangiomas [2-4].

Intramuscular hemangiomas are common in the head and neck, and many cases were reported in the masseter [5], temporalis [3] muscle, and paraspinal muscle [6]; however, it was seldom that cases were mentioned in the thigh [7,8].

We aimed to report the rare case of intramuscular hemangiomas in the thigh, and outline its radiologic characteristics with long term follow up.

Case Presentation

Our patient is a 37-year-old female who presented with pain and swelling on the anterolateral aspect of the left upper thigh. She had irrelevant medial and surgical histories, and denied any history of trauma.

As per her description, the mass got worse with physical exercise. Physical exam revealed a deep soft tissue mass with ill-defined borders that was felt on the anterolateral aspects of left upper thigh. No changes were noted on the overlying skin. X-ray (A-P and lateral views) showed foci of tissue calcifications adjacent to the lateral aspect of the upper left femur with no bony involvement (Figure 1)

Ultrasound (US) evaluation of the thigh revealed a well-defined intramuscular lobulated hypoechoic mass lesion with few foci of calcifications causing posterior acoustic shadowing. Color Doppler images demonstrated no internal flow.

Subsequently, magnetic resonance imaging (MRI) was performed (Figure 2). A well-defined homogeneous lobulated mass between the vastus medialis & the vastus intermedius was identified on both axial & coronal T1- and T2-weighted images. The mass was hypointense on T1-weighted images (Figure 2a), and hyperintense on T2-weighted images. There were multiple small areas of signal voids noted in all sequences in keeping with phleboliths. The lesion was not suppressed in STIR image. Post contrast (Gadolinium) administration (Figure 2b) showed homogenous enhancement of the lesion, apart from the areas of phleboliths mentioned above. These imaging characteristics were suggestive of a soft-tissue hemangioma. Our patient was treated by surgical excision. As shown in Figure 3, the excised mass measured 5x2.5cm and was dark brown in color. Cut section was spongy and hemorrhagic. Histologic sections were prepared from the excised mass and stained with H&E to show variable sized vascular spaces lined by bland endothelial cells with intervening stroma.

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*Correspondence:

Mohamed Mohamed Elawdy,
Department of Surgery, Ministry of
Health, Sultanate of Oman.

Tel: 0096891441050

E-mail: mmelawdy@gmail.com

Received Date: 04 Nov 2017

Accepted Date: 15 Jan 2018

Published Date: 26 Jan 2018

Citation: Al-Ghafri A, Shalaby A,
Elawdy MM. Intramuscular Soft Tissue
Hemangioma of the Thigh: A Case
Report. *J Oncol Res Forecast*. 2018;
1(1): 1002.

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Figure 1: Left femur frontal & lateral radiographs showing multiple foci of calcifications appear within the soft tissue with no bony abnormalities detected.



Figure 2: Multiplanar, multi-sequences MRI showing a lobulated hypointense lesion in T1-weighted images (a), with homogenous enhancement post contrast (b). Note the multiple signal voids in keeping with phleboliths in all sequences.

Most of the spaces are distended with blood. No evidence of solid proliferation or cellular atypia. At 20 months of follow up, she has no complaints and US was unremarkable.

Discussion

We present a rare case of intramuscular hemangioma in a 37-year-old female patient. It was excised surgically with successful cosmetic and functional outcomes. Her presentation was suggestive for intramuscular hemangioma with pain and swelling that increase with physical exercise.

The radiologic features for our case were classic, as mentioned in the literature [9-12]. Plain X-ray showed foci of soft tissue calcifications (phleboliths). US showed hypoechoic mass lesion with a caustic posterior shadowing caused by the calcifications. It didn't show mixed echo pattern as described by Greenspan et al [10].

Deep soft tissue hemangioma may induce changes in the adjacent bones as regional osteopenia, periosteal reaction, cortical erosion or bony growth [13] but, in our case, the underlying bone didn't show any periosteal changes.

The MRI criteria for diagnosis of hemangioma are distinctive and helpful in establishing the diagnosis [9]. The typical appearance of hemangioma on T1-weighted MRI images is an intermediate signal

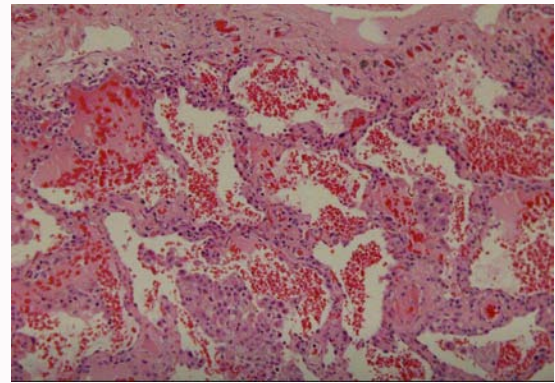


Figure 3: A histologic section in the tumor showing variable sized vascular spaces lined by endothelial cells and distended with blood. H&E X200.

intensity soft-tissue mass with lacy interspersed areas that show high signal intensity – this corresponds to areas of fatty proliferation and contributes to the heterogeneous appearance of the hemangioma. The T2-weighted images show a hyperintense mass with interspersed areas of low to intermediate signal intensity – this represents areas of hemosiderin deposition, fibrous septa, and/or smooth muscle [14]. Tiny rounded areas of low signal intensity may represent phleboliths. With contrast administration, the vascular channels within the highly vascular lesion enhance and this aids in the diagnosis.

We did not order for CT in our case, as it offers no advantages when compared with the combination of MRI & plain radiography¹⁰. However, it may have a role in the evaluation of the adjacent osseous structures [14].

Angiography is highly specific in the diagnosis of hemangioma. It shows multiple small feeding arteries that are unlike A-V malformation which shows larger arterial feeding vessels, but it could be used for surgical planning and good hemostasis [15].

Soft tissue hemangiomas are benign, vascular tumors that are thought to be congenital in origin. Trauma may have a role in tissue proliferation and vascular elements growth [1]. Cutaneous hemangiomas rarely require further imaging because of the diagnosis. Our case was a deep and intramuscular one that required imaging.

Histologically, they show proliferation of the normal vascular elements with interspersed fatty overgrowth. Three types of hemangioma have been described according to the vessel types involved: capillary, cavernous, and mixed [1]. We did not do a biopsy, as was reported by Bardouni *et al*, who took a biopsy in a similar case that revealed epithelioid hemangioendothelioma [7]. Our case was in an adult patient; however, it was reported in pediatrics [8].

The standard management is surgical excision. Ranero *et al* [4] and in a series of 6 cases in the extremities, reported successful surgical excisions in all of them. He also reported good functional and aesthetic results after 1-3 years of follow up with no recurrences.

Radiologic follow up is required because recurrence was reported in 18%, especially in cases of incomplete excision [6]. Our patient was managed with surgical excision and there is no evidence of recurrence after almost 2 years of follow up.

Conclusion

We reported a 37-year-old female who presented with a mass on the upper thigh. The mass was hypointense on T1 and hyperintense

on T2- weighted MRI images. The mass was surgically removed, and histopathological proved to be hemangioma. It showed variable-sized vascular spaces lined by bland endothelial cells with intervening stroma. After 2 years of follow up, patient had no evidence of recurrence.

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