

# Osteoma in the Lumbar Spinal Canal as a Rare Cause of Sciatica: A Case Report and Literature Review

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**ABSTRACT** Among the etiological causes of lumbar pain, the osteoma is a rare benign bone tumor of the spine. The osteoma is a slowly growing benign tumor arising from normal bone formation in the periosteum. Osteomas are usually seen in the skull and long bones, but in the literature, rare cases of osteomas affecting the vertebra corpus, pedicle and posterior element are encountered. In this case, a 28-year-old man presented with an osteoma originating from the left L5-S1 lateral recess and causing lumbo-crural sciatica. The osteoma originating from lateral foramina causes lateral spinal stenosis, sciatica and neuropathic pain in the patient. On magnetic resonance imaging, osteoma was not detected and the diagnosis was confirmed by computed tomography. At the same time, when the patient's anamnesis was deepened, accompanying spondyloarthropathy was diagnosed.

**Keywords:** Low back pain; osteoma; sciatica

Spinal stenosis is a condition that occurs with narrowing of the lateral recess and intervertebral foramen area as a result of structural changes in bone or connective tissues, and its symptoms and findings are similar to disc herniation due to root compression. Stenosis location can be central, lateral or mixed. While there is narrowing of the spinal canal in central spinal stenosis, narrowing of the lateral recess or intervertebral foramen is observed in lateral spinal stenosis.<sup>1</sup>

Etiologically, there are hereditary and acquired spinal stenosis. Hereditary stenosis results from improper growth of pedicles and laminae during their embryological development. Causes of acquired stenosis develop as a result of degenerative changes, spondylolisthesis, iatrogenic factors, trauma and bone diseases.<sup>2</sup>

In this case, we will present a case of osteoma involving the L5-S1 lateral foramen, which we de-

tected in a patient who presented with typical lateral spinal stenosis clinic.

Osteoma is a slowly growing benign bone tumor that is rare in the spine and originates from the normal bone formation of the periosteum.<sup>3</sup> Although osteoma is usually seen in the skull and long bones, a rare number of osteoma cases affecting the vertebral body, pedicle and posterior element have been encountered in the literature.<sup>4,5</sup> In the literature review, only 6 cases of osteoma in the cervical region and 5 cases in the lumbosacral region have been reported so far.<sup>5-7</sup>

## CASE REPORT

A 28-year-old male patient applied to our outpatient clinic with complaints of severe pain in his lower back and left hip, pain radiating to his left leg, and difficulty in stepping on his left foot. While the pa-

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tient had mild pain for 3 months, the pain had worsened in the last week. The pain was mechanical in character, which was relieved by left hip movements, in certain positions, and increased by pressing on it, and was unresponsive even to strong opioid treatments. The patient could not perform activities of daily living such as getting out of bed, straightening, walking and moving because of the pain.

There was no feature in the patient's history and family history. There was no history of trauma. Systemic examination was normal. On physical examination, blood pressure was 120/80 mmHg and heart rate was 80/min. In the musculoskeletal examination, flattening of the lumbar lordosis and antalgic gait were present. Lumbar spine joint range of motion (ROM) was limited and painful at the beginning of the range in all directions. The left straight leg raise test was positive at 20 degrees. He could not initiate movement in the left hip due to pain, and passive ROM was limited in all directions from the beginning. Visual analog scale (VAS) score was 10. The sciatic valley points on the left were tender. Faber and Fadir tests were positive on the left. Left thoracantary major palpation was tender. Right hip, both knees and ankle ROM were normal. Lower extremity proximal muscle strength was not evaluated clearly due to pain. Ankle and thumb extension on the left was 4/5 strength. There was no dermatomal sensory deficit. There was global allodynia and paresthesia in the left lower extremity. Deep tendon reflexes were normal.

Routine whole blood and biochemistry analyzes were normal. Complete urinalysis was normal. Brucella serological test was negative. No disc degeneration was detected on lumbar magnetic resonance images (MRI), which would explain the patient's clinical findings.

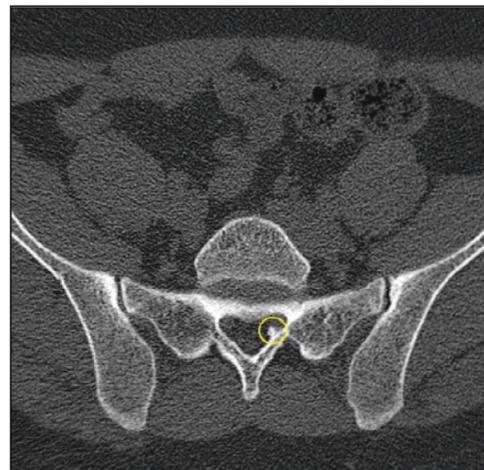
Naproxen sodium 75 mg bid was started as medical treatment, and the patient had skin rashes and was discontinued after being evaluated as an allergy to the drug. Pregabalin 150 mg bid and duloxetine 30 mg once daily were started for neuropathic pain.

Lumbar computed tomography (CT) was requested from the patient, who was included in the physical therapy program, as his complaints in-

creased despite the physical therapy agents. In lumbar CT, osteoma was detected starting from L5 level and extending to S1 level, narrowing the left neural foramen and spinal canal (Figure 1). The patient, whose electroneuromyography result was compatible with a mild partial lesion in which the tibial branch of the left sciatic nerve was affected, was consulted to the neurosurgery. Dorsal root ganglion radiofrequency application and transforaminal epidural steroid injection were applied to the left L4-5 and L5-S1 levels of the patient who did not accept surgery.

At the same time, when the patient's rheumatological questioning was expanded, it was determined that he had long-standing inflammatory low back pain. It was learned that morning stiffness lasted for about half an hour, but for this reason, he did not consult a doctor. The patient's hand finger-ground distance was 25 cm, Schober 3 cm, tragus-wall distance 12 cm, and chest expansion 5 cm. The Bath Ankylosing Spondylitis Functional Index was 5, Bath Ankylosing Spondylitis Disease Activity Index was 7. Pathergy test and purified protein derivative were negative, human leukocyte antigen B27 was positive. No uveitis was detected in the eye examination. He had no history of psoriasis, ulcerative colitis, or Crohn's.

In the sacroiliac and vertebra radiographs of the patient, it was observed that there was squareness in the vertebral bodies and fringing in the ischio pubis arm and thoracanter (Figure 2). In the sacroiliac MRI,



**FIGURE 1:** Lumbar computed tomography; osteoma starting from L5 level to S1 level, narrowing the left neural foramen and spinal canal.

the left sacroiliac joint was T1 hypo, T2 hyperintense, marked increase in signal on the iliac face, and bone marrow edema was consistent with sacroiliitis (Figure 3). The patient was diagnosed with axial spondyloarthritis according to the Assessment of Spondyloarthritis International Society criteria based on radiological and clinic finding. Sulfasalazin tablet 500 mg 2x2 (SALAZOPYRIN, PFİZER, ABD), Indomethacin capsule 25 mg 2x1 (ENDOL, DEVA HOLDİNG, TR) treatment was started and followed up. Joint ROM, stretching, strengthening and breathing exercises were taught to the patient. VAS value decreased from 10 to 3 in the follow-ups. Informed consent was obtained from the patient for the case publication.

## DISCUSSION

Osteoma is a slowly-growing benign bone tumor arising from the normal bone formation of the periosteum,

which is rare in the spine.<sup>3,8</sup> Although osteoma is usually seen in the skull and long bones, a rare number of osteomas affecting the vertebral body, pedicle and posterior element have been encountered in the literature. Case of osteoma in the cervical and lumbar region reported in the literature are shown in Table 1.

In this case, we wanted to emphasize that in the differential diagnosis of a patient who presented with severe low back pain and radicular pain, we should keep in mind that a benign osteoma localized in the lumbar spinal canal or lateral foramen, which causes the same symptoms except lumbar disc pathology, may be the cause. In our case, 2-way vertebral radiography and lumbar MRI were insufficient in detecting osteoma at the lumbar L5-S1 level, and the definitive diagnosis was made with lumbar CT. At the same time, it is necessary to take a detailed anamnesis and a rheumatological examination, keeping in mind that long-term accompanying inflammatory low



FIGURE 2: Lateral thoracolumbar and anteroposterior pelvis radiograph; squareing on the corners of the thoracic vertebra, fringing in ischiopubis arm and toracanter major.

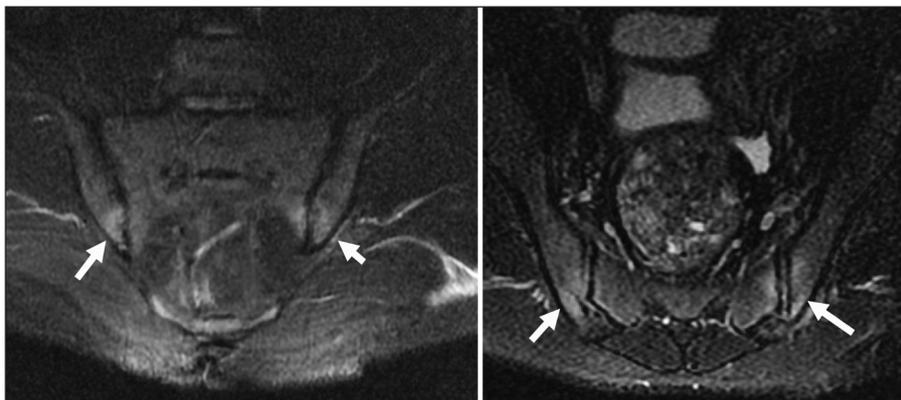


FIGURE 3: Sacroiliac magnetic resonance images: Bone marrow edema is observed on the sacral and iliac surfaces facing the sacroiliac joints.

**TABLE 1:** Spinal osteoma cases in the literature.

First author, year	Age/Gender (M/F)	Localization	Symptom	Relation of symptoms to trauma	Treatment
Laus et al. <sup>9</sup>	53/M	C2-C3 transverse process	Dysphagia	Unknown	Total resection
Peyser et al. <sup>5</sup>	44/F	L4 corpus	Low back pain	Yes	Total resection
Rengachary and Sanan <sup>6</sup>	34/M	C6 pedicle	Weakness, paresthesia	Yes	Total resection
Kobayashi et al. <sup>10</sup>	57/M	L5 articular process	Chronic low back pain, sciatica	No	Total resection
Wang et al. <sup>11</sup>	56/M	C2-C3 corpus	Weakness, hypoesthesia	Yes	Subtotal resection
	49/M	C2 laminate	Weakness, hypoesthesia	Yes	Total resection
Kanaya et al. <sup>12</sup>	43/F	C1 laminate	Neck pain, weakness	No	Total resection
Aslan et al. <sup>13</sup>	47/F	Dens axis	Neck pain	No	Medical pain treatment
Our case	28/M	L5-S1 lateral recess	Low back pain, sciatica	Yes	Dorsal root ganglion radiofrequency application and transforaminal epidural steroid injection

back pain may also be present in patients who apply with mechanical low back pain.

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#### Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

#### Authorship Contributions

This study is entirely author's own work and no other author contribution.

## REFERENCES

- Lee CK, Rauschnig W, Glenn W. Lateral lumbar spinal canal stenosis: classification, pathologic anatomy and surgical decompression. *Spine (Phila Pa 1976)*. 1988;13(3):313-20. [Crossref] [PubMed]
- Arnoldi CC, Brodsky AE, Cauchoix J, Crock HV, Dommissé GF, Edgar MA, et al. Lumbar spinal stenosis and nerve root entrapment syndromes. Definition and classification. *Clin Orthop Relat Res*. 1976;(115):4-5. [Crossref] [PubMed]
- Laus M, Alfonso C, Laguardia AM, Giunti A. Anterior surgery of the upper part of the cervical spine by prevascular extraoral approach. *Chir Organi Mov*. 1993;78(2):65-75. [PubMed]
- Ohtori S, Yamagata M, Hanaoka E, Suzuki H, Takahashi K, Sameda H, et al. Osteochondroma in the lumbar spinal canal causing sciatic pain: report of two cases. *J Orthop Sci*. 2003;8(1):112-5. [Crossref] [PubMed]
- Peyser AB, Makley JT, Callear CC, Brackett B, Carter JR, Abdul-Karim FW. Osteoma of the long bones and the spine. A study of eleven patients and a review of the literature. *J Bone Joint Surg Am*. 1996;78(8):1172-80. [Crossref] [PubMed]
- Rengachary SS, Sanan A. Ivory osteoma of the cervical spine: case report. *Neurosurgery*. 1998;42(1):182-5. [Crossref] [PubMed]
- Roblot P, Alcalay M, Cazenave-Roblot F, Levy P, Bontoux D. Osteochondroma of the thoracic spine. Report of a case and review of the literature. *Spine (Phila Pa 1976)*. 1990;15(3): 240-3. [Crossref] [PubMed]
- Nielsen GP, Rosenberg AE. Bone-forming tumors. In: Folpe AL, Inwards CY, eds. *Bone and Soft Tissue Pathology*. 1st ed. Philadelphia, PA: Saunders Elsevier; 2010. p.311-3. [Link]
- Laus M, Pignatti G, Malaguti MC, Alfonso C, Zappoli FA, Giunti A. Anterior extraoral surgery to the upper cervical spine. *Spine (Phila Pa 1976)*. 1996;21(14):1687-93. [Crossref] [PubMed]
- Kobayashi H, Hara J, Kitahama Y, Hanakita J. Osteoma arising from the lumbar articular process. *Neurol Med Chir (Tokyo)*. 2006; 46(10):508-11. [Crossref] [PubMed]
- Wang W, Kong L, Dong R, Zhao H, Ma Y, Lu Y. Osteoma in the upper cervical spine with spinal cord compression. *Eur Spine J*. 2006; 15 Suppl 5(Suppl 5):616-20. [Crossref] [PubMed] [PMC]
- Kanaya K, Ito K, Horiuchi T, Hongo K. "Dynamic" rotational canal stenosis caused by osteoma of the atlas: a case report and review of literature. *NMC Case Rep J*. 2015;3(1): 17-20. [Crossref] [PubMed] [PMC]
- Aslan S, Bekci T, Gunbey HP, Aslan K, Aslan C. Osteoid osteoma of the dens axis. *The Spine Journal*. 2015;15(8):1912. [Crossref] [PubMed]