

# Right proximal tibia post-traumatic lipoma following a jogging fall

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## Abstract

This case report describes a 70-year-old woman who presented with a lump at the right knee. She had had a fall while jogging two years previously, followed by the development of a painless mass at the injury site. The mass had gradually increased in size over time. At presentation the physical examination revealed a soft, ill-defined mass, and magnetic resonance imaging confirmed a well-circumscribed subcutaneous soft tissue mass consistent with a lipoma. Given the asymptomatic nature and well-defined characteristics of the mass, the patient opted for conservative management with observation. This case highlights the importance of considering post-traumatic lipoma in the differential diagnosis of soft tissue masses, particularly in patients with a history of trauma. Such masses should be regularly monitored to allow timely intervention if indicated.

**Keywords:** lipoma; knee; mass; post-traumatic

## Introduction

A post-traumatic lipoma (PTL) is a benign soft tissue tumor that develops following blunt trauma. It is a relatively rare condition, and its exact etiology remains unknown [1]. However, several mechanisms are thought to contribute to its development, including direct trauma to adipose tissue, disruption of the fascia, or changes in blood circulation [2–4]. A PTL typically presents as a painless, slow-growing mass that can vary in size and location. Herein we present a case of a PTL at the right proximal tibia in a 70-year-old female with a history of blunt trauma.

## Case Report

A 70-year-old female presented to the orthopedic clinic with an ~8 cm soft tissue mass on the right proximal tibia. She reported a history of a fall while jogging two years prior, with her knee making painful contact with the sidewalk. Soon after the fall, she noticed a small, painless mass at the site of the injury. Over the following two years, the mass gradually increased in size.

On physical examination, a soft, ill-defined mass measuring approximately 8 cm in diameter could be seen and palpated on the anterior aspect of the right proximal tibia (Fig. 1). The mass was mobile, non-tender, and had normal overlying skin. No other abnormalities were found on a musculoskeletal examination.

Magnetic resonance imaging (MRI) revealed a well-circumscribed, subcutaneous soft tissue mass measuring 1.4×4.0×7.5 cm. The mass was homogeneous in appearance with signal characteristics consistent with a lipoma (Figs 2 and 3). There was no evidence of

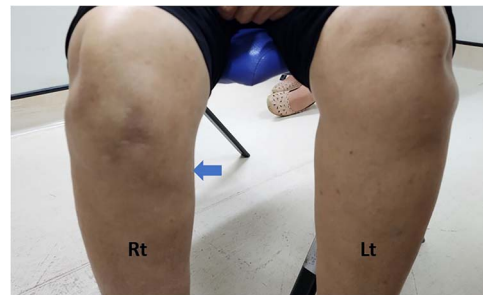


Figure 1. Soft tissue mass at the proximal tibia, frontal view.

infiltration into the surrounding tissues or involvement of the underlying bone.

Based on the clinical history, physical examination, and imaging findings, the diagnosis of a PTL was made. The patient was informed about the diagnosis and the different treatment options available. After careful consideration, she opted for no treatment, with observation of the mass.

## Discussion

PTLs are most commonly seen in the third to fifth decades of life, with a higher prevalence in women. The exact etiology of these lipomas remains unclear, but trauma is believed to play a significant role in their development. In this case, the patient's history of a fall with a direct blow to the right proximal tibia

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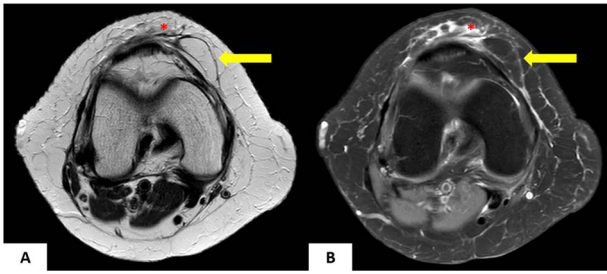


Figure 2. Axial T2-weighted (A) and fat suppressed axial proton density-weighted (B) images show an encapsulated fatty lesion (arrow) at the anterior aspect of the medial patellofemoral ligament. It shows hyperintensity on the T2-weighted image and hypointensity on the fat-suppressed axial proton density-weighted image. Ill-defined subcutaneous fat edema (asterisks) is seen around the lesion, predominant at the anterior aspect.

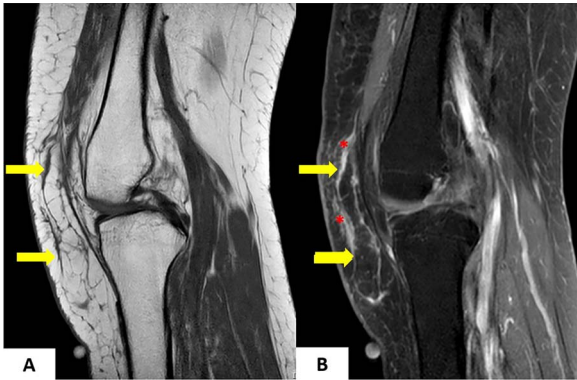


Figure 3. Sagittal T1-weighted (A) and post-Gd T1-weighted fat suppression (B) images show an encapsulated fatty lesion (arrow) at the anterolateral aspect of the knee. The lesion shows hyperintensity on the T1-weighted image and hypointensity on the post-Gd T1-weighted image with a few thin septal enhancements. No internal enhanced solid components are seen. Peripheral subcutaneous fat edema is also noted (asterisks).

followed by the development of a mass at the same location strongly suggested a post-traumatic etiology.

There are several causes which are thought to contribute to the development of a PTL, including direct trauma to adipose tissue, disruption of the fascia, and/or changes in blood circulation. Some studies have suggested that there may be a genetic link, as about two-thirds of lipomas demonstrate genetic abnormalities, alongside a positive correlation between trauma and lipoma production [3, 4]. Another study suggested that the formation of post-traumatic 'pseudolipomas' may result from a prolapse of adipose tissue through the fascia [2].

While PTLs are typically asymptomatic, larger or more rapidly growing masses can cause pain, tenderness, or difficulty with movement. This patient's mass was relatively large, but it remained asymptomatic throughout the two years of its slow growth following the injury. This finding is consistent with the known natural history of PTLs, which tend to grow slowly and often remain stable or even regress over time.

MRI is the imaging modality of choice for diagnosing a PTL [5]. An MRI can provide detailed information about the size, location, and characteristics of the mass, helping to differentiate it from other soft tissue tumors. In this case, the MRI findings were consistent with a lipoma, showing a well-circumscribed, homogeneous mass with characteristic signal features.

The management of a PTL depends on several factors, including the size, location, and symptoms. For a small, asymptomatic

lipoma, observation is often sufficient. However, larger or symptomatic lipomas may require surgical excision or liposuction. In this case, the patient opted for conservative management due to the lack of symptoms and the well-defined characteristics of the mass on MRI. Regular monitoring of a PTL is important to watch for any changes, which may require further investigation and possible treatment.

In conclusion, this case report highlights the clinical presentation, diagnosis, and management of a PTL. It notes the role of trauma in the etiology and development of a PTL and the importance of considering a PTL in the differential diagnosis of a soft tissue mass, particularly in patients with a history of injury in the area. With appropriate management, most patients with PTLs have a good prognosis, with a stable mass and preserved function.

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## Conflicts of interest

No conflicts of interest to declare.

## Funding

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## Ethical approval

The present study was approved by the Institutional Review Board of the Faculty of Medicine of Prince of Songkla University (IRB number REC 66-540-11-1).

## Consent

Written informed consent was obtained from the patient for publication.

## Guarantor

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