Lipoma Arborescens Of The Knee Developing On The Basis Of Psoriatic Arthritis: A Case Report

Psoriatik Artrit Zemininde Gelişen Dizde Lipoma Arboresans: Olgu Sunumu

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Abstract

Lipoma arborescens is a rare benign lesion characterized by villous lipomatous proliferation of the synovium, most commonly affecting the knee joint and sometimes associated with chronic inflammatory arthropathies. A 47-year-old man with a ten-year history of psoriatic arthritis treated with prednisolone, methotrexate, and leflunomide presented with a three-month history of left knee pain, swelling, and limited motion. Ultrasonography showed diffuse suprapatellar effusion with hyperechoic villous synovial projections, and magnetic resonance imaging demonstrated hypertrophic proliferative synovium containing lipomatous areas with homogeneous enhancement. Recurrent effusion led to synovectomy, and histopathology confirmed synovial lipomatosis. Postoperative rehabilitation achieved full joint range of motion.

Keywords: Knee joint ;Lipoma arborescens; Arthritis, Psoriatic; Synovial membrane

Özet

Lipoma arborescens sinovyumun villöz lipomatöz proliferasyonu ile karakterize, genellikle diz eklemini tutan nadir ve benign bir lezyondur ve kronik inflamatuvar eklem hastalıklarıyla birlikte görülebilir. On yıldır psöriatik artrit nedeniyle prednizolon, metotreksat ve leflunomid kullanan 47 yaşındaki erkek hasta, üç aydır süren sol diz ağrısı, şişlik ve hareket kısıtlılığı ile başvurdu. Ultrasonografide suprapatellar yaygın efüzyon ve hiperekojen villöz sinovyal çıkıntılar, manyetik rezonans görüntülemede lipomatöz alanlar içeren hipertrofik proliferatif sinovyal doku ve homojen kontrastlanma saptandı. Tekrarlayan efüzyon üzerine lipoma arborescens ön tanısı ile sinoviyektomi yapıldı ve histopatoloji sinovyal lipomatozis ile uyumlu raporlandı. Postoperatif rehabilitasyon sonrası tam eklem hareket açıklığı sağlandı.

Anahtar kelimeler: Diz eklemi; Lipoma arboresans; Psöriatik artrit; Sinovyal membran;

INTRODUCTION

Lipoma arborescens (LA) is a rare intra-articular disease characterized by benign lipomatous proliferation of the synovium, manifesting as a slowly progressive, painless joint effusion. In 1904, German physician Albert Hoffa provided the first report of synovial lipomatosis at the annual meeting of the American Medical Association in New Jersey (1). Although its etiology is not fully determined, it is possible that it may develop as a result of an inflammatory process such as rheumatoid arthritis (RA), ankylosing spondylitis (AS), or a degenerative joint disease such as osteoarthritis (OA). Recurrent trauma may also be considered a contributing factor. While chronic monoarticular involvement is typical, oligoarticular involvement can be observed in some cases (2). It causes complaints such as swelling, pain, erythema, and limited range of motion. Histopathological sampling is the gold standard for diagnosis, while clinically compatible magnetic resonance imaging alone is considered sufficient (3). Surgical treatment is more prominent than conservative approach in treatment (4).

CASE REPORT

A 47-year-old man presented with pain, limited range of motion, and swelling in his left knee, which had persisted for approximately 3 months. His medical history revealed a 10-year history of psoriatic arthritis and his use of prednisolone, methotrexate, and leflunomide. Physical examination revealed widespread psoriatic lesions in both lower extremities. The left knee had markedly limited range of motion, minimal warmth, and tenderness along the knee joint. A patellar ballottement test was positive. Both wrists and the left second finger exhibited redness, mild warmth, and limited range of motion.

A knee ultrasound revealed widespread suprapatellar effusion and hyperechoic villous synovial protrusions(figure-1).

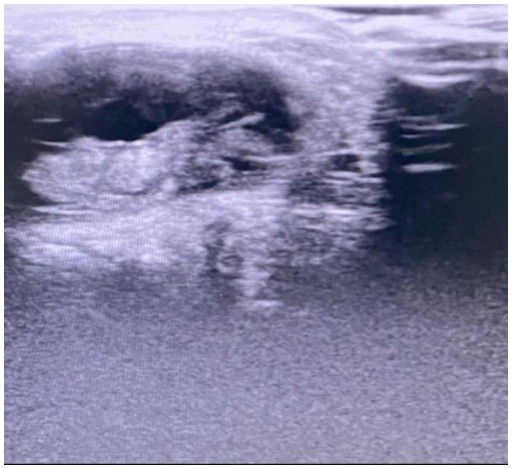

Figure-1

140 cc of inflammatory synovial fluid was aspirated under ultrasound guidance. A steroid injection was administered after aspiration. Cold compresses and a nonsteroidal anti-inflammatory drug were added to his current treatment. Synovial fluid analysis revealed abundant leukocytes in the cell count, but no growth was observed in the synovial fluid culture. Blood count revealed CRP of 118 mg/L, sedimentation rate of 50 mm/hour, and white blood cell count within normal limits.

Contrast-enhanced magnetic resonance imaging of the patient's left knee revealed hypertrophic proliferative features, including lipomatous areas, within the synovial structures of the knee joint (figure-2a, figure-2b).

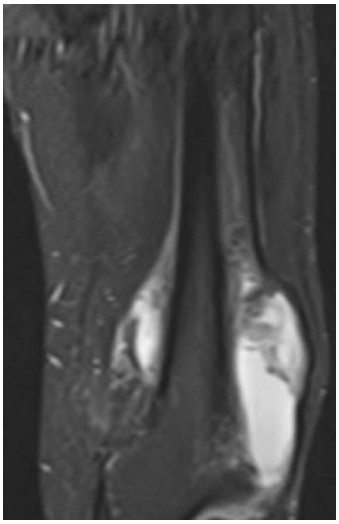

Figure-2a

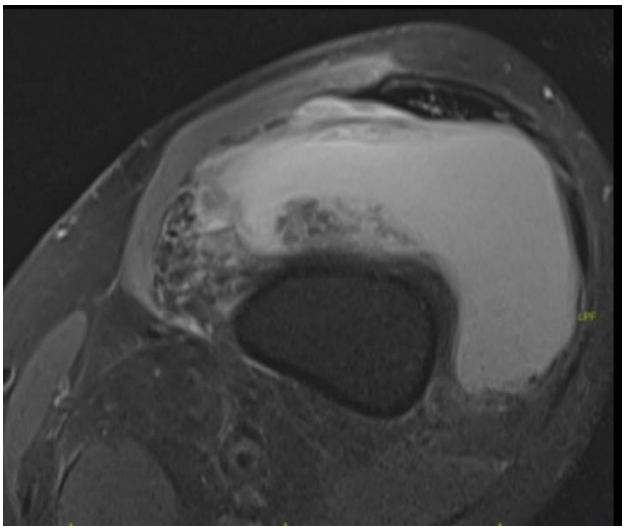

Figure-2b

Post-contrast series revealed widespread, homogeneous, diffuse enhancement in these areas. At a follow-up visit one week later, 80 cc of synovial fluid was aspirated again. The patient was referred to the orthopedic clinic with a preliminary diagnosis of lipoma arborescens. Pathology results revealed widespread mature adipose tissue infiltration, vascular congestion, and plasma-rich chronic inflammation, along with villous tissue fragments covered by proliferating synovial epithelium. Histopathological findings were consistent with synovial lipomatosis. Following a postoperative rehabilitation program, full range of motion was achieved.

DISCUSSION

Lipoma arborescens (LA) is a rare benign disorder characterized by villous lipomatous proliferation of the synovium, typically involving a single knee (5,6). LA is predominantly observed in adults, with most cases diagnosed in the fourth or fifth decade of life. It occurs with equal frequency in both sexes (7).

The knee joint is the most common site of involvement, followed less frequently by the shoulder, elbow, and hip joints. While the disease is usually confined to a single knee, bilateral involvement has also been reported (8). It generally has a predilection for the suprapatellar bursa; however, Blais et al. recently described a case located in the suprapatellar recess, anterior compartment, and medial and lateral grooves (9).

In one of the most comprehensive case series, Vilanova et al. conducted a retrospective magnetic resonance imaging (MRI) review of 12,578 knee MRI reports, identifying only 33 cases of lipoma arborescens. In 94% of patients, involvement was confined to a single knee, with a mean age of 59 years (10).

Although LA is thought to develop secondary to trauma or inflammation, many cases lack a history of trauma. Thus, it is generally considered a reactive synovial response to these conditions (11). The etiology remains unclear; however, the most widely accepted hypothesis is reactive fat metaplasia triggered by chronic synovial irritation and inflammatory processes (3,10). In their study, Vilanova et al. reported degenerative changes in 87% of cases and meniscal tears in 72%. Similarly, De Vleeschhouwer et al. regarded LA as a reactive response of synovial tissue to mechanical stress or degenerative processes (3). In addition, associations with inflammatory arthropathies such as rheumatoid arthritis (RA) and psoriatic arthritis (PsA) have been documented (12). Particularly in PsA, bilateral knee involvement has frequently been observed (12,13), supporting the role of chronic inflammation and cytokine-mediated mechanisms in triggering adipocyte proliferation.

Plain radiography is often the initial imaging modality but usually reveals nonspecific findings such as bone erosions, osteophytes, or soft-tissue density in the suprapatellar region (3). Although histopathological examination is considered the gold standard, MRI combined with clinical findings is often sufficient for diagnosis due to its pathognomonic features. MRI typically demonstrates fat-signal synovial proliferation, joint effusion in the suprapatellar pouch, and post-contrast enhancement. Differential diagnosis should include synovial chondromatosis, pigmented villonodular synovitis, synovial hemangioma, quadriceps fat pad impingement, intra-articular lipoma, and liposarcoma.

On ultrasonography, as observed in our case, joint effusion, hyperechoic synovial folds within the intra-articular mass, and polypoid projections extending toward the synovium can be identified. These structures are often mobile with compression and typically show no significant vascularity on power Doppler (14). Importantly, ultrasound allows dynamic real-time assessment of synovial hypertrophy and fat-containing villous structures, facilitating differentiation from vascular lesions such as synovitis, villonodular synovitis, or synovial chondromatosis. Moreover, ultrasound can be utilized for diagnostic aspiration, biopsy guidance, and postoperative recurrence monitoring.

Treatment options range from conservative management to open synovectomy, with the latter being the most effective approach. Hallel et al. reported villous lipomatous proliferation in 7 knees of 5 patients, with complete resolution observed in those who underwent synovectomy (15).

CONCLUSION

Lipoma arborescens is a rare but benign synovial proliferation that, when correctly diagnosed, carries a good prognosis with effective treatment. Early diagnosis and the use of appropriate imaging methods are crucial for preventing unnecessary interventions and preserving the patient's quality of life.

DECLARATION

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Consent to participate: All authors gave consent to participate.

Consent for Publication: All authors have given written consent for publication.

Author contributions: All authors contributed to the conceptualization and design of the study, as well as to the preparation of materials, data collection, and analysis. All authors read and approved the final manuscript.

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