



Acquired Lumbar Spinal Stenosis as a Consequence of a Spinal Synovial Cyst Presenting with Paraparesis: A Case Report

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Abstract

Synovial and/or ganglionic cysts of the lumbar spine usually present with complaints of radicular pain. Less often, larger cysts are also associated with complaints of ambulatory-associated “weakness”. Such was the case of a 60-year-old male initially clinically suspected of having lumbar spinal stenosis. The etiopathogenesis of large ganglion cysts is reviewed with reference to symptoms, clinical signs and pathogenesis.

Keywords: Ganglion cyst; Paraparesis; Spinal stenosis; Synovial cyst

Introduction

Intra-spinal synovial cysts and/or ganglion cysts in juxtaposition to a degenerative vertebral facet joint can become a mechanical source of spinal root and/or cord compression [1]. In 40% of these cases, they occur as a product of an “unstable” arthritic facet joint, i.e., degenerative spondylitis [2]. They present most often in the sixth decade of life with a slight predominance of females [3]. Although occurring at all levels of the spine, 95 percent can be found at lumbar vertebral levels, usually at the juncture of the L4-L5 vertebrae, the lumbar spine’s most unstable segment. The rest occur in descending order of frequency at L5-S1 and at L3-L4 levels, rarely if ever in the sacrum [4]. Symptoms and clinical signs of nerve root and/or spinal cord compression by a synovial cyst are consistent with the vertebral level of spinal root compromise.

At all spinal levels the most common presenting symptom of an enlarging ganglion is that of radicular pain [5]. However, when occurring at the cervical and thoracic vertebral levels, 1-3 percent may initially present with signs and/or symptoms of spinal cord compression, i.e., myelopathy [6].

Case Presentation

A 60-year-old Caucasian male presented with a primary complaint of bilateral lumbosacral and leg pain radiation, albeit predominately right-sided. Numbness on the plantar aspect of the right foot was also present with additional complaints of ambulation-induced bilateral neurogenic claudication. His peripheral pulses were all normal. Right straight-leg rising was limited to 30 degrees due to increasing sciatic radiculopathy. Bilateral iliopsoas muscle weakness was also identified accompanied by reduced strength in the right foot dorsiflexors. The right ankle jerk was absent. No long tract signs were observed. Bladder and bowel function were not impaired. Hip and knee range of motion were both normal as well as pain-free.

A Magnetic Resonance Imaging study (MRI) was ordered, with a clinical diagnosis of spinal stenosis and/or a midline herniated disk. Instead, the MRI revealed a large synovial cyst of the lumbar spine, 7.0 mm x 6.7 mm x 19.0 mm, A-P and lateral as well as craniocaudal respectively, which emerged from a degenerative right L4-L5 facet joint. The joint itself was also hypertrophic with a minimal spondylolisthesis. Both, the ganglion cyst as well as the arthrogenic joint contributed to the formation of severe spinal canal stenosis (Figure 1).

Discussion

In 1876, Baker first described a synovial cyst in association with an adjacent vertebral degenerative joint [6]. Although originally considered to be a relatively rare phenomenon, with the present availability of MRI, it has proven to be a relatively more common entity. The terms “synovial” and/or “ganglion cyst” are used interchangeably in referring to this entity. Although

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Figure 1: A 60-year-old male with an MRI of the lumbosacral spine demonstrating a large ganglion cyst (arrow) producing a significant spinal stenosis at L4-L5 adjacent to a degenerative, hypertrophic and unstable right-sided facet joint.

pathological differences between both have been described, their slight differences, if any, are now attributed to a continuum of cyst formation with subsequent degeneration. Synovial tissue herniation through a weakened joint capsule forms the outer layer of the ganglion cyst with its cavity filled with synovial joint fluid from the adjacent vertebral joint. However, following a loss of communication between the vertebral joint and the cyst's cavity, myxoid degeneration may occur [7]. The majority of patients with a symptomatic synovial cyst experience a history of chronic lumbosacral pain preceding the acute onset of radicular pain. Not infrequently, they may also present without neurological deficits. Radicular pain and paresthesias, in 50-93 percent, are the most common presenting symptoms of a synovial cyst, with neurogenic claudication the next most frequent complaint occurring in 10-44 percent of patients [8]. A MRI is the "gold standard" in identifying the presence of a synovial cyst [9]. This neurodiagnostic modality can reveal both the presence of a cystic lesion, as well its proximity to the vertebral facet joint.

Both conservative and surgical therapeutic options have been recommended for treating a symptomatic ganglion cyst. Rest and anti-inflammatory medication, as well as bracing, have been recommended initially in the conservative treatment of patients when an arthrogenic origin of pain is suspected [10]. Steroid-based intervertebral joint injections have also been employed in treatment. At best, these conservative measures, singularly and/or together, have demonstrated mixed results. Slipman "et al." [11], in a small series of 14 patients reported that following intervertebral joint injections, 28.6 percent, i.e., four patients, had a good to excellent outcome. However, half of the total number, i.e., seven patients, eventually came to surgery. As Marion PJ and Kahanovitz N [12] quoting Eyster EF and Scott WR [13] noted after a failed steroid injection in their

patient with a ganglion cyst, "conservative medical treatments are less efficacious when compared with surgical decompression and cyst excision, which is the definitive treatment of choice" [13,14]. When the aetiopathogenesis of this syndrome includes a significant amount of segmental spinal instability, an arthrodesis is often considered. However, when a surgical approach is recommended, it must always be predicated on the individual's symptoms, their subsequent imaging findings and with attention to their overall health status.

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