

Lipoma of the Tendon Sheath Causing Symptoms of de Quervain's Tenosynovitis: A Case Report

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Abstract

Deep lipomas arising from the extensor compartments of the wrist are extremely rare. Owing to infrequent presentation and mass effect on nearby structures, lipomas can be mistaken for other clinical entities. We describe a 70-year-old woman who presented to our clinic with symptoms initially suggestive of de Quervain's tenosynovitis of the left wrist. However, findings of physical examinations and imaging techniques revealed a lipoma of the tendon sheath of the second dorsal compartment. The patient was successfully treated operatively, with excision and release of the first dorsal compartment. To help accurately diagnosis and treat lipomas of the wrist in deep-tissue areas—with symptoms initially similar to de Quervain's tenosynovitis—surgeons should consider performing thorough physical examinations and, if needed, magnetic resonance imaging.

Introduction

Lipomas are benign adipose tumors. They are the most common benign soft-tissue tumor,¹ particularly in the hands and forearm.² Lipomas typically arise in the subcutaneous tissues and rarely appear within deeper layers such as the deep palmar spaces, extensor tendon sheaths, and perineural zones in the hand and forearm.^{3,4}

Despite their benign nature, lipomas of the wrist and hand have been associated with a high potential for compression of surrounding structures owing to the musculoskeletal density of those regions.^{3,5} To our knowledge, no reports have noted a lipoma in or adjacent to other wrist-extensor compartments. We describe a 70-year-old woman with a deep lipoma of the second-extensor compartment of the wrist, with initial symptoms of de Quervain's tenosynovitis. The patient was informed that the data concerning the case would be submitted for publication, and she provided verbal consent.

Case Report

A 70-year-old, right-hand dominant, retired woman presented with a mass on the dorsum of the distal aspect of her left forearm. The mass had been slowly enlarging for 3 years. Initially, the mass was painless; however, in the month before presentation, the patient described pain over the dorsal radial aspect of the wrist. Findings in her medical history and the noted distribution of pain were suggestive of de Quervain's tenosynovitis. She did not report symptoms of de Quervain's tenosynovitis before mass enlargement.

Results of physical examinations revealed a soft, rubbery, mobile mass on the dorsoradial aspect of the wrist, arising proximal to the radial styloid. The patient exhibited tenderness to palpation over the tendons of the first dorsal compartment, with a positive Finkelstein maneuver. She had no positive Tinel sign over her superficial radial sensory nerve and no sensory deficits in the hand. The wrist and hand exhibited normal range of motion, with mild pain upon terminal wrist flexion and extension.

Plain radiographs of the wrist showed no abnormalities, except for incidental age-related degenerative changes. Because of the presence of the mass on physical examination, an MRI with and without contrast was obtained which demonstrated a 2.7 x 4.1 cm non-enhancing, septated mass consistent with lipoma (Figure 1). This appeared to arise from within the tendon sheath of the second extensor, just proximal to the extensor retinaculum. The mass proceeded proximally and superficially, situated in the distal forearm above the outcropper muscles that crossed toward the first dorsal compartment. The abductor pollicis longus (APL) and extensor pollicis brevis (EPB) tendons distally showed radiographic signs of tendinitis. The radial styloid also showed high T2-weighted signal consistent with bony edema.

During operative treatment, an oblique incision was made over the course of the mass. No lipomatous tissue was found in the subcutaneous adipose layer. The

superficial radial nerve was identified and protected (Figure 2). A thickened capsule was encountered and entered overlying a large, lobulated yellow mass consistent with lipoma. At its proximal extent, this mass extended superficial to and compressed the APL and EPB (“outcropper”) muscle bellies, as indicated by the MRI (Figure 3). The mass was somewhat adherent to the underlying muscle and, upon distal dissection, appeared to originate around the tendons of the second extensor tendon compartment in the wrist. It was excised as a single unit and sent to the pathology department for histological analysis, which confirmed the diagnosis of lipoma. Although the symptoms may have resolved without compartment release, we decided to release the first dorsal compartment intraoperatively to ensure complete relief of symptoms and avoid any residual discomfort or revision procedures.

At 2 weeks postoperatively, the patient returned for follow-up. Her symptoms of first dorsal compartment compression had resolved. Her wound was healing well and she did not experience any pain.

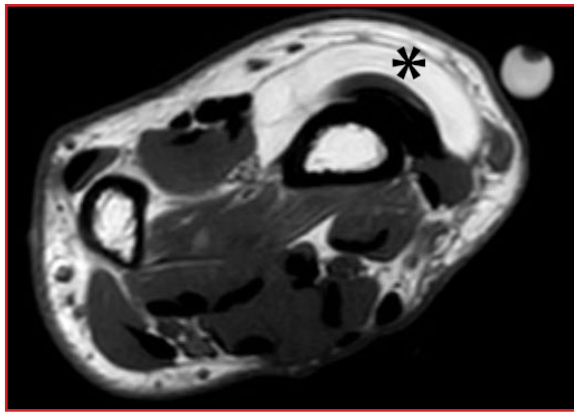


Figure 1. Axial magnetic resonance imaging, showing the lipoma’s origin (asterisk) within the second dorsal compartment and its mass effect on the outcropper muscles.



Figure 2. Lobulated lipomatous mass immediately deep to capsule. Superficial radial nerve is visible (arrow) at the inferior aspect of the dissection.



Figure 3. Lipomatous mass reflected after dissection to illustrate compressive effect on crossing muscle fibers of the abductor pollicis longus and extensor pollicis brevis (arrow).

Discussion

Deep lipomas of the upper extremities are relatively rare, tendon sheath lipomas of the upper extremity are extremely rare, and extensor tendon sheath lipomas of the hand and wrist are nearly unreported. To our knowledge, no study has described a deep lipoma with symptoms similar to those of de Quervain’s tenosynovitis owing to compression on the APL and EPB muscle bellies.

Leffert⁵ reviewed 141 lipomas of the upper extremity and noted six patients with compressive neuropathy and 26 with local pain caused by compression from adjacent lipomas. In a study of 13 lipomas of the forearm, wrist, and hand by Nadar et al.,³ multiple instances of neuropathy and compression-related muscle pain were described; furthermore, extensive neurolysis was often required owing to the perineural location of the tumor. Gurich and Pappas³ recently described a lipoma of the fourth extensor compartment of the wrist, causing compressive pain and stiffness with finger extension.

In the current case, the associated diagnosis of lipoma was clear after superficial tracking and a subsequent clinically apparent dorsal mass; however, our patient was a slender, elderly woman (body mass index, 23 kg/m²) with a relatively small amount of muscle mass. In an obese patient, or one with notably more muscle bulk about the forearm, the diagnosis would have been easier to miss.

Of note, the lipoma did not track distally into the first dorsal compartment at the wrist, and therefore a standard limited open surgical approach to release the tendons of the first dorsal compartment would not have revealed it. We believe the lipoma caused or contributed to the symptoms of radial sided wrist pain by irritating the APL and EPB tendons proximal to the retinaculum and needed

to be excised in combination with first dorsal compartment release in order to relieve these symptoms. Clinicians should be aware of a potential proximal compressive origin in what appear to be symptoms of de Quervain's tenosynovitis and perform a careful physical examination with, if needed, MRI.

Funding

The authors received no financial support for the research, authorship, and publication of this article.

Conflict of Interest

The authors report no conflicts of interest.

References

1. Higgins JC, Maher MH, Douglas MS. Diagnosing common benign skin tumors. *Am Fam Physician* 2015;92(7):601-7.
2. Calandruccio JH, Jobe MT. Tumors and tumorous conditions of the hand. In: Canale ST, Beaty JH, eds. *Campbell's Operative Orthopaedics*. 11th ed. Philadelphia, PA: Mosby Elsevier; 2008: chap 74.
3. Nadar MM, Bartoli CR, Kasdan ML. Lipomas of the hand: a review and 13 patient case series. *Eplasty* 2010;10:e66.
4. Gurich RW Jr, Pappas ND. Lipoma of the tendon sheath in the fourth extensor compartment of the hand. *Am J Orthop (Belle Mead NJ)* 2015;44(12):561-2.
5. Leffert RD. Lipomas of the upper extremity. *J Bone Joint Surg Am* 1972;54(6):1262-6.