

Symptomatic Tarlov Cysts and Occupational Outcome: A Case Report

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Abstract

Tarlov cysts are often asymptomatic and incidentally discovered. However, in few cases, these cysts can be symptomatic and may manifest as chronic low back pain. We report a case of a Tarlov cyst incidentally diagnosed by MRI in a wiring factory worker complaining of chronic low back pain exacerbated with the carrying of heavy loads and the hyper solicitation of the lumbar spine during his professional activity. The clinical manifestations of symptomatic Tarlov cysts can influence the life quality of patients and have enormous repercussions on their work ability, which in some cases can lead to job loss. Thus, the socio-professional aspects of symptomatic Tarlov cysts should not be underestimated and maintaining these patients in employment should be considered from the outset as an objective in its own right in the management.

Keywords

Tarlov Cysts, Neurosurgery, Occupational Outcomes

1. Introduction

Tarlov's cysts were initially discovered incidentally by the neurosurgeon Isadore Tarlov during an autopsy in 1938 [1]. They are rare, fluid-filled perineural sacs often found in the lumbosacral spine at the junction of peripheral nerve roots and the corresponding dorsal root ganglia.

These injuries affect approximately 1.5% to 4.6% of the population [2]. Women are more vulnerable to developing this disease, as are patients with ge-

netic connective tissue disorders [3] [4]. However, due to the assumption that Tarlov cysts are clinically irrelevant, these symptomatic cysts are systematically ignored [5].

Some researchers suggest that it is the result of the infiltration of cerebrospinal fluid (CSF) into the nerve root sheath, subsequent to the increase in hydrostatic pressure [4], but the pathophysiological mechanism of this illness remains unrevealed.

The majority of these cysts are asymptomatic and are discovered by chance [4] during neuroimaging. Spinal MRI is the examination of choice for the initial diagnosis. These cysts are hyposignal on T1-weighted images, hypersignal on T2-weighted images, and show no enhancement with the administration of contrast agent.

Less than 1% of these cysts may cause clinical symptoms, depending on the location of the cyst in the spinal canal and the type of the nerve roots they compress [2] [3] [4] [5] [6]. The patient may complain about low back pain, sacro-coccygeal pain, perineal pain, sciatica, motor deficits, sensory weakness, neurogenic claudication, bowel, bladder and sexual dysfunction [2]. These symptoms are often intermittent at the beginning and are most often exacerbated by coughing, Valsalva maneuvers such as sneezing or straining to defecate, standing, walking, and postural changes, all of which are responsible for elevating CSF pressure [2].

Certain occupations are known to cause low back pain, such as construction workers, public transport workers, nurses and nursing assistants, etc. In fact, low-skilled employees are exposed to excessive strain on the lumbar spine [7] [8].

We report a case of Tarlov's cyst diagnosed fortuitously by MRI after chronic low back pain presented by a worker in a wiring factory. Oral consent was obtained from the concerned patient.

2. Case Presentation

We report the case of Mr. F.B., a 52-year-old married man, having no particular medical history, and who suffered from chronic low back pain.

This patient has been working as a laborer in an electric cable manufacturing company for 18 years, exposed to carrying heavy loads and to a hyper sollicitation of the lumbar spine.

His current injury appeared in 2011 following the lifting of a heavy object at work. He declared his accident as a work-related injury and got a Permanent Partial Disability (PPD) rate of 12%.

Since this accident, the patient had suffered from intermittent and chronic low back pain that was worsened by long standing or sitting positions. In view of the persistence of these complaints, which were becoming resistant to the usual symptomatic treatments, he was referred to a specialist for further treatment. During the interview, the patient stated that his pain was not related to any

trauma. The physical examination was normal; the patient had no neurological deficits or bladder and bowel disorders.

An X-ray of the lumbar spine was requested, showing posterior disc pinches of the last two lumbar stages with two opacities of millimetric calcium tone in projection of the left transverse processes of L3.

Additional magnetic resonance imaging was ordered to show, a global L4-L5 disc protrusion reducing the volume of the dural sheath by 40% and narrowing the two lateral processes explaining a probable conflict with the L5 root aggravated by hypertrophy of the posterior articular facets, and the fortuitous discovery of a few Tarloven's cysts regarding S1.

Mr F.B. received symptomatic treatment made of analgesics and non-steroidal anti-inflammatory drugs, but with no significant relief. He complained from discomfort when performing his professional tasks as well as his daily life activities.

At present, the patient still has a low back pain, which was worsened by the lumbar spine hyper solicitation movements. He is still occupying the same workstation except the carrying of heavy loads and the prolonged standing and sitting stations.

3. Discussion

Tarlov cysts are rare [9]. They can be difficult to recognise and diagnose, and although they most commonly affect the sacral nerve roots, they have been found in the lumbar and sacral regions, as in our case [10]. Tarlov cysts may be single, multiple, uni- or bilateral and of variable size [11]. They may be associated with another compressive mechanism: herniated discs, spondylolisthesis or narrow lumbar canal [12].

In an Italian cohort of 157 patients with Tarlov cysts, Marino D. *et al.* observed that these perineural cysts were mostly associated with lumbar and/or sacral disc herniation (95% of patients) [13]. In our patient's case the Tarlov cysts were multiple and associated with a lumbar disc herniation.

The pathophysiology of Tarlov cysts remains unclear. Several hypotheses have been proposed to explain the etiology of perineural cysts in the sacral region. The most common hypothesis was inflammation of nerve root cysts followed by fluid inoculation and arachnoid proliferation along and around the sacral nerve root, responsible for the disruption of the venous flow in the perineurium and epineurium secondary to haemosiderin deposition [14] [15] [16]. However, two other hypotheses have been widely discussed, namely a post-traumatic onset or a congenital malformation [17]. Some authors have reported in 40% an association with trauma [18]. Based on their observations of 2 cases of symptomatic Tarlov sacral cysts treated surgically in the same family, Park HJ *et al.* suggested that a genetic predisposition may be an important factor involved in the pathogenesis of these cysts [19].

Tarlov cyst has a histopathological definition. In fact, histological analysis of

perineural cysts has shown that the cyst wall is composed of peripheral nerve fibres or ganglion cells covered by meningeal epithelium [20]. Voyadzis *et al.* found nerve fibres in the cyst walls in 75% of their cases [14].

The exact mechanism responsible for the onset of pain is still an enigma; however, direct mechanical compression appears to be the most likely etiology of pain [21]. There are no pathognomonic features in the clinical history and physical examination specific to Tarlov's cysts. It should be noted that the majority of these perineural cysts are asymptomatic [9]. However, these cysts tend to grow and, in some cases, may present with variable symptoms depending on the size and location. These symptoms are related to compression and irritation of nerve roots leading to pain or other neurological disturbances [10]. The clinical presentation of symptomatic cysts is sometimes similar to other disc or lumbar pathological disease [22]. Nevertheless, the intermittent nature of the sciatica and the absence of Lasègue's sign have been noted by some authors [23] [24], as was the case in our observation.

Tarlov's cysts are most often discovered incidentally, during investigations for low back pain [12]. Patients may undergo magnetic resonance imaging (MRI) of the lumbosacral spine for a variety of symptoms, including back pain, sciatica or neurological dysfunction. Peri-neural cysts are one of the most common incidental findings on lumbosacral spine MRI. A recent report indicates an 8.4% rate of incidental findings of Tarlov cysts on lumbar spine MRI for suspected herniated discs or lumbar spinal stenosis [25].

Therefore, MRI of the lumbosacral spine is the best examination to detect and easily diagnose Tarlov's cysts, as it can specify the number, location, size and links with neighbouring structures and nerve roots [26]. Rodziewicz G.S. *et al.* suggested that the diagnosis of Tarlov's cysts should preferably be made by a dedicated sacral MRI, which is more sensitive than CT or standard lumbosacral MRI [27].

There is no consensus on the optimal treatment of symptomatic sacral perineural cysts [28]. Numerous methods have been applied to treat them, with variable results [29]. Treatments include: conservative therapy, minimally invasive procedures such as percutaneous aspiration and CT-guided drainage or open surgery [22]. Conservative approaches, including analgesic/anti-inflammatory drugs and physical rehabilitation, have had varying degrees of success in reducing symptoms associated with cysts [30]. Although some patients who choose to undergo surgery may show improvement, surgery is not widely recommended as symptoms are not always relieved or, in some cases, exacerbated. In addition, the risk of complications remains higher with surgery, such as CSF leaks and the need for repetitive procedures [4].

There is a lack of data in the literature regarding the socio-professional aspects of symptomatic Tarlovian cysts. The intermittent and chronic nature of the pain can lead to an inability to perform work tasks. Sometimes, a higher perceived intensity of pain can be deleterious to patients' working lives and impair their quality of life at work. In contrast to the study by Marino D. *et al.* which showed

that some patients with Tarlov cysts had social and occupational problems and lost their jobs [13], our patient continued to work in the same job.

In a comparative analysis of 33 patients with symptomatic Tarlov cysts and 42 patients with chronic low back pain and sciatica secondary to disc problems or degenerative or inflammatory phenomena, Hulens M.A. *et al.* showed that symptomatic Tarlov cysts have a significant impact on the social and professional lives of affected patients compared to controls. Indeed, they reduce their social activities much more often and are forced to stop working more frequently [3].

The psychological and socio-professional aspects of symptomatic Tarlov's cysts should not be underestimated and keeping patients with osteoarticular pain in employment should be considered from the outset an integral goal of medical management, alongside other therapeutic objectives.

4. Conclusions

Tarlov's cysts, a rare and poorly understood disease, are perineural dilatations of the spinal ganglia filled with cerebrospinal fluid located along the spine. They are most often asymptomatic and are discovered incidentally. In few cases, these lesions may be symptomatic and may present a variety of neurological symptoms. CT and especially MRI show these cysts well and clarify their links with surrounding structures. Tarlov cysts should be considered an important clinical entity in the differential diagnosis of the causes of low back pain.

Although the data in the literature is limited concerning the socio-professional impact of this disease, our case report illustrates a particular aspect of its impact. As a result, therapeutic management combined with socio-professional reintegration is necessary.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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