

A Rare and Interesting Case of Sciatic Nerve Compression Due to Proximal Femoral Osteochondroma in a Young Adult – A Case Report

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Learning Point of the Article:

Rare presentation of tumor with unusual symptoms and to avoid possible misdirection and misdiagnosis leading to inappropriate treatment.

Abstract

Introduction: Osteochondromas (OCs) are benign hamartomatous lesions composed of cartilage and bone, arising from aberrant growth-plate cartilage. They characteristically project from the bone surface through the cortex and grow by endochondral ossification beneath the periosteum. Lesion growth usually parallels skeletal growth and typically ceases after physeal closure, although minimal growth of the cartilage cap may persist and generally stops by the third decade of life.

This developmental mechanism explains the predilection for involvement of the distal femur, proximal tibia, and proximal humerus. Most OCs are asymptomatic and do not require surgical intervention. However, intra-articular or atypically located lesions may produce pain, restricted joint movement, or compression of adjacent neurovascular structures, necessitating operative management.

Case Report: A 39-year-old male presented to the outpatient department with complaints of left-sided hip pain associated with restricted range of motion and radiating pain along the posterior aspect of the left thigh, accompanied by buttock pain for 6 months. The symptoms had gradually progressed and were aggravated by activity. The patient also reported mild paresthesia over the anteromedial aspect of the left knee and the dorsum of the left foot. He noticed a gradually enlarging, ill-defined mass in the left gluteal region during the same period.

On clinical examination, a firm, immobile mass measuring approximately 10 × 6 cm was palpated in the left buttock. Left hip flexion was limited to 60° due to pain. Neurological examination revealed weakness of both plantar flexion and dorsiflexion of the left ankle.

The patient had previously received conservative treatment, including rest, non-steroidal anti-inflammatory drugs, and physiotherapy at another institution, with no improvement in symptoms.

Results: The lesion was excised through a posterior approach with the patient positioned in the right lateral decubitus position, as described by Yu et al. The sciatic nerve was identified, carefully dissected, and protected throughout the procedure. The OCs were excised using an osteotome. Intraoperative assessment of the femoral neck revealed no cortical defects or fractures, and no fixation was required. Histopathological examination confirmed the diagnosis of OCs with a cartilaginous cap measuring <1 cm.

Conclusion: Sciatic nerve compression symptoms in non-traumatic cases in young adults may result due to intra or extraspinal causes, depending on the anatomical site of involvement. Lumbar intervertebral disc prolapse and spinal canal stenosis constitute the most frequent intraspinal causes. Extraspinal etiologies are comparatively rare and include conditions such as piriformis syndrome and pelvic bone lesions.

Author's Photo Gallery



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Benign bone tumors, particularly OCs, though uncommon, should be considered as a potential source of sciatic nerve compression. OCs arising from the femoral neck with intra-articular or posterior extension are rare, particularly in adults, and may present with pain, mechanical restriction of movement, and neurological symptoms due to mass effect. Awareness of such atypical presentations is essential to avoid misdiagnosis and delays in appropriate management.

Keywords: Osteochondroma, proximal femur, sciatic nerve, neurological.

Introduction

Osteochondromas (OCs) are benign hamartomatous lesions composed of cartilage and bone, arising from aberrant growth-plate cartilage. They characteristically project from the bone surface through the cortex and grow by endochondral ossification beneath the periosteum. The lesion growth usually parallels skeletal growth and typically ceases after physal closure. However, minimal growth of the cartilage cap may persist and generally stops by the third decade of life. Nearly 90% of OCs present as solitary lesions, while multiple lesions are associated with hereditary multiple exostosis (HME) [1]. Solitary lesions most commonly present during the second and third decades, whereas HME-related lesions usually manifest in childhood [2]. OCs are typically extra-articular and arise from the metaphyseal region of long bones.

This developmental mechanism explains the predilection for involvement of the distal femur, proximal tibia, and proximal humerus [3]. Most OCs are asymptomatic and do not require surgical intervention. However, intra-articular or atypically located lesions may produce pain, restricted joint movement, or compression of adjacent neurovascular structures, necessitating operative management [4, 5].

This report describes a rare and atypical presentation of OCs involving the femoral neck in an adult patient, highlighting the potential for diagnostic confusion.

Case Report

A 39-year-old male presented to the outpatient department with complaints of left-sided hip pain associated with restricted range of motion and radiating pain along the posterior aspect of the left thigh, accompanied by buttock pain aggravated for 6 months with complaints persisting since 1 year. The symptoms had gradually progressed and were aggravated by activity. The patient also reported mild paresthesia over the anteromedial aspect of the left knee and the dorsum of the left foot. He noticed a gradually enlarging, ill-defined mass in the left gluteal region during the same period.

On clinical examination, a firm, immobile mass measuring approximately 10 × 6 cm was palpated in the left buttock. Left hip flexion was limited to 60° due to pain. Neurological examination revealed

weakness of both plantar flexion and dorsiflexion of the left ankle.

The patient had previously received conservative treatment, including rest, non-steroidal anti-inflammatory drugs, and physiotherapy at another institution, with no improvement in symptoms.

Assessment

Plain radiographs of the pelvis and left hip demonstrated a bony protuberance arising from the posteroinferior aspect of the left femoral neck (Fig. 1 and 2). There was no radiological evidence of fracture or underlying joint pathology such as osteoarthritis or osteonecrosis.

Axial T1-weighted magnetic resonance images revealed a bony outgrowth arising from the posteroinferior region of the femoral neck, extending toward the lesser trochanter (Fig. 3). The lesion showed continuity with the metaphyseal marrow cavity, and a thin peripheral high-signal rim was noted on fat-suppressed T2-weighted sequences, consistent with a cartilage cap. Based on magnetic resonance imaging, a needle biopsy was done which was suggestive of OCs (Fig. 4) following which the patient was taken up for operative intervention.

Management

The lesion was excised through a posterior approach with the patient positioned in the right lateral decubitus position, as



Figure 1 & 2: Routine X-rays.

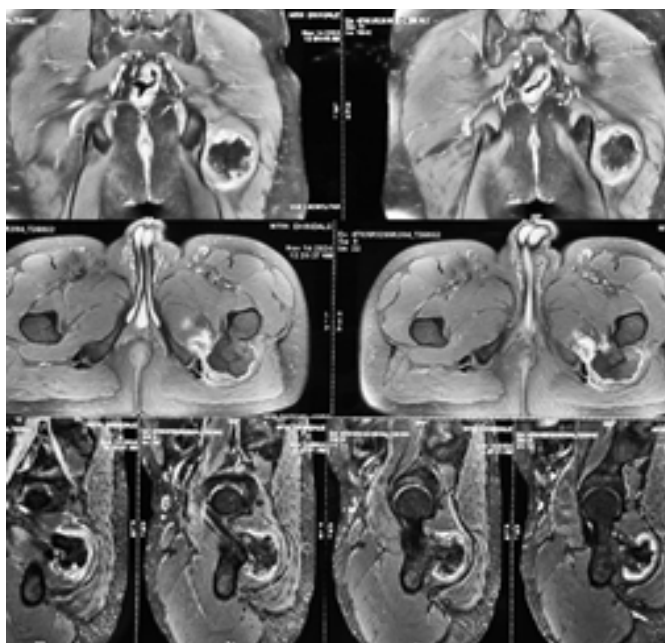


Figure 3: Magnetic resonance imaging scans indicate a hypointense lesion in the proximal femur.

described by Yu et al. [5]. The sciatic nerve was identified, carefully dissected, and protected throughout the procedure (Fig. 5). The OCs were excised using an osteotome. Intraoperative assessment of the femoral neck revealed no cortical defects or fractures, and no fixation was required. A 6 × 4 cm mass was excised as shown (Fig 5). Histopathological examination confirmed the diagnosis of OCs with a cartilaginous cap measuring <1 cm (Figs. 6 and 7). Post-operative radiographs show no residual lesion present (Figs. 8 and 9).

Discussion

Sciatic nerve compression in non-traumatic young adults may arise from either intraspinal or extraspinal pathology, depending on the anatomical site of involvement. Lumbar intervertebral disc prolapse and spinal canal stenosis constitute the most frequent intraspinal causes. Extraspinal etiologies are comparatively rare and include conditions such as piriformis



Figure 5: Intraoperative images.

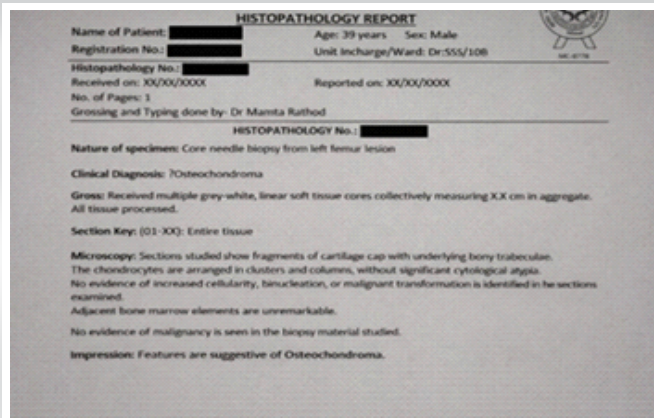


Figure 4: Needle biopsy report.

syndrome and pelvic bone lesions. Benign bone tumors, particularly OCs, though uncommon, should be considered as a potential source of sciatic nerve compression. Other less frequently reported causes include vascular anomalies, infective processes, hereditary multiple exostoses, and neoplasms of bone or soft tissue origin [6, 7, 8, 9, 10, 11, 12, 13, 14].

Intraspinal causes typically present with associated low back pain, often precipitated by physical exertion or heavy lifting, and symptoms are usually aggravated by forward bending, axial loading, or prolonged sitting. In contrast, piriformis syndrome results from compression of the sciatic nerve due to muscle hypertrophy or spasm and is characterized by sciatica that worsens with activity, walking, or sustained sitting. The diagnosis of piriformis syndrome remains clinical and is established only after exclusion of spinal pathology [15].

Myositis ossificans, most commonly developing following trauma or neurological insult, may mimic bony lesions, causing sciatic nerve compression. However, it can be distinguished on imaging by the presence of well-defined peripheral ossification, a relatively radiolucent central zone, and cleavage planes separating the heterotopic bone from the adjacent cortex, aiding in accurate differentiation [16,17,18,19].

Ocs arising from the femoral neck with intra-articular or posterior extension are rare, particularly in adults, and may present with pain, mechanical restriction of movement, and

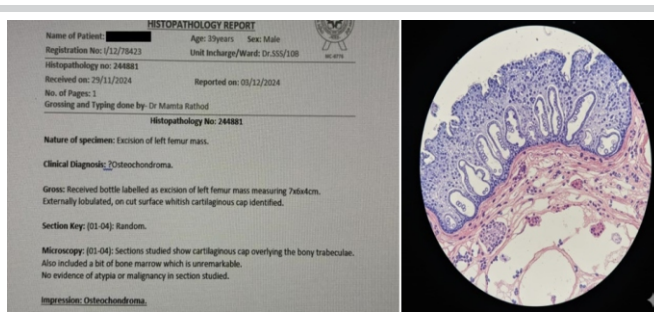


Figure 6 & 7: Histopathological evidence.



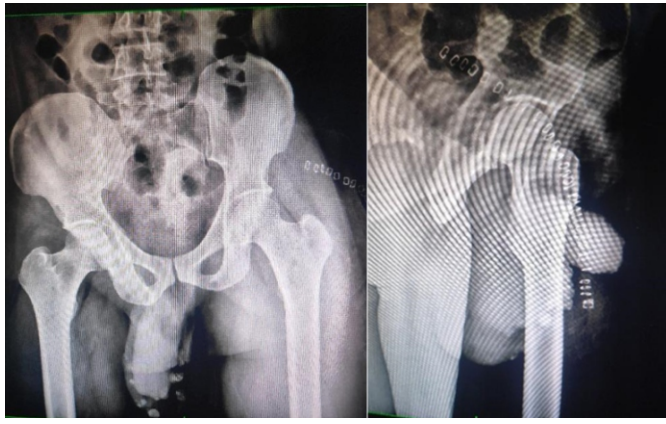


Figure 8&9: Post-operative X-rays.

neurological symptoms due to mass effect. Awareness of such atypical presentations is essential to avoid misdiagnosis and delays in appropriate management [20]. (Fig. 10).

Conclusion

With proper written informed consent, postoperatively, the patient experienced improvement in paresthesia and numbness of the left foot, although mild buttock pain persisted initially. At 10-month follow-up, complete resolution of both sensory and motor deficits of the sciatic nerve was observed. Follow-up radiographs demonstrated no evidence of heterotopic ossification or avascular necrosis of the hip.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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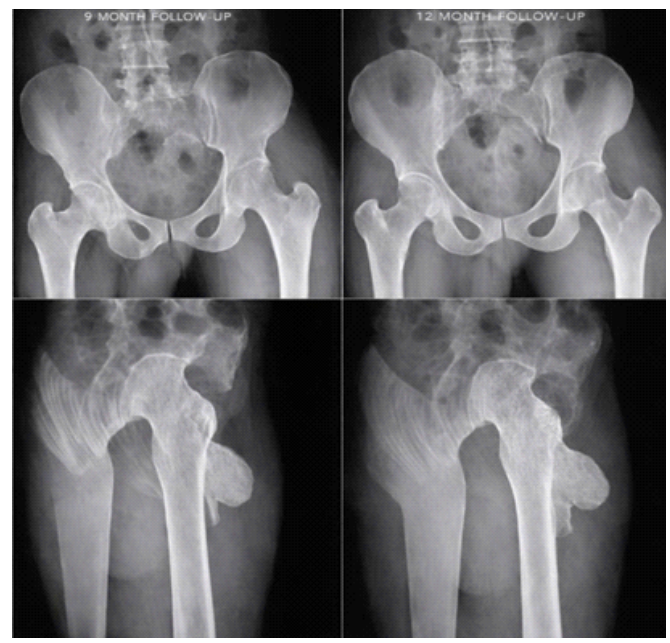


Figure 10: 9 and 12-month follow-up X-rays.

Clinical Message

Although OCs are commonly asymptomatic and extra-articular, atypical intra-articular or femoral neck lesions can present in adulthood with neurovascular symptoms. A high level of clinical awareness, along with careful and comprehensive imaging evaluation, is a key to arriving at the correct diagnosis and initiating timely treatment.

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