Multiple osteochondromas, also known as multiple hereditary exostoses, is an autosomal-dominant disease. Multiple osteochondromas are characterized by the development of cartilage-capped bony tumors, known as osteochondromas. Osteochondromas can cause limb deformities, limb-length discrepancies, angular deformations, bursitis, and impingement of adjacent tendons or neurovascular structures. They have also been reported as a cause of sciatic pain. Sometimes, more than 1 location of neural compression exists, thereby presenting a difficult diagnostic challenge for treating physicians.

This article describes a patient with multiple hereditary exostoses and accompanying severe sciatic pain who was referred for a revision decompressive spine surgery. The patient’s functional impairment was such that he was unable to sit for a few minutes. A selective computed tomography-guided perisciatic nerve injection was performed to differentiate between lateral spinal stenosis and peripheral nerve compression or impingement by an existing large pelvic osteochondroma. The patient reported substantial relief and regained the ability to sit pain free immediately postoperatively. Excision of a proximal femur osteochondroma was performed based on the results of a selective perisciatic nerve injection, resulting in successful resolution of his sciatic pain and functional impairment.

The current case is an example of the diagnostic challenge in treating patients with multiple anatomic lesions that can cause symptoms and demonstrate how selective computed tomography-guided perisciatic nerve injection can aid clinicians in obtaining an accurate diagnosis and choosing the most appropriate surgical management.
Multiple osteochondromas, also known as multiple hereditary exostoses, is an autosomal-dominant inherited disease. A mutation in tumor suppressor genes EXT1 or EXT2 is found in almost 90% of affected individuals. The prevalence is estimated at 1:50,000, with a male–female ratio of 1.5:1.\(^1\)\(^3\) Multiple osteochondromas is characterized by the development of cartilage-capped bony tumors, mainly in long bones. Osteochondromas typically develop in the first decade of life and continue to grow until growth plate closure. They can be pedunculated or sessile and vary considerably in size. Most osteochondromas are asymptomatic, and, although malignant transformation into peripheral chondrosarcoma is the complication of greatest concern, benign complications can also adversely affect quality of life. Specifically, osteochondromas can cause limb deformities, limb-length discrepancies, angular deformations, bursitis, and impingement of adjacent tendons or neurovascular structures.\(^3\)\(^5\)

Sciatica is defined as pain in the distribution of the sciatic nerve or its branches, and it can be caused by intra- or extraspinal (ie, along its course in the pelvis or the thigh) pathologies.\(^6\)\(^10\) Sometimes, more than 1 location exists of neural compression, thereby presenting a difficult diagnostic challenge for treating physicians. The most common treatment of symptomatic osteochondromas excision, whereas en bloc resection with tumor-free margins is the usual approach for secondary peripheral chondrosarcomas.\(^4\)\(^11\)

**Case Report**

A 58-year-old man who was diagnosed in childhood as having multiple osteochondromas and who had a history of right sciatic pain for at least the past 5 years was referred to a spine surgeon (I.C.). The patient’s history was significant for multiple hereditary exostoses, and he also had affected siblings and an affected son. He had been operated on for lumbar spinal stenosis caused by diffuse degenerative changes, and he underwent complete decompressive laminectomy of L2-L4 and bilateral foraminotomies at L1 and L5 three years previously. Although the patient reported an improvement in ambulation postoperatively, he reported no postsurgical improvement in his right sciatic pain or in pain exacerbation after sitting, causing severe functional disability. The patient’s functional impairment was such that he was unable to sit for a few minutes; therefore, he spent all waking hours standing, walking, or lying down. When necessary, he was transported from one place to another while in a supine position in the vehicle.

Physical examination revealed a decreased right hip joint range of motion with almost no rotation and 10° of abduction/adduction. He also had pain with active and passive right hip motion. Motor and sensory examination of both lower extremities was normal. Straight-leg raising or hip joint flexion to more than 45° provoked pain and dysesthesia along his right leg. Despite the patient’s history of significant lumbar degenerative changes with the resultant spinal stenosis, it was postulated that no correlation existed between his current symptoms and his spine imaging findings because good surgical decompression had been achieved with the previous surgery.

Plain radiographs of the pelvis showed bilateral osteochondromas in the posterior aspect of the proximal femur. To differentiate between lateral spinal stenosis and peripheral nerve compression or impingement by a pelvic osteochondroma as the pathology causing the patient’s symptoms, a selective perisciatic nerve injection with 2% lidocaine+bupivacaine was performed under computed tomography (CT) guidance (Figures 1-3). The patient reported substantial relief after the perisciatic injection and regained the ability to sit pain free immediately postoperatively.

Therefore, excision of the right proximal femur osteochondromas combined with sciatic nerve neurolysis was performed. Pathologic examination of the resected lesions was consistent with osteochondroma without malignant transformation. The patient was pain free, returned to work, and sat without discomfort at 1-year follow-up.


**DISCUSSION**

Peripheral nerve compression by osteochondromas is an uncommon manifestation of multiple hereditary exostoses. A compressing osteochondroma can cause nerve compression and sciatic pain in several anatomical sites along the course of the nerve. The differential diagnosis for sciatic nerve compression can be divided into intraspinal, extraspinal, pelvic, and extrapelvic origins.\(^6\)\(^7\)\(^10\)\(^12\)\(^16\)

The current case is an example of the diagnostic challenge of treating a patient with multiple anatomic lesions that can cause various symptoms. The patient had undergone lumbar spine decompression and was referred to the current authors for revision surgery. However, it was difficult to determine whether his sciatic pain symptoms arose from spinal stenosis and nerve root compression or from peripheral nerve compression. Selective perisciatric nerve injection under CT fluoroscopic guidance was used to determine which anatomical site was symptomatic preoperatively. It enabled pinpoint accuracy in delivering the anesthetic agent to the suspected pathological site.

Paik et al\(^17\) reported a case of a 33-year-old man who had been previously diagnosed with multiple hereditary exostoses and presented with left sciatic pain. Neural electrodiagnostic tests revealed multiple neuropahties involving the sciatic nerve and the superior and inferior gluteal nerves. Magnetic resonance imaging of the pelvis revealed a site-specific plain radiographs for bone lesions of the lower extremities when indicated by the physical examination, and magnetic resonance imaging for soft tissue lesions along the entire course of the sciatic nerve.\(^6\)

**CONCLUSION**

Sciatica may be caused by several pathologies along the course of the sciatic nerve. When the medical history, physical examination, and appropriate imaging studies are not sufficient for differential diagnosis, other measures are required. The current case demonstrates how selective CT-guided perisciatric nerve injection can aid clinicians in obtaining an accurate diagnosis and choosing the most appropriate surgical management.

**REFERENCES**