Case 5927

Eurorad

Synovial Osteochondromatosis and Secondary Chondrosarcoma of the Hip Presenting As an L4 Nerve Root Lesion

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Patient: 43 years, male

Clinical History:

Six-month-history of pain along the lumbar spine and the right L4 distribution. MRI of the spine was insignificant. MRI of his right hip, however, demonstrated florid synovial osteochondromatosis distorting the capsule and compressing the femoral nerve. Biopsies taken during a synovectomy and hip resurfacing procedure reported the presence of chondrosarcoma.

Imaging Findings:

A 43 year old gentleman referred with a six-month history of pain along the lumbar spine and the right L4 distribution. His family doctor considered it to be a spinal lesion. Clinically he had L4 radicular pain distribution. Coughing and sneezing exacerbated his pain, but he had no other neurological symptoms. In addition, he had Trendlenberg gait and sign. The right hip showed flexed flexion deformity of 10^0, flexion of 60^0 and negligible rotation. There was wasting of quadriceps, but no other motor or sensory deficits. Reflexes and stretch tests were normal apart from a markedly positive right femoral stretch test Analgesia did not provide pain relief, nor did a short course of physiotherapy. MRI of the spine showed mild disc degeneration at L4/5 with no nerve root compression. MRI of his right hip, however, demonstrated florid synovial osteochondromatosis grossly distorting the capsule anteriorly, posteriorly and medially, compressing the femoral nerve within the femoral triangle. The patient was offered synovectomy and a hip resurfacing procedure. Biopsies taken intraoperatively subsequently reported the presence of chondrosarcoma. He is now under specialists in the bone tumour field.

Discussion:

Primary synovial osteochondromatosis is an uncommon benign synovial disorder resulting in multiple calcified intra- and juxta-articular bodies. The monoarticular disorder involves the transformation of synovium into cartilage by proliferation and metaplastic change. Most frequently affected is the knee, followed by the hip, elbow and small

joints of the wrist and hands. Clinical diagnosis of synovial osteochondromatosis is difficult. In the early stages of synovial osteochondromatosis, recurrent pain in the affected joint is not associated with radiographic changes. Diagnosis is often made only when these changes manifest themselves and include juxta-articular calcified and/or ossified bodies (the most common finding in the hip), bone erosion, occasional osteoarthritis and regional osteoporosis(1). The unusual presentation of this case makes it particularly interesting. The patient's acute symptoms were consistent with a right-sided L4 root lesion. He complained of back pain, had nerve root pain, a positive cough impulse, restricted spinal motion, muscle wasting and a positive femoral stretch test. He did not, however, demonstrate any reflex loss or loss of sensation. The patient had examination features attributable to his hip problem including a limp, a fixed flexion deformity, limited flexion and minimal rotation of the hip. The femoral nerve lies lateral to the femoral artery, lying in a groove between the psoas tendon and iliacus. The psoas major tendon lies immediately anterior to the hip capsule as does part of iliacus, with the remainder separated from the capsule by the bursa. These anatomical relations explain how intracapsular pathology may readily produce femoral nerve compression. It also demonstrates the risk to the femoral nerve posed by anterior capsulectomy during total hip replacement. An MRI scan revealed that this patient's symptoms were due to manifestation of his synovial osteochondromatosis. A literature search reveals that this is a complication of synovial osteochondromatosis of the hip not previously reported. There are reports of nerve compression occurring with synovial osteochondromatosis of the elbow(3,4,11), of the wrist(11) and one interesting case of vertebral facet joint involvement leading to compressive myelopathy(6). In these cases the distance between the affected tissue and affected nerve is much smaller than that of the hip joint. Treatment of synovial osteochondromatosis of the hip involves open/arthroscopic synovectomy and removal of loose bodies. Good long term results after this treatment have been reported(7). If, however, there is associated severe osteoarthritis, total hip replacement is indicated(8). There have been several reported cases of synovial osteochondromatosis progressing to chondrosarcoma, with a series incidence of up to 5%(9,10). Mortality approaches 50%, partly because of the difficulty of early diagnosis(11). This diagnosis should be borne in mind with recurrent presentations of synovial osteochondromatosis and should be suspected when there is a rapid deterioration in the clinical status or with bone involvement detected on MRI.(12) This case demonstrates a novel presentation of synovial osteochondromatosis and secondary chondrosarcoma of the hip. It also emphasises the potential for lower limb pain, produced by localised nerve compression, to mimic radicular pain.

Differential Diagnosis List: Synovial Osteochondromatosis and Chondrosarcoma Presenting As a Nerve Root Lesion

Final Diagnosis: Synovial Osteochondromatosis and Chondrosarcoma Presenting As a Nerve Root Lesion

References:

Kim SH, Hong SJ, Park JS, et al. Idiopathic synovial osteochondromatosis of the hip: radiographic and MR appearances in 15 patients. Korean J Radiol. 2002 Oct-Dec;3(4):254-9. (PMID: 12514343)

Khan AM, McLoughlin E, Giannakas K, et al. Hip osteoarthritis: where is the pain? Ann R Coll Surg Engl. 2004 Mar;86(2):119-21. (PMID: 15005931)

Fahmy NR, Noble J. Ulnar nerve palsy as a complication of synovial osteochondromatosis of the elbow. Hand. 1981 Oct;13(3):308-10. (PMID: 7319337)

Ruth RM, Groves RJ. Synovial osteochondromatosis of the elbow presenting with ulnar nerve neuropathy. AM J Orthop. 1996 Dec;25(12):843-4. (PMID: 9001681)

Patella V, Moretti B, Pesce V, Molfetta L, Chirianni S. Paralysis of the ulnar nerve caused by osteochondromatosis. Arch Putti Chir Organi Mov. 1989;37(1):239-48. (PMID: 2559677)

Birchall D, Khangure MS, Spagnolo DV. Vertebral synovial osteochondromatosis with compressive myelopathy. Spine. 1999 May 1;24(9):921-3. (PMID: 10327518)

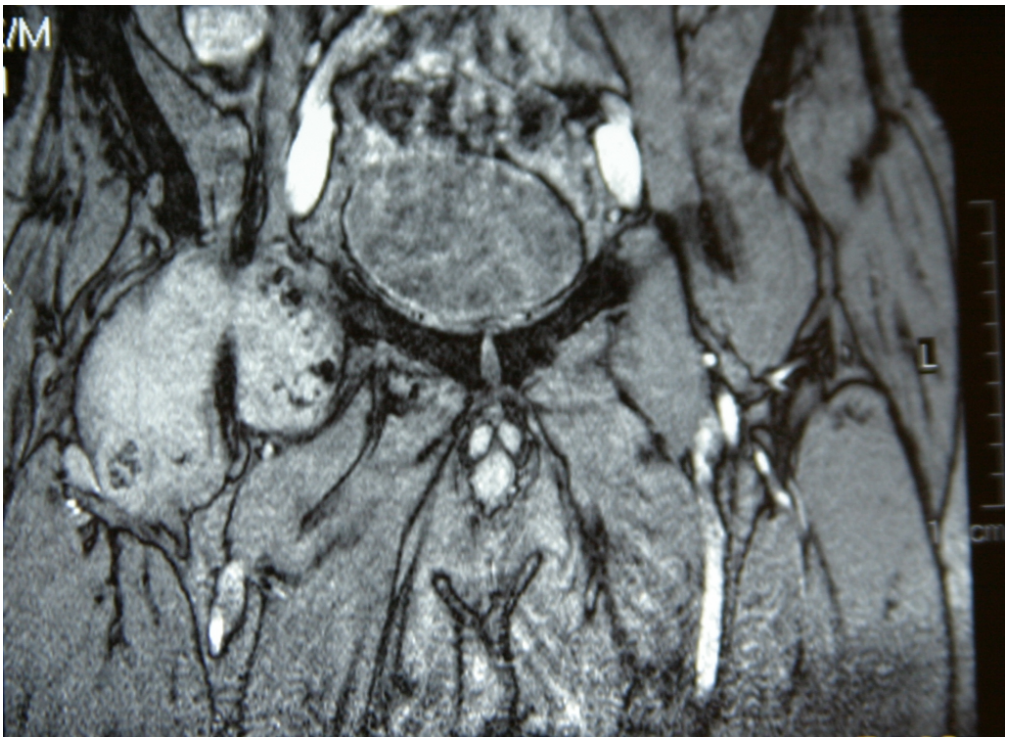
Gilbert SR, Lachiewicz PF. Primary synovial osteochondromatosis of the hip: report of two cases with long-term follow-up after synovectomy and a review of the literature. AM J Orthop. 1997 Aug;26(8):555-60. (PMID: 9267556)

Freidman B, Caspi I, Nerubay J, et al. Synovial chondromatosis of the hip joint. Orthop Rev. 1988 Oct;17(10):994-8.

(PMID: 3186288)
Davis RI, Hamilton A, Biggart JD. Primary synovial chondromatosis: a clinicopathologic review and assessment of malignant potential. Hum Pathol. 1998 Jul;29(7):683-8. (PMID: 9670824)
Hermann G, Klein MJ, Abdelwahab IF, Kenan S. Synovial chondrosarcoma arising in synovial chondromatosis of the right hip. Skeletal Radiol. 1997 Jun;26(6):366-9. (PMID: 9229420)
Wuisman PI, Noorda RJ, Jutte PC. Chondrosarcoma secondary to synovial chondromatosis. Report of two cases and a review of the literature. Arch Orthop Trauma Surg. 1997;116(5):307-11. (PMID: 9177811)
Anract P, Katabi M, Forest M, Benoit J, Witvboet J, Tomeno B. Synovial chondromatosis and chondrosarcoma. A study of the relationship between these two diseases. Rev Chir Orthop Reparatrice Appar Mot. 1996;82(3):216-24. (PMID: 9005459)

Figure 1

a



Description: **Origin:**

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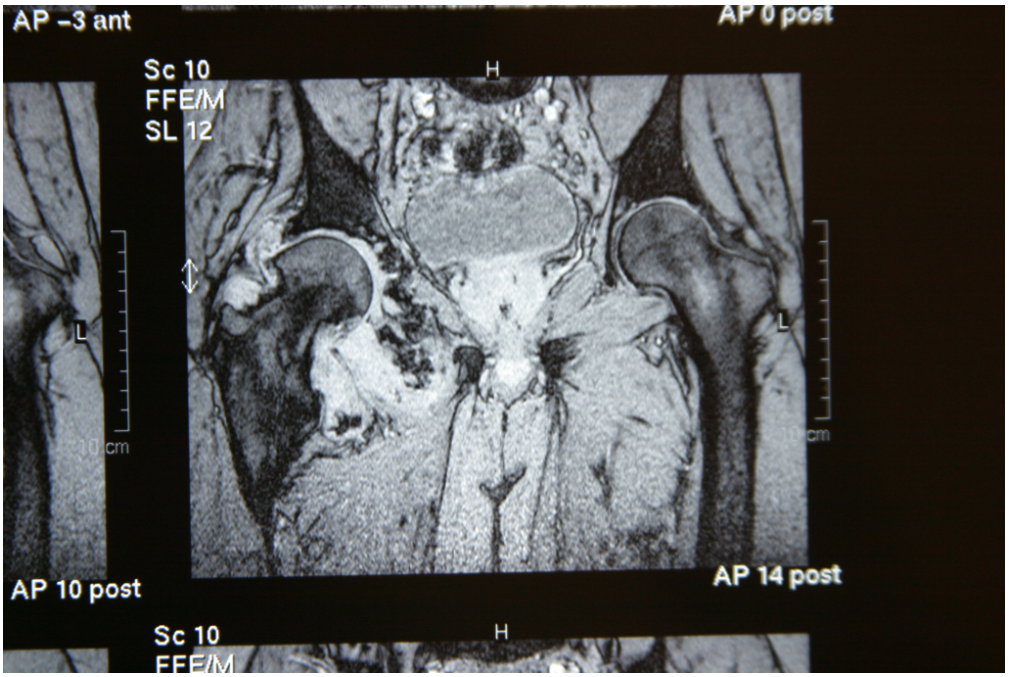
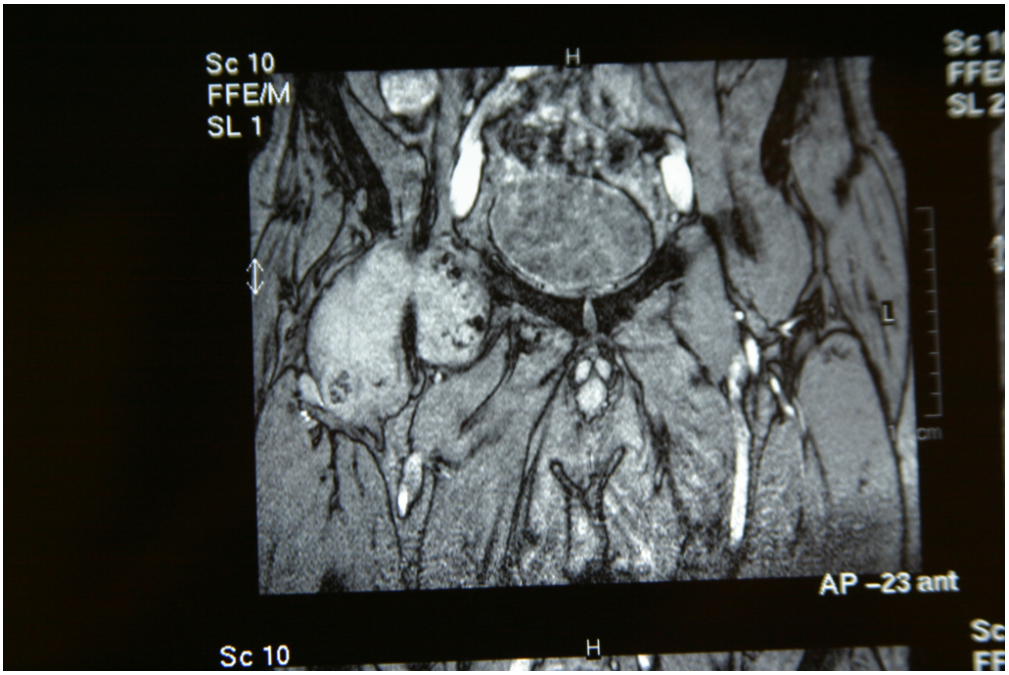


Description: Osteochondromatosis mass along the medial aspect of the right hip **Origin:**

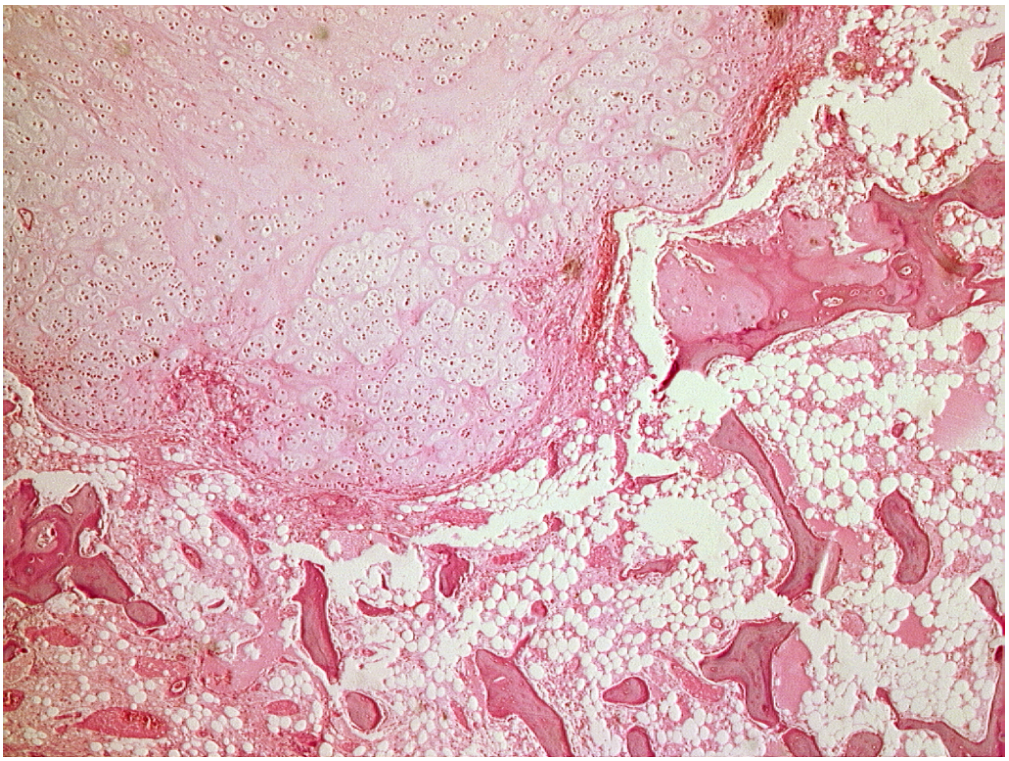
c



Description: **Origin:**

Figure 2

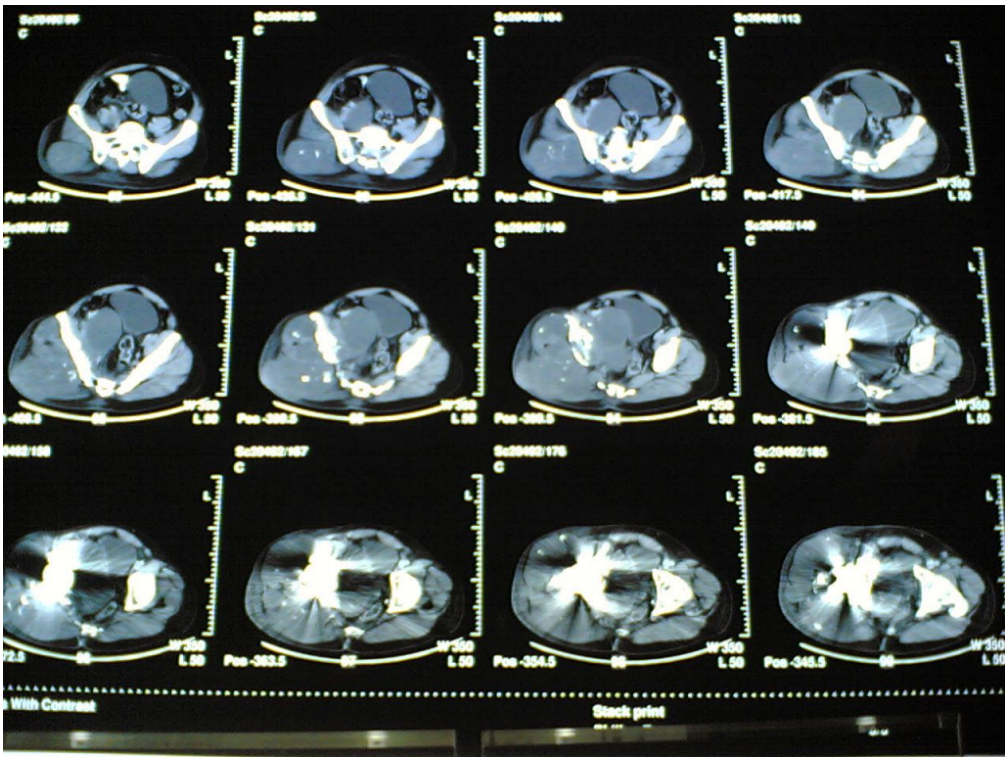
a



Description: Histology confirming chondrosarcoma as the final diagnosis **Origin:**

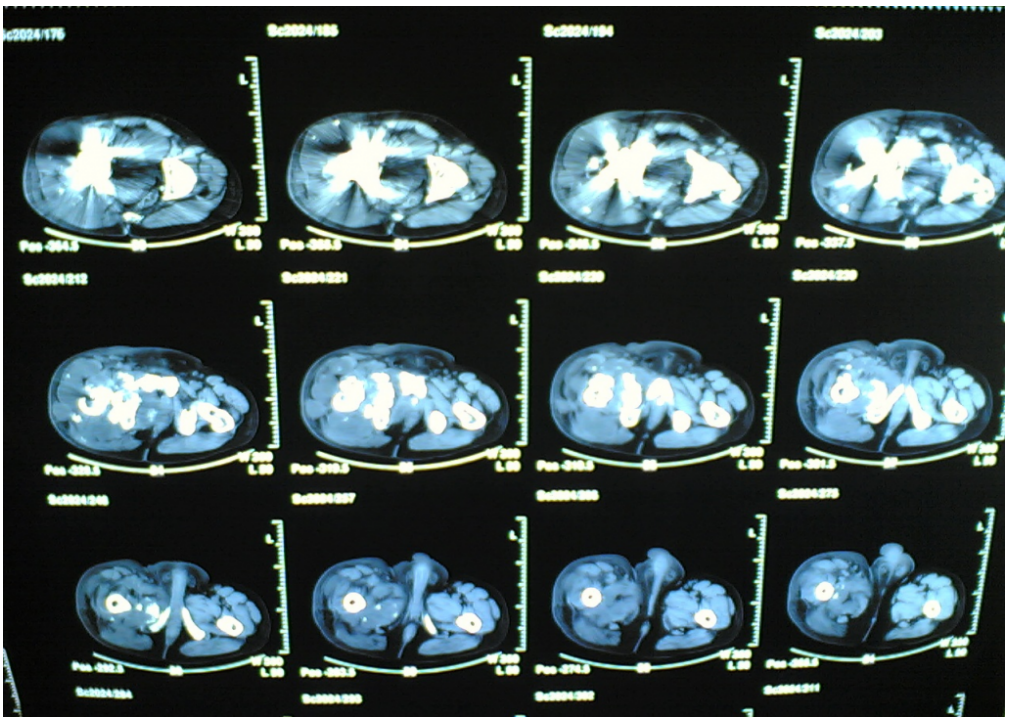
Figure 3

a



Description: A prosthesis causes some artifacts. CT pelvis reveals destruction of the right acetabulum consistent with chondrosarcoma. There is a large soft tissue mass measuring 19x25cm, with calcifications. The large intrapelvic component of this mass displaces the pelvic structures to the left. It also extends into the proximal thigh. The common femoral, external iliac and the common iliac vessels are opacified by contrast with no evidence of thrombosis. The external iliac and common iliac veins are however compressed by the tumour. **Origin:**

b



Description: **Origin:**