

## Synovial chondromatosis presenting as an epidural mass

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### Abstract

**Background:** Synovial chondromatosis is an uncommon disorder characterized by the formation of multiple cartilaginous nodules in the synovium of the facet joint. It most commonly affects large joints such as hip or shoulder. Commonly seen features are bony erosion and calcifications. Synovial chondromatosis is rare in the spine and there are few previous reports of extension into the spinal canal.

**Case Description:** A 58-year-old man presented with a 2 year history of progressive numbness in the right upper extremity without objective weakness. A several month course of conservative management, including physical therapy, failed to alleviate symptoms. Magnetic resonance imaging of the cervical spine demonstrated the erosion of the right facet C5–C6 joint with listhesis and foraminal enlargement secondary to a lesion. Treatment was offered to the patient in the form of surgical resection. The lesion was removed in piecemeal fashion using curettes and Cavitron ultrasonic surgical aspirator. Histological examination demonstrated atypical well-differentiated cartilaginous proliferation.

**Conclusion:** This patient had an uncomplicated postoperative course and experienced complete resolution of right upper extremity sensory symptoms. Synovial chondromatosis may compromise cervical spinal cord and nerve roots if it extends into the spinal canal. Although it remains rare, it should be included in the differential diagnosis for upper extremity radiculopathy and myelopathy. Surgical resection is a viable treatment option for symptomatic patients with this pathology. In some cases, adequate resection may necessitate stabilization with instrumentation.

**Key Words:** Chondromatosis, epidural, foraminal, radiculopathy, synovial chondromatosis

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### BACKGROUND AND IMPORTANCE

Synovial chondromatosis is a rare disorder characterized by the formation of multiple cartilaginous nodules in the synovium of a joint space.<sup>[2]</sup> These nodules can become calcified, erode the joint space and extend into extra-articular soft tissues. Common sites of synovial chondromatosis are the large joints such as the knee,

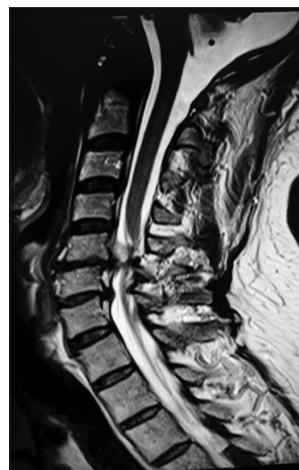
elbow, hip, and shoulder.<sup>[3]</sup> Less than 10 cases of synovial chondromatosis involving the spine have been reported. This is a report a case of synovial chondromatosis of the cervical spine that presented as extremity pain and numbness. This report describes the involvement of a cervical facet joint resulting in epidural and foraminal extension requiring surgery for the amelioration of symptoms.

## CASE REPORT

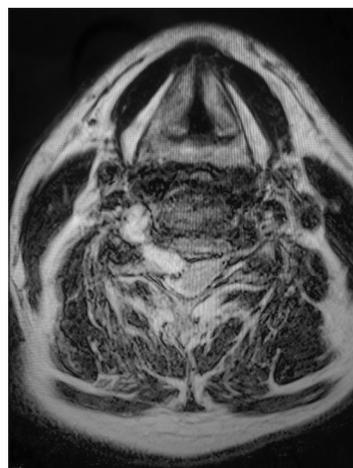
A 58-year-old male presented with a 2 year history of progressive pain and numbness in the right upper extremity. The patient underwent conservative management, which included physical therapy, but had worsening of his symptoms over several months. On physical examination, he had unilateral decreased sensation along the C5–C6 dermatome with no focal motor deficit. There was no gait abnormality and the patient exhibited no myelopathic signs. Magnetic resonance imaging (MRI) of the cervical spine was performed which demonstrated a lesion with effects of significant erosion on the C5–C6 facet joint, listhesis with suspected instability, displacement of the spinal cord to the left, epidural extension, and foraminal enlargement [Figures 1 and 2]. Surgical resection was offered to the patient with the understanding that instrumentation may be necessary for prevention of further instability. The lesion was removed in multiple pieces with curettes and the Cavitron ultrasonic surgical aspirator. Intraoperatively, multiple cartilaginous nodules adherent to the synovium were seen and removed. The thecal sac was not involved. Lateral mass screws were required for stabilization to prevent postlaminectomy kyphosis. The patient improved after the surgery, demonstrating complete recovery in his sensory symptoms and no motor deficits. Histological examination revealed nodules of hyaline cartilage covered by synovial cells. The chondrocytes were well-differentiated, demonstrated nuclear atypia, and were arranged in clusters—findings consistent with synovial chondromatosis [Figure 3].

## DISCUSSION

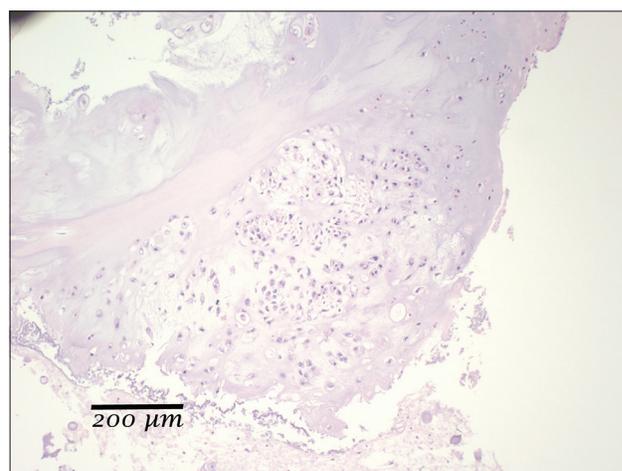
Synovial chondromatosis is an uncommon disorder characterized by the formation of multiple cartilaginous nodules in the synovium and most commonly affects large joints, such as hip and shoulder,<sup>[4]</sup> but sometimes can occur in small joints.<sup>[2]</sup> An extra-articular form of synovial chondromatosis may arise from tendons or bursa.<sup>[3]</sup> These nodules may extrude from the synovium and become loose bodies that float in the synovium or extend into the extra-articular soft tissue.<sup>[1]</sup> Involvement of the spine is rare with <10 total cases reported. The mass extended epidural, intraforaminal and compromised the spinal cord along with the cervical nerve root. Affected patients are usually adults with a mean age of 41.1 years. The male to female ratio is 1:1.7.<sup>[3]</sup> The clinical findings can be variable, correlating with the anatomical location. The histopathological findings of the synovial chondromatosis show formation of cartilage induced by metaplasia of the synovium and is accompanied by nodular masses that may calcify.<sup>[1]</sup> The differential diagnosis of synovial chondromatosis includes osteocartilaginous loose body and synovial chondrosarcoma.<sup>[3]</sup> However,



**Figure 1:** Preoperative sagittal T2-weighted cervical magnetic resonance imaging depicting bony listhesis and synovial lesion



**Figure 2:** Preoperative axial T2-weighted cervical magnetic resonance imaging depicting epidural synovial lesion with facet and neuroforaminal involvement



**Figure 3:** Microscopic analysis of tissue sample demonstrating moderately cellular chondrocytes

for osteocartilaginous loose bodies, the cartilage is hypocellular, layered in appearance and lacks a neoplastic

appearance. For synovial chondrosarcoma, there is a unique marked myxoid change of the matrix, sheet-like arrangement of the chondrocytes, spindle cell proliferation, permeation of adjacent bone, and necrosis.<sup>[3]</sup> This case was morphologically consistent with synovial chondromatosis. The most common MRI patterns are nodules that have an isointense signal on the T1-weighted sequence and the hyperintense signal on the T2-weighted sequence. Enhancement after gadolinium administration is also often present.

## CONCLUSION

Synovial chondromatosis of the cervical spine remains rare, especially with epidural extension. The differential diagnosis for a patient with radiculopathy of uncertain origin should contain synovial chondromatosis despite the paucity of previously reported cases. For these symptomatic patients, surgical therapy should include resection of the synovial joint with stabilization if

necessary. This patient experienced complete resolution of upper extremity sensory symptoms postoperatively. Treatment is not necessary for asymptomatic patients. However, close observation for development of radiculopathy or myelopathy should be performed.

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