A giant infiltrating angiolipoma of the thigh: a case report

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ABSTRACT

Background: Common vascular lipoma variants, such as angiolipoma, comprise 5–17% of all lipomas. They are categorized into two types: noninfiltrating and rare, deeper infiltrating forms that affect deep soft tissues and skeletal muscle. Young adults with the noninfiltrating type typically have it on their trunk and extremities, most frequently on the forearm. The World Health Organization (WHO) has identified deep infiltrating angiolipomas as intramuscular hemangiomas. The purpose of this case report was to describe a unique instance of a giant thigh angiolipoma that had infiltrated.

Case report: A 9-year-old boy patient complained of a lump on the left thigh that was felt about 3 years ago. The lump has grown larger and painful in the last 6 months. He had no history of illness related to her current lump complaint of the thigh. In addition, he also denied any history of trauma. Magnetic Resonance Imaging (M.R.I.) displays hyperintense heterogenous mass with fat and flow void components on T1WI/T2WI/T2STIR. Histopathology signifies mature fat cells that penetrate the surrounding blood vessels, which are accompanied by fibrous connective tissue, indicating an intramuscular-infiltrating angiolipoma.

Conclusion: We present a unique instance of a giant infiltrating thigh angiolipoma. Since angiolipoma is an uncommon histological type of giant lipoma, it should be considered in the differential diagnosis.

Keywords: angiolipoma, hemangioma, M.R.I., vascular tumor.

CASE REPORT

INTRODUCTION

All regions of the body can be affected by vascular malformations and tumors, which represent a broad and diverse spectrum of lesions that can cause severe illness or even death in both adults and children. In children, vascular lesions are the most frequent cause of soft tissue tumors. The type of vascular abnormality will determine the best course of treatment; thus, accurate diagnosis and classification are crucial. Since magnetic resonance (M.R.) imaging depicts the extension and anatomical relationship with neighboring structures, it is the most crucial modality for the classification of vascular anomalies. The class of neoplasms exhibiting endothelial differentiation, as classified by the World Health Organization (WHO) 2020, is likewise highly variable with respect to the extent of vasoformative morphology and biological behavior.1–3

A thorough evaluation of vascular anomalies necessitates a functional analysis of the vessels in question. Hemodynamic vascular anomalies can be identified, and high-flow and low-flow vascular malformations can be distinguished using M.R. angiography. Furthermore, MR imaging can be helpful in determining long-term management plans and evaluating the efficacy of treatment. The primary drawbacks are the lengthy examination period and sensitivity to motion artifacts, which necessitates sedation or anesthesia, particularly in young children. The clinical and M.R. imaging characteristics that support the diagnosis and appropriate categorization of vascular anomalies should be known to radiologists. They should also be knowledgeable about M.R. imaging procedures for assessing post-treatment characteristics and vascular anomalies.1,4

With an incidence of 5–17% of all lipomas, angiolipoma is a common variant of vascular lipoma. Angiolipomas are categorized as non-infiltrating or, in rare cases, involving skeletal and soft muscle in the surrounding tissue and infiltrating. Young adults with the noninfiltrating type typically have it in the forearm, but it can also occur in the spine and extremities. The WHO now refers to lesions formerly thought to infiltrate angiolipomas as intramuscular hemangiomas. Angiolipoma typically presents as a minor (<2 cm) subcutaneous mass that is palpably painful. The mass grows slowly over time.6–9 The purpose of this case report is to describe the M.R.I. findings of giant infiltrating angiolipoma.

A 9-year-old boy presented with a complaint of a lump on the left thigh that was felt in the last 3 years (since 2019). The lump was initially small on the outer thigh and extremities, but it had grown larger and painful in the last 6 months. The WHO now refers to lesions formerly thought to infiltrate angiolipomas as intramuscular hemangiomas. Angiolipoma typically presents as a minor (<2 cm) subcutaneous mass that is palpably painful. The mass grows slowly over time.6–9 The purpose of this case report is to describe the M.R.I. findings of giant infiltrating angiolipoma.
CASE REPORT

Figure 1. Radiograph of the left femur.

Figure 2. M.R.I. images (performed with a 3-Tesla unit). (a) T2WI Sagittal, (b) T2STIR Sagittal, (c) T1+Contrast Sagittal, (d) DWI, (e) ADC.

Figure 3. Histological examination of the lesion.

quickly. The patient was referred to Prof. Dr. I. G. N. G. Ngoerah General Hospital.

On physical examination, a lump was found on the left thigh with a thigh diameter of 40 cm, shiny skin (-), venectasis (+), and redness (-). Solid, single, soft mass (+), palpable hard with indistinct borders. On radiographs of the femur, heterogeneous density opacities with fatty components and calcifications inside were found in the soft tissue of the left femur in the proximal 1/3 - mid anterolateral aspect, suggesting a benign soft tissue tumor (Figure 1).

M.R. imaging displayed strong mass heterogeneity with fat component and void flow on T1WI/T2WI/T2STIR. On post-contrast images, the tumor appears heterogeneously enhancing. DWI/ADC showed limited diffusion. The mass appeared to compress and deviate m. rectus femoris anterior, m. vastus intermedius, m. sartorius, m. vastus medius, m. adductor longus, brevis, magnus, m. gracilis, m. semimembranosus, and m. semitendinosus at the level of the mass medially. There was no visible damage to the left femur (Figure 2).

The biopsy revealed a proliferation of mixed blood vessels in arteries, veins, capillaries, and caverns, forming clusters amongst the myxoid connective tissue. Some of these blood vessels showed signs of congestion and dilated thrombus. There is also a picture of mature fat cells penetrating the surrounding blood vessels accompanied by fibrous connective tissue, indicating Intramuscular-Infiltrating Angiolipoma (Figure 3).

DISCUSSION

In this study, we report a rare case of giant infiltrating angiolipoma in a nine-year-old male patient. This case involves a giant infiltrating angiolipoma on the left thigh, measuring 18 cm in diameter. A heterogeneous intramuscular solid mass without infiltration of the surrounding bone or neurovascular bundle was seen on the patient's M.R. image. A flow void lesion that was hypointense on all sequences of
the M.R. image was discovered, indicating the presence of a benign vascular lesion in the left femur’s soft tissue.

There are numerous differential diagnoses for soft tissue tumors that show imaging characteristics of vascular lesions. Vascular malformations and vascular tumors are the two categories into which the International Society for the Study of Vascular Anomalies has divided vascular anomalies. Categorization of Soft Tissue Malignancies The largest group of mesenchymal tumors, adipocytic tumors, is where the WHO classifies angiolipomas. It is defined as a benign soft tissue tumor separated into types that infiltrate and those that do not. Because of its growth pattern and propensity to occur locally, the uncommon infiltrative, non-infiltrated type is distinct from skin lesions and typically involves deep soft tissue. It is currently best to classify these lesions as intramuscular hemangiomas.

Young adults are more likely to develop angiolipomas and older patients are typically diagnosed with infiltrating angiolipomas. Angiolipomas are equally distributed in both sexes and primarily affect the forearm (about two-thirds of cases), trunk, spinal axis, head, and neck. They rarely grow larger than 4 cm. Further imaging is rarely necessary for the diagnosis of cutaneous hemangiomas. On the other hand, the case we described is an uncommon form of giant lipoma, it should be considered in the differential diagnosis.

**CONCLUSION**

There are many different types of vascular malformations and tumors, which makes diagnosis and treatment difficult. There is a great deal of confusion because incorrect nomenclature is used frequently. We present a unique instance of a giant angiolipoma that penetrated the thigh. Since angiolipoma is a histologically uncommon form of giant lipoma, it should be considered in the differential diagnosis.

**THE PATIENT’S INFORMED CONSENT**

The writing of this manuscript has obtained written informed consent from the patient’s parents based on the publication ethics rules of the COPE and I.C.M.J.E. guidelines. The patient’s parents have also agreed to publish this case in a scientific journal.

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**AUTHOR’S CONTRIBUTION**

From the point of case finding through reading case radiology results and the clinical outcomes obtained and published in scientific publications, every author has contributed equally to this case report.

**CONFLICT OF INTEREST**

The authors report no conflict of interest in writing this case report.

**REFERENCES**


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