Abstract  We describe a 70-year-old patient with a rare, misleading presentation of lumbar disc prolapse, which on CT mimicked a synovial cyst. The whole nucleus pulposus had herniated, become sequestrated, and migrated behind the theca adjacent to the L4-5 facet joint. There was no continuity of the disc material with the intervertebral space. A fenestration was performed and the sequestrated disc material was found free of adhesions, and removed completely without difficulty. Histopathological examination confirmed the diagnosis. The patient had complete relief from his pain.

Key words  Synovial cyst · Lumbar disc · Sequestrated disc

Case report

A 70-year-old retired, healthy, athletic man awoke with the sudden onset of low back pain radiating to the right hip, leg and ankle, 10 weeks prior to admission. The pain became continuous, sharp in quality, accompanied by paraesthesiae of the calf, and was aggravated by standing and relieved by analgesics. There was no sensory deficit or urinary problems. On examination, the patient had generalised weakness of the right leg (2/5), and could barely walk more than a few paces. Reflexes were normal and straight leg raising was unrestricted. Back movements were poor, particularly flexion, and there was marked scoliosis due to spasm but no localised low back tenderness.

CT of the lumbar spine revealed a dense nodule adjacent to the ligamentum flavum and right facet joint at the L4-5 level, compressing the theca and the L5 nerve root. There were degenerative changes at the L2-3, L3-4, and L5-S1 levels but no theca or root compression. The appearances suggested a synovial cyst (Fig. 1).

An L4-L5 fenestration was performed. The lesion was found lying deep to the facet joint, posterior to the theca and the compressed L5 root. It had the macroscopic appearance of herniated disc material and was free of any adhesions to the adjacent facet joint or ligamentum flavum. The lesion was picked up and completely removed without any difficulty. The L4-5 intervertebral disc was thoroughly inspected with the operating microscope. There was a substantial hole in the annulus fibrosus, and no incision of the annulus was necessary. Apart from the anterolateral portions of the annulus, the intervertebral space was virtually empty of disc material. It became obvious that the nucleus pulposus had herniated and migrated, and there was no continuity of the herniated material with the disc space. There was no evidence of residual sequestrated disc material inside the spinal canal or foramina. The theca and roots were thoroughly decompressed.

Histological examination revealed fragments of fibrocartilage showing areas of confluent necrosis and focal replacement by granulation tissue (Fig. 2a). Fragments of degenerate ligamentum flavum were found at the periphery of the lesion (Fig. 2b). No synovial tissue or crystalline material was found. The patient had an uneventful postoperative course with complete resolution of his symptoms. He remained symptom-free 30 months later.
Fig. 1a, b  Adjacent CT sections showing circular intervertebral disc fragment, mimicking synovial cyst, lateral to and behind the theca, adjacent to the right L4-5 facet joint

Fig. 2a, b  Sections of disc tissue retrieved from area adjacent to ligamentum flavum and consisting of fibrocartilage. There are remnant strands of ligamentum flavum (b, arrow) (X 200)

Discussion

Many rare intraspinal lesions have been recognised as causes of extradural nerve root compression which may occasionally mimic a herniated lumbar disc on clinical or radiological examination. Synovial cysts [1], pigmented villonodular synovitis [2], sacral cysts [3], or extradural protrusion of redundant roots of the cauda equina [4] can mimic prolapsed lumbar intervertebral disc. Other spinal space-occupying lesions such as elastofibroma [5], localised unilateral hypertrophy of the ligamentum flavum [6], damaged paraspinal muscles [7], or gout [8] can cause pain or neurological deficit and should be included in the differential diagnosis. Most of these abnormalities, however, affect mainly the cervical spine. The CT and operative findings in our case revealed that the lesion was circular, without a broad base of attachment to dura mater, ligamentum flavum or bone. These features make it unlikely that it was an elastofibroma or hypertrophy of the ligamentum flavum, or damaged paraspinal muscles. This was confirmed by the histological examination which did not show any elastin fibers, muscle tissue, urate deposits, or evidence of connective tissue neoplasia. On CT, the lesion which closely resembles the mass seen in this patient, is the synovial cyst. Spinal synovial cysts are degenerative abnormalities frequently associated with trauma [9]. In our patient, however, the material removed consisted of