Turk J Phys Med Rehab 2023;69(3):385-388
DOI: 10.5606/tftrd.2023.10653
Available online at www.turkishjournalpmr.com

Case Report

Proximal femur diaphysis osteoid osteoma mimicking lumbar radiculopathy

Rekib Saçaklıdır[1], Leyla Huseynli[2], Savaş Şencan[1], Osman Hakan Gündüz[1]

[1]Department of Physical Medicine and Rehabilitation, Division of Pain Medicine, Marmara University Faculty of Medicine, Istanbul, Türkiye
[2]Department of Physical Medicine and Rehabilitation, Marmara University Faculty of Medicine, Istanbul, Türkiye

Received: February 13, 2022 **Accepted:** April 28, 2022 **Published online:** August 01, 2022

ABSTRACT

Osteoid osteoma is a benign bone tumor that commonly arises from the metaphyseal and diaphyseal regions of long bones. Pain is often the first symptom, and it can mimic many diseases. Herein, we report a 36-year-old male patient who presented with complaints of lower back pain radiating to the right extremity for a year. In the patient's history, physical therapy, platelet-rich plasma, pregabalin, and duloxetine were used, with the only benefit from indomethacin. An X-ray of the femur was requested, and the diagnosis of osteoid osteoma was confirmed by magnetic resonance imaging. Osteoid osteoma should be kept in mind as a differential diagnosis of persistent pain despite treatment.

Keywords: Mimicking, osteoid osteoma, pain, radiculopathy.

An osteoid osteoma (OO) is a small, benign bone tumor characterized by a nidus formation surrounded by reactive sclerotic bone materials.[1] It most frequently occurs in young and adult males and commonly arises from the metaphyseal and diaphyseal regions of long bones. Pain is often the first symptom and is typically mild and intermittent at first, becoming more severe at night. Although the use of nonsteroidal anti-inflammatory drugs (NSAIDs) reduces the severity of pain, it is generally unresponsive to conservative treatments.[2] Radiographically, the appearance of a small radiolucent nidus surrounded by a reactive bone is often diagnostic.[3] However, OO can mimic many clinics and lead to misdiagnosis.[4-7] It has been reported that there is an average delay of 10 to 15 months in the diagnosis of OO.[8] In this case report, we aimed to describe femur diaphysis OO that mimics lumbar radiculopathy and inform our colleagues about differential diagnosis.

CASE REPORT

A 36-year-old male patient was admitted to our outpatient clinic with complaints of lower back pain radiating to the right extremity. The patient's complaints had been present for one year. In the patient's history, physical therapy was applied to the lumbar region, platelet-rich plasma was administered to the knee, pregabalin 2×150 mg and duloxetine 1×60 mg were given for pain, and the patient was occasionally using indomethacin before the patient was consulted to us. The patient's pain was not in the neuropathic character, and he stated that he did not benefit from the procedures and the drugs except for indomethacin.

Corresponding author: Rekib Saçaklıdır, MD. Marmara Üniversitesi Tıp Fakültesi, Fiziksel Tıp ve Rehabilitasyon Anabilim Dalı, Ağrı Tıbbı Bilim Dalı, 34899 Pendik, İstanbul, Türkiye. e-mail: rakipsacakli@hotmail.com

Cite this article as:
Saçaklıdır R, Huseynli L, Şencan S, Gündüz OH. Proximal femur diaphysis osteoid osteoma mimicking lumbar radiculopathy. Turk J Phys Med Rehab 2023;69(3):385-388.

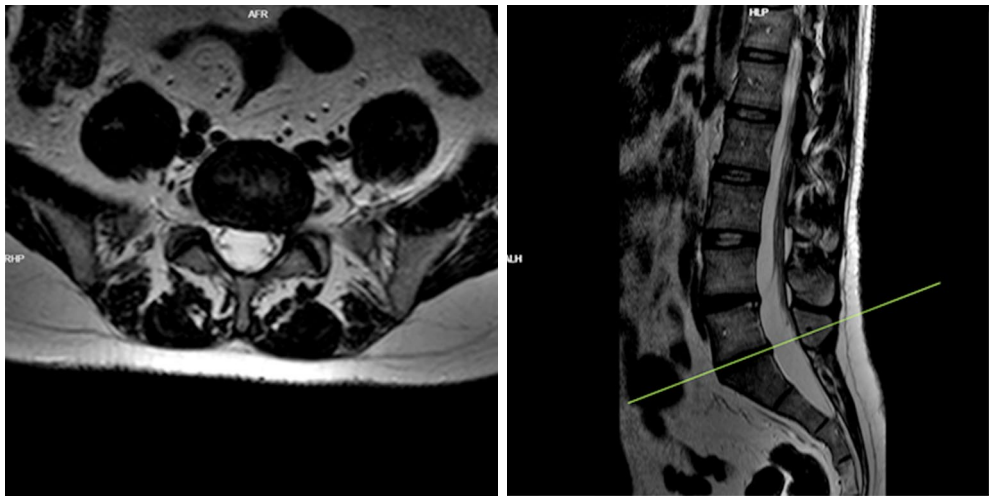

Figure 1. Left paracentral-foraminal protrusion at the L5-S1 disc levels on the lumbar magnetic resonance imaging.

The patient was referred to us for an epidural steroid injection. The patient's extremity pain did not spread below the knee. In the examination, straight leg raise and femoral stretch tests were negative, there was no deficit in the motor examination, and knee, hip, and sacroiliac joint examinations were normal. On palpation, there was pain in the right proximal femur region. In the patient's previous lumbar magnetic resonance imaging (MRI), there was broad-based left paracentral-foraminal protrusion at the L5-S1 disc levels (Figure 1), and Grade 1 meniscus degeneration was detected in the right knee MRI, which did not explain the radiating pain in the right leg. Therefore, epidural steroid injection was not performed. A femoral radiograph was taken, revealing a periosteal reaction in the right proximal femoral diaphysis. Magnetic resonance imaging confirmed that the periosteal reaction was compatible with OO (Figure 2). The patient underwent surgical excision three months after diagnosis. Pathology defined the soft tissue component of the lesion as "benign synovium with no considerable histopathological changes." The bony component had a reactive bone formation in the nidus rimmed with osteoblasts in the fibrovascular stroma; thin lace-like

Figure 2. Periosteal reaction is visible at the right proximal femur diaphysis on the radiograph, and nidus formation is observed on magnetic resonance imaging (black arrow).

strands were seen in the osteoid, and it was identified as OO. The patient was relieved from pain after the operation and had no pain at the three-month follow-up.

DISCUSSION

Osteoid osteoma was first reported by Jaffe[9] in 1935 in a series of five cases and is a painful and benign tumor that accounts for approximately 3% of all bone neoplasms.[10] Since it only manifests itself with pain, it mimics many diseases. Consequently, the diagnosis is often delayed. In the present case, a patient with femoral OO that mimicked lumbar radiculopathy was defined, and it was shown that the diagnosis was delayed by 12 months.

Osteoid osteoma is a benign bone tumor that can mimic many diseases.[7,11] Seniaray and Jain[4] published a case series of OO mimicking inflammatory synovitis. Lee et al.[5] showed that a case with OO of the tarsal cuboid bone can mimic osteomyelitis. Traore et al.[6] also stated that a case of intra-articular OO may mimic juvenile arthritis. Although OO mimics many diseases, radicular presentation observed in our case is relatively rare.[12] The mechanism of pain is complex; nerve endings may be stimulated by high pressure due to increased blood flow within the tumoral tissue, and prostaglandins could directly stimulate free nerve endings in or near the tumor by lowering the nociceptive threshold, causing pain.[13]

The most significant reason for the one-year delay in diagnosis in the present case may be the clinical picture mimicking radiculopathy. Another reason is the increasing number of unnecessary radiological imaging requests. Some studies have shown that physicians are confused and that the decision-making process is prolonged due to unnecessary radiological imaging.[8,14] As in the present case, lumbar and knee MRI may cause delayed diagnosis. Trying to heal the existing pathologies in MRI caused the main diagnosis to be delayed. The third reason for late diagnosis is the patient's referred low back pain. In the literature, it has been shown that pain originating from the hip and sacroiliac joint manifests as low back pain, and in 10% of patients, the cause and mechanism of back pain could not be exactly determined.[15] However, a detailed examination and history taking could have enabled an earlier diagnosis. The patient's typical NSAID response and the leg pain unexplained by lumbar MRI were more vital for differential diagnosis.

In conclusion, OO is a benign bone tumor that mimics many diseases; therefore, its diagnosis may be delayed. Many patients apply to the physician with only pain, and NSAID response is typical. Therefore, OO should be kept in mind in the differential diagnosis of persistent pain despite treatment.

Patient Consent for Publication: A written informed consent was obtained from the patient.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions: All authors contributed to the conception and design, acquisition and analysis of the data, and writing the manuscript and drafting the article.

Conflict of Interest: The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding: The authors received no financial support for the research and/or authorship of this article.

REFERENCES

1. Healey JH, Ghelman B. Osteoid osteoma and osteoblastoma. Current concepts and recent advances. Clin Orthop Relat Res 1986;(204):76-85.
2. Tepelenis K, Skandalakis GP, Papathanakos G, Kefala MA, Kitsouli A, Barbouti A, et al. Osteoid osteoma: An updated review of epidemiology, pathogenesis, clinical presentation, radiological features, and treatment option. In Vivo 2021;35:1929-38.
3. Hadjipavlou AG, Lander PH, Marchesi D, Katonis PG, Gaitanis IN. Minimally invasive surgery for ablation of osteoid osteoma of the spine. Spine (Phila Pa 1976) 2003;28:E472-7.
4. Seniaray N, Jain A. Osteoid osteoma mimicking inflammatory synovitis. Indian J Nucl Med 2017;32:194-7.
5. Lee GK, Kang IW, Lee ES, Min SJ, Cho SW, Hwang DH. Osteoid osteoma of the tarsal cuboid mimicking osteomyelitis. AJR Am J Roentgenol 2004;183:341-2.
6. Traore SY, Dumitriu DI, Docquier PL. Intra-articular osteoid osteoma mimicking juvenile arthritis. Case Rep Orthop 2014;2014:912609.
7. Tosun A, Tosun B. Bilateral sakroiliite eşlik eden iliak kemiğin osteoid osteoması: Olgu sunumu. Türk Fiz Tıp Rehab Derg 2010;56:152-4.
8. Malghem J, Lecouvet F, Kirchgesner T, Acid S, Vande Berg B. Osteoid osteoma of the hip: Imaging features. Skeletal Radiol 2020;49:1709-18.
9. Jaffe HL. "Osteoid-Osteoma": A benign osteoblastic tumor composed of osteoid and atypical bone. Arch Surg 1935;31:709-28.
10. Boscainos PJ, Cousins GR, Kulshreshtha R, Oliver TB, Papagelopoulos PJ. Osteoid osteoma. Orthopedics 2013;36:792-800.

11. Carneiro BC, Da Cruz IAN, Ormond Filho AG, Silva IP, Guimarães JB, Silva FD, et al. Osteoid osteoma: The great mimicker. Insights Imaging 2021;12:32.
12. Ebrahimzadeh MH, Ahmadzadeh-Chabock H, Ebrahimzadeh AR. Osteoid osteoma: A diagnosis for radicular pain of extremities. Orthopedics 2009;32:821.
13. Greco F, Tamburrelli F, Ciabattoni G. Prostaglandins in osteoid osteoma. Int Orthop 1991;15:35-7.
14. Lysdahl KB, Hofmann BM. What causes increasing and unnecessary use of radiological investigations? A survey of radiologists' perceptions. BMC Health Serv Res 2009;9:155.
15. Sembrano JN, Polly DW Jr. How often is low back pain not coming from the back? Spine (Phila Pa 1976) 2009;34:E27-32.