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## Symptomatic Tarlov Cyst: A Rare Case Report and Its Management

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# Symptomatic Tarlov Cyst: A Rare Case Report and Its Management

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## Abstract

Perineural (Tarlov) cysts are meningeal cyst of the spinal nerve root sheath that most often affect sacral roots and can cause a progressive painful radiculopathy. Tarlov cysts are most commonly diagnosed by lumbosacral spine magnetic resonance imaging (MRI) and can often be demonstrated by computerized tomography also. These cyst communicate with the spinal subarachnoid space. These cyst can enlarge via a net inflow of cerebrospinal fluid, eventually causing symptoms by distorting, compressing, or stretching adjacent nerve roots. It is generally agreed that asymptomatic Tarlov cysts do not require treatment. When symptomatic, the surgical intervention remain controversial. We report a case of symptomatic Tarlov cyst, its clinical presentation, treatment, and results of surgical cyst wall resection in a case of a symptomatic sacral Tarlov cyst.

## Introduction

Tarlov cysts were first described in 1938 as an incidental finding at autopsy<sup>1</sup> Tarlov described a case of symptomatic perineural cyst and recommended its removal. Since then a few cases have been reported in the literature<sup>2-4</sup> Paulsen reported the incidence of Tarlov cysts as 4.6% in back pain patients (n=500). Only 1% of back pain patients (n=500) with cyst were symptomatic<sup>4</sup> The patient may present as low back pain, sciatica, coccydynia or cauda equina syndrome. The cysts are usually diagnosed on MRI, which reveals the lesion arising from the sacral nerve root near the dorsal root ganglion<sup>5</sup> Tarlov advised extensive surgery with sacral laminectomy and excision of the cyst along with the nerve root<sup>6</sup> Paulsen reported CT-guided percutaneous aspiration of these perineural cysts for relief of sciatica<sup>4</sup> Recently, microsurgical excision of the cyst has been advocated, combined with duroplasty or plication of the cyst wall<sup>7</sup> We report a case of symptomatic Tarlov cyst presenting as back pain and radiating to left lower limb so that we can increase the awareness of this rare entity in the neurosurgical and orthopedic community.

## Case Report

A 47-year-old man presented with a 1-year history of progressive, intractable sacrococcygeal pain and numbness as well as dysesthesia of left foot. Pain aggravated on walking. Although he was still able to work . He rated his pain as 8 of 10 possible points on a visual analogue scale. Pain relieved in recumbent position. He had no bowel or bladder dysfunction, and sensation for urination and defecation was normal. The pain was not associated with specific time, posture or activity and it used to get relieved by non steroidal antiinflammatory drugs (NSAID). For last three months, the intensity and duration of pain had increased. The pain had progressed to the lower back and bilateral upper thigh up to the ankle. On physical examination, all limbs had 5/5 strength. Sensory examination showed diminished sensory perception to pinprick on the soles of his feet and in S1 distribution. There was no sensory deficit over the perineum. Anal sphincter tone and constriction were normal. Knee jerks was normal. Left ankle jerk was grade 1+ Examination showed no spinal tenderness. Straight leg raising was normal on both side.

Preoperative MR imaging(Fig 1) demonstrated a large sacral cyst arising within the thecal sac at S-1, of around 3\*2\*2cm with expansion of the osseous sacral central canal and enlargement of L-5 and S-1 neural foramina causing compression of all adjacent nerve roots. The cyst did not fill with contrast material. X-ray of the lumbosacral spine did not reveal any abnormality.

## OPERATION:

To relieve progressively incapacitating symptoms, surgery was done. After sacral laminectomy, microsurgical cyst wall excision was performed. Briefly, after exposure of the S1 sacral nerve root, a large cyst was identified arising from left side S1 nerve . The thin transparent cyst

wall membrane was widely opened with a scalpel and microscissors. Clear fluid contents of the cyst drained spontaneously. Partial cyst wall excision was done. Fibrin glue was then applied to fill the cyst cavity. Cyst wall specimen was sent to the laboratory for histo-pathological examination. Histopathological examination was consistent with the findings of Tarlov's Cyst.

## Discussion

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Tarlov cysts are rare causes of low back pain. They are more common in females<sup>4,7</sup> Clinical presentation of Tarlov cysts is variable. The cysts may cause local and/or radicular pain. The dominant syndrome is referable to the caudal nerve roots, either sciatica, sacral or buttocks pain, vaginal or penile paraesthesia or sensory changes over the buttocks, perineal area and lower extremity. Depending on their location, size and relationship to the nerve roots, they may cause sensory disturbances or motor deficits to the point of bladder dysfunction. Tenderness on firm pressure over the sacrum may be present. Commonly the symptomatology is intermittent at its onset and is most frequently exacerbated by standing, walking and coughing. Bed rest relieves the discomfort<sup>8</sup>

Plain X-rays are usually normal. However, they may reveal characteristic bone erosion of the spinal canal or anterior or posterior neural foramina<sup>9</sup> A CT scan can demonstrate cystic masses isodense with CSF located at the foramina. Bony changes may also be present<sup>10</sup> An MRI gives a much better soft tissue contrast and is currently the investigation of choice for perineural cysts. The cysts demonstrate low signal on T-1 weighted images and high signal on T-2 weighted images, similar to CSF<sup>5</sup> Myelography shows delayed filling of cyst<sup>11</sup>

Microscopic features of the cyst were described by Tarlov. The early stage in cyst formation is that of a space between the arachnoid which covers the root or the perineurium and the outer layer of the pia cover of the root or the endoneurium. It usually begins in one portion of the circumference of the perineural space, the larger cysts compressing the nerve root to one side. The cyst occupies the posterior root abutting the proximal portion of the dorsal ganglion. Its main part is bordered by reticulum or by nerve fibers<sup>1</sup>

The pathogenesis of perineural cysts is uncertain. Tarlov felt that hemorrhage into the subarachnoid space caused accumulations of red cells which impeded the drainage of the veins in the perineurium and epineurium, leading to rupture with subsequent cyst formation. Four out of the seven patients in Tarlov's 1970 article had a history of trauma<sup>8</sup> Schreiber and Haddad also supported this post traumatic cause of cyst formation<sup>12</sup> Fortuna et al. believed that the perineural cysts were congenital, caused by arachnoidal proliferations within the root sleeve<sup>13</sup>

There is no consensus on a single method of treatment. Various methods have been advocated. Tarlov advised that symptomatic, single perineural cysts should be completely excised together with the posterior root and ganglion from which they arise<sup>8</sup> Paulsen reported CT-guided percutaneous aspiration of these perineural cysts in two patients done for the relief of sciatica caused by compression<sup>4</sup> According to Caspar microsurgical excision of the cyst combined with duroplasty or plication of the cyst wall is an effective and safe treatment of symptomatic sacral cysts. The parent nerve root is always left intact<sup>7</sup>

Tarlov cysts are a documented cause of sacral radiculopathy and other radicular pain syndromes. They must be considered in the differential diagnosis of patients presenting with these clinical presentations and appropriately treated by cyst excision.

## Conclusion

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Patient appreciated relief of pain immediately after the surgery. Postoperative period was uneventful and the patient made prompt recovery. On three months follow up, the patient had no pain in lower limbs and back. Patient was of very low economic strata so post operative MRI could not be done. The patient is back at his job and is asymptomatic. Tarlov cyst are well treatable entity and significant symptomatic relief is achievable after surgery.

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## Illustrations

### Illustration 1

Figure 1-Pre operative MRI showing Tarlovs cyst 3\*2\*2cm at S1 level



### Illustration 2

Figure 2-Intraoperative photograph of Tarlovs cyst seen along the S1 nerve root on left side.

