



Multiple Tarlov Cysts in Spinal Canal: A Case Report

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Abstract

Tarlov Cysts (TCs) are perineural cysts between the perineurium and endoneurium, arising near the dorsal root ganglion. They can occur anywhere in the spine but most frequently around the sacral nerve roots. Most TCs lack obvious clinical symptoms and usually present as incidental finding, but about 20% of TCs are symptomatic. The symptoms of TCs include low back pain, radiculopathy, leg weakness, and paresthesia in the lower limb. TCs are usually single or sporadic and are rare in large clusters. Magnetic Resonance Imaging (MRI) can clearly reflect the number, size and shape of cysts, which is the first choice for the diagnosis of this disease. We present a 61-year-old female who presented with mild lumbosacral pain, but sometimes accompanied by numbness in the posterior thighs on both sides. MRI images suggested that the patient had multiple cystic lesions on both sides of the spinal canal, which was considered as TCs.

Keywords: Multiple; Nerve root cyst; Perineural cyst; Tarlov cyst

Case Presentation

A 61-year-old female patient was admitted to the orthopedic outpatient department of our hospital due to the abnormal results of her physical examination. Her Magnetic Resonance Imaging (MRI) report performed in October this year showed multiple cystic lesions on both sides of the spinal canal in the T12-S3 level plane. We asked the patient about her condition and found that her symptoms were unremarkable. The patient said that she was always in good health at ordinary times, and had occasional lumbosacral soreness over the past year, but the pain was mild and could be tolerated. After further understanding of the patient's condition, we found that she usually had the habit of morning exercise, such as running and practicing tai chi, and had not fallen or been injured recently, and had no chronic diseases such as hypertension and diabetes. The family history was unremarkable. On physical examination, the patient did not have significant lumbosacral tenderness or percussion pain, and the muscle strength of both lower limbs was normal. However, when she does squats or side presses, she has a slight numbness in the back of both thighs. Our initial clinical differential diagnosis included lumbar disc herniation, lumbar spinal stenosis, or lumbar muscle strain. A close review of the MRI images surprised us. On the dehiscence plane of MRI, it was evident that there were numerous, multiple, sequential, beaded cystic lesions on both sides of the spinal canal (Figure 1A, 1B). From the coronal view, the spinal canal was dilated at the level of the T12-S3 vertebral body, and part of it bulged out of the bilateral intervertebral foramina, showing a circular long T1 and long T2 signal shadow, and the cauda equina nerve ran inside it (Figure 1C, 1D). After comprehensive consideration, we initially diagnosed multiple Tarlov Cysts (TCs) on both sides of the spinal canal. We have never seen such a large number of TCs in the orthopedic clinic. We immediately contacted the imaging department for technical treatment, and three-dimensional images of these cysts were reconstructed. These cysts were of different sizes, symmetrically arranged, located on both sides of the spinal canal, and partially wrapped around the nerve root (Figure 2). Considering the absence of obvious symptoms, no special treatment was given to the patient for the time being.

Discussion

Tarlov Cysts (TCs) are rare, often asymptomatic disorder, characterized by isolated or multiple nerve-root cysts, which were first described by Dr. Tarlov in 1938 [1] as perineural cysts filled with Cerebrospinal Fluid (CSF) that originate from the dorsal ganglion or the spinal posterior nerve root. It usually occurs in the sacral spine, near the dorsal root ganglion, between the perineurium and endoneurium [2]. This cyst is also known as perineural cyst, nerve root diverticulum, meningeal cyst, sacral cyst, arachnoid cyst, etc. Most TCs lack obvious clinical symptoms and usually present as incidental finding [3], but some cysts can cause corresponding nerve root symptoms. TCs can occur in any segment of the spine, such as cervical, thoracic and lumbar vertebrae, but lumbosacral

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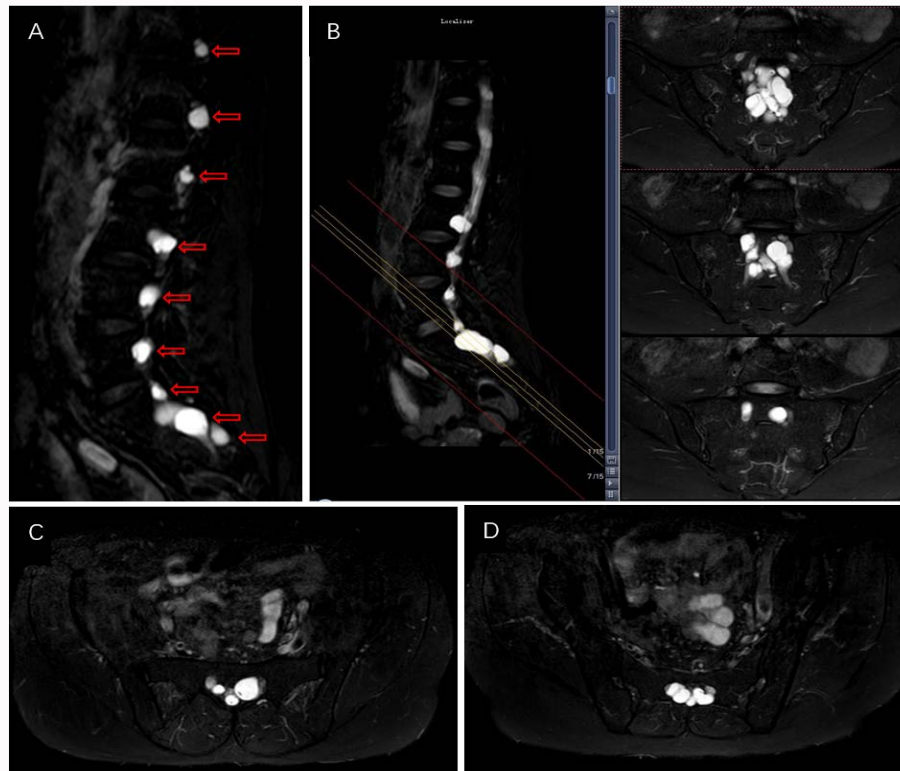


Figure 1: A, B) There are numerous beaded cysts along the spinal canal on MRI sagittal view. C, D) On the coronal plane, part of the spinal canal was dilated and bulked out of the bilateral foramina, in which the cauda equina nerve was visible.

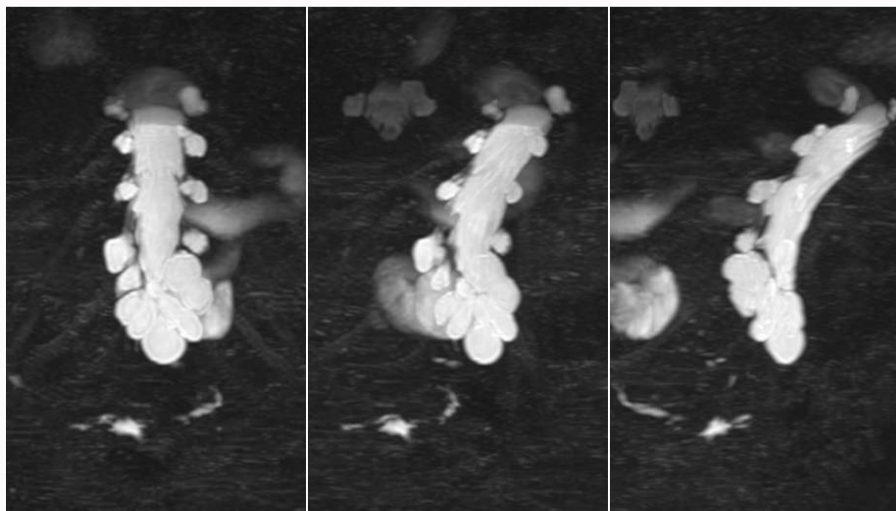


Figure 2: Images of multiple cysts after 3D reconstruction.

involvement is most common. According to the literature, about 20% of TCs are symptomatic [4]. The symptoms of TCs include low back pain, radiculopathy, leg weakness, and paresthesia in the lower limb, but sometimes it can also present with many rare symptoms, such as sacral radiculopathy, urinary incontinence, bowel disorders, and dyspareunia [5]. At present, it is generally believed that the characteristic manifestation of Tarlov cysts is the presence of nerve fibers in the cyst wall or the presence of nerve fibers in the cyst cavity itself. Although the etiology is still unclear, micro-communication with the subarachnoid space at the Dural sleeve of the nerve root may function as a valve, allowing CSF influx and restricting CSF

efflux, causing formation of the cysts [6]. This ball-like mechanism causes cysts to fill and expand in size, and may compress neighboring nerve fibers, resulting in neurological symptoms [7]. At present, Magnetic Resonance Imaging (MRI), Computed Tomography (CT), or myelography can be used to confirm TCs, with MRI being the gold standard modality [8]. MRI can well show the subarachnoid space, spinal cord, spinal nerve root epidural fat, and even can show the linear spinal meninges, so that the adjacent relationship and scope of the lesion can be correctly inferred, and then achieve the correct diagnosis of the location and quality of the lesion. Although most people with TCs are asymptomatic throughout their lives, they are

a type of lesion that may grow progressively larger and make their symptoms progressively worse. As the cyst grows, the sensory nerve roots around the lesion are stretched, and other nerve roots and surrounding bone will also undergo compressive changes, resulting in pain and sensory disturbance. Treatment is usually not required for asymptomatic Tarlov cysts [9]. Approximately 20% of these cysts are symptomatic, and the role of specific surgical and nonsurgical interventions remains controversial.

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