

Digital Lipoma of the Big Toe in Child: A Rare Case Report

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Abstract

A lipoma is a typical non-cancerous soft tissue lump that can develop beneath the skin and may grow anywhere in the body most commonly involving the upper trunk (chest, arm, shoulder, neck and upper thigh). They grow slowly and are non-cancerous. While lipomas in the foot are relatively uncommon, their occurrence in this location is rare. To our knowledge lipoma of the toe in a child is a very rare case. This case study concerns a large lipoma in a child, specifically located on the underside of the first big toe, its radiological imaging finding on ultrasound and histopathology.

Keywords: *Lipoma, adipose tissue, benign soft tissue tumor, ultrasound, histopathology.*

INTRODUCTION

A lipoma is a rounded or oval mass of tissue that forms just beneath the skin's surface. Comprised mainly of fat, it's movable to the touch and generally painless. Lipomas can manifest in various body regions, although they are most frequently found on the back, trunk, arms, shoulders, and neck. These growths are benign soft tissue tumors, with infrequent occurrences on the face, hands, lower legs, and feet, unless they are associated with the condition known as multiple lipomas.

If it causes pain investigations are used to diagnose the lipoma these include Ultrasound, MRI and Histopathology. A definitive diagnosis can be made on correlation between clinical history, radiological imaging findings and histopathology. Treatment planning can be based on the nature and severity of the disease. The recommended treatment option for lipoma is surgical excision.

CASE REPORT

A thirteen-year-old child presented in our outpatient department of surgery with a complaint of painful swelling in the right first big toe at the plantar aspect in the past Year. Initially swelling was small in size then gradually increased in size and became clinically visible.

On examination a subcutaneous well-defined rounded swelling on the plantar aspect of the right big toe with normal smooth intact overlying skin (**Fig. 1**). It measures about 2.0x2.0cm mobile in consistency and non-tender on palpation. There was no evidence of blood /pusy discharge at the site of swelling. They refer to the

ultrasound department which showed two isoechoic define masses are seen in the subcutaneous tissue of the big toe on the plantar and lateral aspect (**Fig. 2**). One in the plantar aspect above distal phalanx measuring approximately 2.3x1.1 cm extending up to tendon of flexor hallucis longus with involvement of the tendon and other one in the lateral aspect between first and second toe measuring approximately 1.4x0.8 cm. These show no calcification, cystic changes or vascularity. Findings are most likely due to lipoma of the big toe (**Fig. 3**).



Fig. (1): Swelling along the planter aspect of the right big toe.

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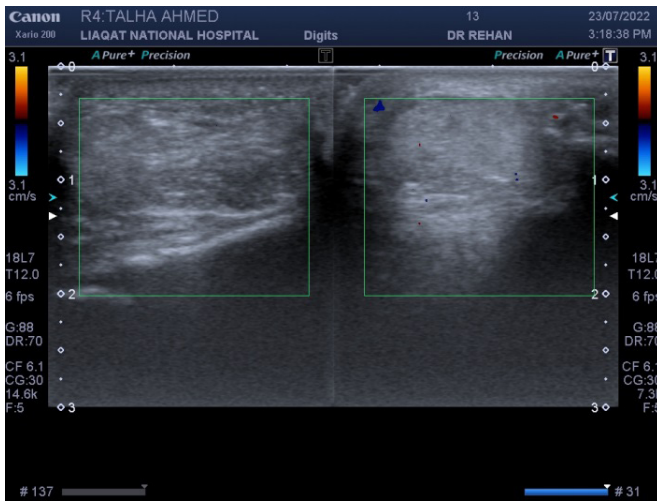


Fig. (2): Two isoechoic ill-defined masses are seen in the subcutaneous tissue of the big toe on plantar and lateral aspects with no calcification, cystic changes or vascularity likely suggestive of lipomas of the big toe.

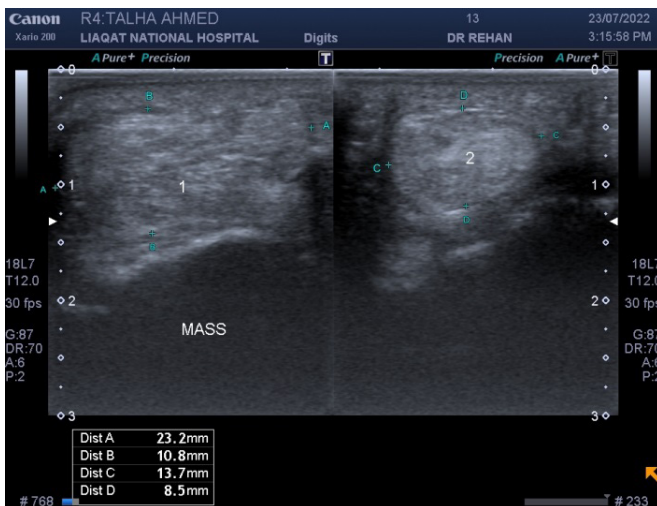


Fig. (3): Two isoechoic ill-defined masses are seen on the plantar and lateral aspects of the big toe. One in the plantar aspect above the distal phalanx measuring approximately 2.3x1.1 cm extending up to the tendon of flexor hallucis longus with involvement of the tendon and the other one in the lateral aspect between the first and second toe measuring approximately 1.4x0.8 cm. These show no calcification, cystic changes or vascularity. Findings are most likely due to lipoma of the big toe.

Based on the clinical and ultrasound findings patient underwent the incisional biopsy under local anesthesia. Histopathological examination showed a circumscribed lesion composed of sheets of mature adipocyte separated by fine fibrocollagenous and fibrovascular septae (Fig. 4). Areas of fat necrosis are noted. No atypical stromal cells or lipoblasts seen. No evidence of granuloma or malignancy was seen.

DISCUSSION

Lipomas are typically not associated with pain, although they can cause discomfort when they exert pressure

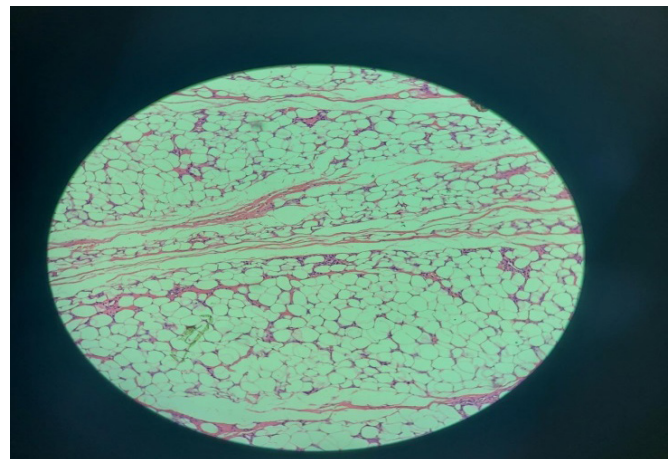


Fig. (4): Circumscribed lesion composed of sheets of mature adipocyte separated by fine fibro collagenous and fibrovascular septae.

on a nerve or form near a joint. Most individuals with lipomas do not experience noticeable symptoms [1-3].

Lipomas are non-cancerous soft tissue tumor that develop slowly and are benign. The majority of lipomas do not require any treatment. Approximately 1 in every 1,000 individuals have a lipoma. These growths are most commonly observed between the ages of 40 and 60 but can occur at any stage of life. Lipomas can affect both males and females.

Lipomas typically are:

- **Round or oval in shape:** These soft tissue lumps are generally symmetrical.
- **Mobile:** Positioned just under the skin's surface, they can be moved by touch.
- **Generally painless:** Although some lipomas may cause discomfort, particularly depending on their location, size, or the presence of blood vessels.
- **Encapsulated:** They remain confined and do not invade the surrounding tissues [1-3].

Lipomas can be differentiated from myxomas as lipomas have fat content and myxomas do not. This is a crucial factor for differentiation on MRI. Lipomas are most common in soft tissues where whereas myxomas are most common in the heart. Lipoma shows well-defined, homogenous fat density with attenuation values around -100 Hounsfield unit (HU) and myxoma can appear well-defined or ill-defined with variable density depending on the amount of myxoid material. Lipomas show minimal contrast enhancement, whereas myxomas may show some degree of enhancement.

Certain foot lipomas have been reported to cause tarsal tunnel syndrome. Peulve P conducted a cytogenetic analysis of a pediatric myxolipoma on the large toe

of a 3-year-old girl, revealing no association with chromosomal abnormalities. When encountering a similar clinical presentation, consideration should also be given to clear cell sarcoma. However, it's important to note that clear cell sarcoma is typically closely associated with the tendons or aponeurosis.

Microscopic examination of the clear cell sarcoma reveals a consistent pattern characterized by dense groupings or bundles of spindle-shaped cells with a translucent cytoplasm, a notable contrast from a lipoma. In the instance of a benign toe lipoma, diagnosis is most effectively achieved through clinical assessment and ultrasonography, with complete removal as the preferred treatment. To the best of our knowledge, there are no prior reports of a benign digital foot lipoma developing in an adult within the existing literature [4-6].

CONCLUSION

Foot lipomas do exist, although the incidence of these tumors in this particular location is uncommon, especially in children.

CONSENT FOR PUBLICATION

Written informed consent was taken from the participants.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Declared none.

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