

 FACES OF SPINE CARE

From Surgical Pathology...

Where a nerve root mass has arthritic origin

A 56-year-old woman, who had had low back pain for 15 years, presented for care because of severe pain down both legs, along the lumbar 5 (L5) dermatome, of 6 months duration. Her deep tendon reflexes and peripheral circulation were normal. She had a normal range of flexion and extension, associated with pain, especially on extension. Her sensation was reduced in the L5 dermatome of the right leg, and her power in the right extensor hallucis longus and extensor digitorum longus was slightly decreased (Figs. 1 and 2).

We performed decompressive laminectomy, medial facetectomies, and foraminotomies at L4–L5. A 1.5-cm mass encircling the right L5 traversing nerve root was identified. The lesion compressed and medially displaced the right L5 traversing nerve root. Although dissection of the L5 nerve root was difficult, complete excision was achieved. The cystic mass did not communicate with the adjacent facet joint (Fig. 3).

Synovial cysts are commonly found in the region of peripheral joints and tendon sheaths [1]. In 1950, Vosschulte and Borger were the first to report nerve root compression secondary to juxtafacet cysts [2]. Synovial or ganglion cysts have been found in the facet region, ligamentum flavum, interspinous ligament, lumbar annulus, and the quadrate ligament of the odontoid [3,4]. They have been called

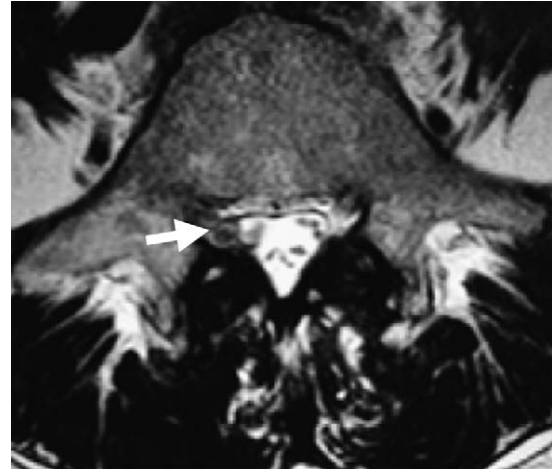


Fig. 2. Axial T2-weighted magnetic resonance imaging shows an abnormal signal with double contour (arrow) along the margin of the L5 pedicle in close apposition to the dural sac.

synovial cysts, ganglion cysts, juxtafacet cysts [5], and spinal degenerative articular cysts [6].

Synovial cysts, unlike ganglion cysts, have a synovial lining. Usually, they are filled with clear, serous or xanthochromic fluid and are sometimes in continuity with the synovium of a joint. Lumbar intraspinal synovial cysts most often occur at L4–L5 and occasionally at L5–S1 and L3–L4 [7]. Greater joint motion may predispose the L4–L5 facet joint to arthritis, degenerative spondylolisthesis, and cyst formation [5,8,9]. Other possible pathogenic mechanisms include: myxoid degeneration of periarticular fibrous tissue after trauma; increased secretion by fibroblasts; growth of developmental synovial rests; and proliferation of pluripotent mesenchymal cells [10].



Fig. 1. Magnetic resonance imaging sagittal views show degenerative spondylolisthesis at L4–L5.

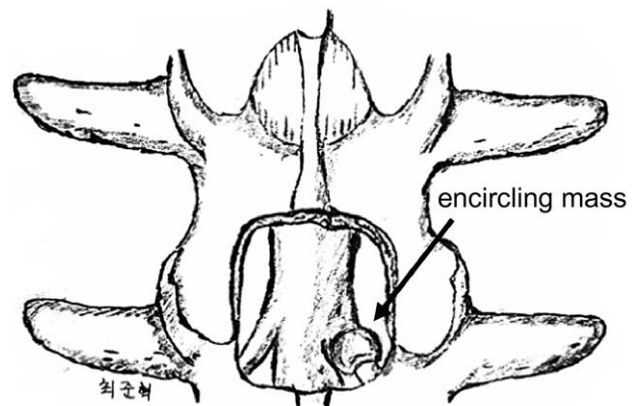


Fig. 3. Sketch created by the surgeon, illustrating the nuances of the surgical anatomy.

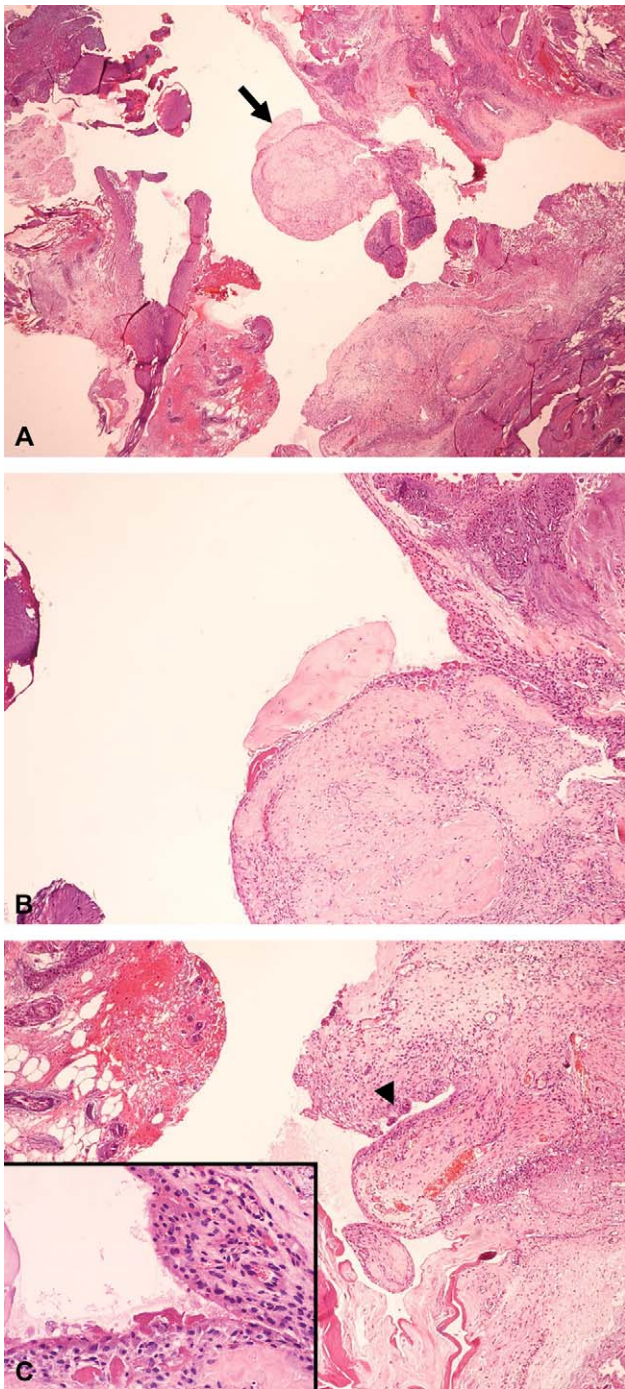


Fig. 4. Photomicrographs of the lesion stained with hematoxylin and eosin, at 40 \times magnification (A) show an ill-defined cystic space, lined by articular cartilage (arrow in A, magnified to 200 \times in B) and synovial cells (at 200 \times in C with inset to 350 \times).

On magnetic resonance imaging, a synovial cyst appears typically as an extradural, well-circumscribed structure arising adjacent to the facet joint [11–13]. The signal intensity is reported to be highly variable. Generally, on T1- and T2-weighted images, the cystic cavity demonstrates greater signal intensity than does the cerebrospinal fluid, because of the slightly proteinaceous content of the cystic material. However, low-intensity signals may be observed in cysts containing calcifications in their walls [14]. Hemorrhage can make

the signal intensity of the cyst higher than that of cerebrospinal fluid on all sequences because of the paramagnetic effect of methemoglobin [12]. However, magnetic resonance imaging frequently reveals only a soft-tissue mass or abnormal signal, as in our case, without typical appearance of a cyst.

Treatment of synovial cysts may consist of noninvasive measures, percutaneous aspiration with or without injection, or surgical resection with or without fusion, depending upon clinical circumstances [14–17].

From our search of the literature and personal knowledge, a synovial cyst forming an encircling mass around the traversing nerve root without any communication with the adjacent facet joint is a highly unusual finding. Synovial cyst should be considered in the differential diagnosis in a patient who has an apparent mass in a nerve root, even if there is no communication with the adjacent facet joint.

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