Tenosynovial Chondromatosis of the Flexor Hallucis Longus Tendon: Case Report

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ABSTRACT Synovial chondromatosis is a rare benign condition, characterized by metaplasia and formation of multiple cartilaginous nodules in the synovium of the joints. The nodules may enlarge and detach from the synovium and secondary calcification and ossification commonly occur. Synovial chondromatosis occurs in middle-aged adults and frequently affects the knee, hip, ankle, elbow, shoulder and temporomandibular joints. Occasionally synovial chondromatosis also involves extraarticular sites such as within tendon sheath and bursae. The extraarticular process arises in sinovium about the tendon or bursa. Synovial chondromatosis originating from the flexor hallucis longus tendon is rare. In this paper, a case of tenosynovial chondromatosis affecting the flexor hallucis longus tendon is presented in a 29 year-old male with right ankle pain.

Key Words: Ankle; chondromatosis, synovial; tendons


Anahtar Kelimeler: Ayak bileği; kondromatozis, sinoviyal; tendonlar

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Synovial chondromatosis represents an uncommon benign neoplastic process with hyaline cartilage nodules in the subsynovial tissue of a joint, tendon sheath or bursa.1-3 Synovial chondromatosis has been divided into primary and secondary forms. Primary synovial chondromatosis (PSC), develops from the joint or tendon synovium. Secondary synovial chondromatosis, is associated with joint abnormalities such as mechanical or arthritic conditions, that cause intraarticular chondral bodies.1,2,4,5 Primary synovial chondromatosis (PSC) is more common in men than in women, with a ratio of 2:1, usually occurring in the third to fifth decades of life.2-6,9 PSC, originating from the joint most commonly affects the knee,
hip and wrist joints, whereas the disease originating from the tendon sheath most frequently involves the feet and fingers.\textsuperscript{1,6,9,10} PSC, originating from the flexor hallucis longus tendon is rare. In this report, we present a patient with synovial chondromatosis originating from the flexor hallucis longus tendon.

\section*{CASE REPORT}

A 29-year old man presented with the right ankle pain for nine months. The pain was located mainly around the posteromedial aspect of the ankle. He did not have a history of trauma, infection or systemic rheumatologic disease. There was no swelling or tenderness around the ankle and no limitation range of motion. The plain radiographs of the ankle were unremarkable (Figure 1). Magnetic resonance imaging (MRI) of the right ankle revealed the presence of multiple focal areas of low signal intensity with all pulse sequences within the flexor hallucis longus tendon (Figure 2a-c). There was contrast enhancement of hipointens lesions following contrast material administration (Figure 3a, b). Loose bodies were excised by open synovectomy. The pathologic results were consistent with synovial chondromatosis.

\section*{DISCUSSION}

PSC, is a rare condition characterized by chondrometaplasia of the synovium. The cause of this condition is unknown but the pathogenesis involves the development of chondroid foci in the synovial membrane that eventually break free to become cartilaginous loose bodies within the joint and tendon sheath. Later, they become calcified and ossified.\textsuperscript{3,5-11} In the largest synovial chondromatosis series, Fetsch et al. termed chondromatosis originating from the tenosynovial membrane as “tenosynovial” or “extraarticular” chondromatosis.\textsuperscript{12} In our case the lesion was classified as tenosynovial chondromatosis because of its origin from the tendon sheath. Extraarticular manifestation of PSC, is extremely rare.\textsuperscript{2} Walker et al. encountered one pa-
A patient with flexor hallucis longus tendon sheath involvement in their 25 case synovial chondromatosis series.13

Clinical symptoms of tenosynovial or bursal chondromatosis are most frequently pain, painless masses or only mild tenderness upon palpation of the lesions. Swelling, decreased range of motion are less frequently seen. Durations of symptoms are frequently long. Extraarticular chondromatosis most commonly involve the hands, feet, wrists and ankles.9,13-15

The clinical diagnosis of PSC can be difficult as the clinical history and examination are non-specific. There are no helpful laboratory test or markers.5 Imaging features of PSC are frequently pathognomonic.1 Imaging techniques for tenosynovial chondromatosis include plain radiographs and MRI. Calcification is observed on radiographic examination in 70-95% of cases; however, as in our case, radiographs may appear normal.1,5,9,12 The appearance of tenosynovial chondromatosis in MRI is variable and depends on the relative predominance of synovial proliferation and loose body formation. Kramer described three subtypes based on the MRI signal of the osteochondral nodules.16 Subtype A, accounts for 16% of all cases, and unmineralized chondral lesions on MRI are difficult to distinguish from the synovial fluid and mass, as both of them display low/intermediate signal intensity on T1-weighted and high signal intensity on T2-weighted images. In such cases, intravenous contrast medium injection may be helpful in distinguishing nodules from synovial fluid. Subtype B occurs in 74% of cases, where there is calcification of some or all of the cartilaginous nodules on plain radiographs. There are areas of low signal intensity with all pulse sequences corresponding to the calcification. Other features are similar to those of subtype A. The nodules in subtype C, (9%) contain fatty marrow and consequently are isointense to fat with high and intermediate signal on T1- and T2-weighted imaging. They show signal suppression on fat saturation sequences with a low signal rim on all sequences.14,16

The MRI findings of our case is classified as subtype B tenosynovial chondromatosis.

The treatment of choice for PSC, whether intraarticular or extraarticular, is surgical resection. Surgical treatment is synovectomy and excision of loose bodies. Synovectomy can be performed by open surgery or arthroscopically.1,4,5,11

The diagnosis of synovial chondromatosis is frequently confused with tenosynovitis, arthritis, giant cell tumor of the tendon sheath, synovial hemangioma and synovial cyst.4,11 In conclusion, te-
nosynovial or bursal chondromatosis demonstrates multiple osteochondral calcifications. In addition to the imaging features, the diagnosis of tenosynovial or bursal chondromatosis can be confirmed by the lesion location which is optimally depicted by MRI.1,13

REFERENCES