

## Sports-related Lipoma: A Case Report

Nicholas A Daniels\*

Department of Medicine, Division of General Internal Medicine, University of California, San Diego, USA

### Abstract

**Introduction:** Lipomas are relatively common and are the most prevalent benign soft-tissue neoplasm. The transformation of lipomas into malignant liposarcomas is relatively rare, and the precise etiology and pathogenesis of lipomas are not well understood. Few published studies or case reports of post-traumatic lipomas have been described in the medical literature, and the pathological link between blunt trauma and formation of lipomas remains controversial.

**Case presentation:** 46 year-old male presented to the clinic complaining of right knee swelling and the presence of a leg mass. The patient reported that he previously sustained blunt leg trauma during a basketball game at the site of his leg mass. After increased growth of his leg mass on imaging, he sought medical and surgical evaluation. The patient decided to pursue surgical resection with pathologic specimen review. The patient underwent surgical resection of the right thigh mass and the final pathologic diagnosis was a lipoma.

**Conclusion:** When evaluating a patient with a lipoma, physicians should ascertain whether or not the patient has sustained previous trauma at the site of the mass lesion. It appears from this case report that blunt trauma during sports may be a risk factor for the future development of soft tissue lipomas. Further epidemiologic research is necessary to clearly ascertain this pathologic link.

**Keywords:** Lipoma; Blunt trauma, Mass lesion

**Abbreviations:** MRI: Magnetic Resonance Imaging; CM: Centimeters; kg: Kilograms; M: Meters.

### Introduction

Lipomas are relatively common and are the most prevalent benign soft-tissue neoplasm [1]. The transformation of lipomas into malignant liposarcomas is relatively rare, and the precise etiology and pathogenesis of lipomas are not well understood [2]. Few published studies or case reports of post-traumatic lipomas have been described in the medical literature, and the pathological link between blunt trauma and formation of lipomas remains controversial [1].

### Case Presentation

In October 2013, a 46 year-old male presented to the General Medicine Clinic complaining of right knee swelling and the presence of a leg mass. The patient reported that he sustained blunt leg trauma in March 2009 while playing basketball (his right leg was hit forcefully by another player's knee). A lower extremity MRI in 2010 revealed a benign mass 2.5 × 2 cm in size. The patient reported that the soft tissue mass above his knee may have enlarged over the past few years, and that he now wanted to consider having it removed. The patient had no remarkable past medical or surgical history and had taken no other medications, except for ibuprofen on an as needed basis for other sports-related injuries. The patient was referred to orthopedics for further evaluation of his distal right anterior thigh mass. The mass was located anterior to the quadriceps tendon proximal to his right knee.

### Physical Examination

#### Blood pressure

116/74 | Pulse: 64 | Height: 6' 0" (1.829 meters) | Weight: 88.451 kg (195 pounds) | Body Mass Index: 26.44 kg/m<sup>2</sup>.

#### General appearance

Healthy, alert, no distress, pleasant, cooperative; Psychiatric: Mood and affect appropriate, Heart: Regular rate and rhythm with no murmurs, Lungs: clear bilaterally, Extremities: No cyanosis, clubbing

or edema, Skin: No rashes or lesions, Neuro: Normal gait, Vascular: Strong distal pulses, Lymph: No lymphadenopathy, Musculoskeletal: right thigh: on inspection, there was a soft-tissue mass noted in the anterior distal thigh. No overlying skin changes or ulceration; on palpation, negative Tinel's sign, the leg mass was well circumscribed. It was moderately firm, firmer than a typical lipoma. It was adherent to the quadriceps tendon; sensation was intact in the sural, saphenous, superficial peroneal, deep peroneal, and tibial nerve distributions. The patient has +5/5 motor strength in the quads and hamstring. The foot was well perfused.

### Imaging

The magnetic resonance imaging (MRI) performed on November 6, 2013 showed: A 4.0 × 1.0 × 2.8 cm superficial subcutaneous soft tissue mass anterior to the distal quadriceps tendon about 3 cm superior to the patella. This mass was bright on T1-weighted imaging and suppressed on fat saturated sequences, consistent with a fat containing lesion. The final radiographic assessment reported that it was a neoplasm of uncertain behavior of connective and other soft tissue.

Non-operative and surgical treatment options were discussed with patient. The surgical recommendation was to do an open excisional biopsy, given the increasing size of the mass, and since the MRI showed some stranding in the mass. There was discussion with the patient that the findings were consistent with a lipoma versus a low-grade liposarcoma. The patient decided to pursue surgical resection with pathologic specimen review.

\*Corresponding author: Nicholas A. Daniels, Department of Medicine, Division of General Internal Medicine, University of California, San Diego, California; USA, Tel: 415-335-0001; E-mail: [ndaniels@ucsd.edu](mailto:ndaniels@ucsd.edu)

Received March 05, 2015; Accepted April 08, 2015; Published April 11, 2015

Citation: Daniels NA (2015) Sports-related Lipoma: A Case Report. J Clin Case Rep 5: 519. doi:10.4172/2165-7920.1000519

Copyright: © 2015 Daniels NA. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

In January 2014, the patient underwent surgical resection of the right thigh mass and the final pathologic diagnosis was a lipoma (3.5 cm). The pathologic sample was 7.0 g, unoriented fragment of yellow-tan soft tissue that measured 3.5 × 2.5 × 1.0 cm.

## Discussion

Lipomas are relatively common and are the most prevalent benign soft-tissue neoplasm [1]. Lipomas are a subcutaneous, superficial collection of adipose cells usually encased in a fibrous capsule. The transformation of lipomas into malignant liposarcomas is relatively rare, but the precise etiology and pathogenesis of lipomas are not well understood and they are often classified as idiopathic or familial [2]. Few published studies or case reports of post-traumatic lipomas have been described in the medical literature, and the pathological link between blunt trauma and formation of lipomas remains controversial [1]. This case report adds to this body of literature by clearly demonstrating development of a lipoma at the site of blunt trauma sustained while playing basketball.

The most likely pathogenesis of lipoma formation is thought to occur as a direct result of prolapse or herniation of deeper adipose tissue through the musculofascial system or Scarpa's layer induced by direct impact or trauma [1,3,4]. It is speculated that focal inflammation may lead to fat necrosis that affects adipocytes, thus promoting the formation of lipomas [2]. The mean duration of between blunt soft tissue trauma and the formation of lipomas has been estimated at 2 years (range, 0.5-5 years) [1]. Rapidly growing adipose tumors in the subfascial plane are indications for surgical interventions [5].

## Conclusion

When evaluating a patient with a lipoma, physicians should ascertain whether or not the patient has sustained previous trauma at the site of the mass lesion. It appears from this case report, and from some other epidemiological data, that blunt trauma during sports may be a real risk factor for the future development of soft tissue lipomas [6-10]. Further epidemiologic research is necessary to clearly ascertain this pathologic link.

## References

1. Aust MC, Spies M, Kall S, Gohritz A, Boorboor P, et al. (2007) Lipomas after blunt soft tissue trauma: are they real? Analysis of 31 cases. *Br J Dermatol* 157: 92-99.
2. Signorini M, Campiglio GL (1998) Posttraumatic lipomas: where do they really come from? *Plast Reconstr Surg* 101: 699-705.
3. Copcu E, Sivrioglu NS (2003) Posttraumatic lipoma: analysis of 10 cases and explanation of possible mechanisms. *Dermatol Surg* 29: 215-220.
4. David LR, DeFranzo A, Marks M, Argenta LC (1996) Posttraumatic pseudolipoma. *J Trauma* 40: 396-400.
5. Leclère FM, Casoli V, Pelissier P, Vogt PM, Desnouveau E, et al. (2015) Suspected adipose tumours of the hand and the potential risk for malignant transformation to sarcoma: a series of 14 patients. *Arch Orthop Trauma Surg*.
6. Penoff JH (1982) Traumatic lipomas/pseudolipomas. *J Trauma* 22: 63-65.
7. Bokhari RF, Bangash MH, Ahamed NA, Addas J (2014) A symptomatic Sylvian fissure lipoma in a post-traumatic patient. *J Radiol Case Rep* 8: 1-7.
8. Krych A, Odland A, Rose P, Dahm D, Levy B, et al. (2014) Oncologic conditions that simulate common sports injuries. *J Am Acad Orthop Surg* 22: 223-234.
9. Khan AZ1, Shafafy M, Latimer MD, Crosby J (2012) A lipoma within the Achilles tendon sheath. *Foot Ankle Surg* 18: 16-17.
10. Dispenza F, De Stefano A, Romano G, Mazzoni A (2008) Post-traumatic lipoma of the parotid gland: case report. *Acta Otorhinolaryngol Ital* 28: 87-88.