

Multiple Giant Tarlov Cysts Presenting as Polyradiculopathy: A Rare Manifestation

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Abstract

We describe a case of multiple giant Tarlov cysts presenting with complaints of low back pain with neurological claudication. Tarlov cysts are nerve root cysts found most commonly in the sacral roots, arising between the covering layer of the perineurium and the endoneurium near the dorsal root ganglion. Most of them are asymptomatic, usually detected as incidental findings on MRI. Symptomatic Tarlov cysts are extremely rare, commonly presenting as sacral or lumbar pain syndromes, sciatica or rarely as cauda equina syndrome. Tarlov cysts should be considered in the differential diagnosis of patients presenting with these complaints.

Keywords: Low back pain, Sacral perineural cyst, Sciatica, Tarlov cyst

Introduction

Tarlov's cysts (perineural cysts) are fluid-filled meningeal dilations of the posterior nerve root sheath, usually at the dorsal root ganglion. They are commonly viewed in the sacrum but can also be observed in the lumbar, thoracic, and cervical spine. Isadore M. Tarlov first published his studies on Tarlov cyst in 1938 as an incidental finding at autopsy.¹ Since then few cases have been reported in the literature.^{2,3,4} Paulsen reported the incidence of Tarlov cysts as 4.6% in patients with back pain and only 1% of them were symptomatic.⁴ Clinically it 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.⁵ Tarlov advised extensive surgery with sacral laminectomy and excision of the cyst along with the nerve root.⁶ Paulsen reported CT-guided Percutaneous aspiration of these perineural cysts for relief of sciatica.⁴ Recently, microsurgical excision of the cyst has been advocated, combined with duraplasty or plication of the cyst wall.⁷ We report a case of symptomatic multiple giant Tarlov cysts presenting as polyradiculopathy which is a rare manifestation.

Case Presentation

A 29-year-old female presented with right thigh pain off and on for nine months. The pain was not associated with specific time, posture or activity and it used to get relieved by non steroidal antiinflammatory drugs (NSAID). Clinical examination at this stage did not reveal any findings at spine, bilateral

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hips and left thigh. For last three months, the intensity and duration of pain had increased, which was now not relieved by taking NSAID. The pain had progressed to the lower back and bilateral upper thigh up to the ankle. The pain was aggravated by activity and prolonged standing and was more bothersome in the evening. She used to get up in the middle of the night with pain. Later the patient started having rest pain as well. Straight leg raising was 50° on the right side and normal on the left side.

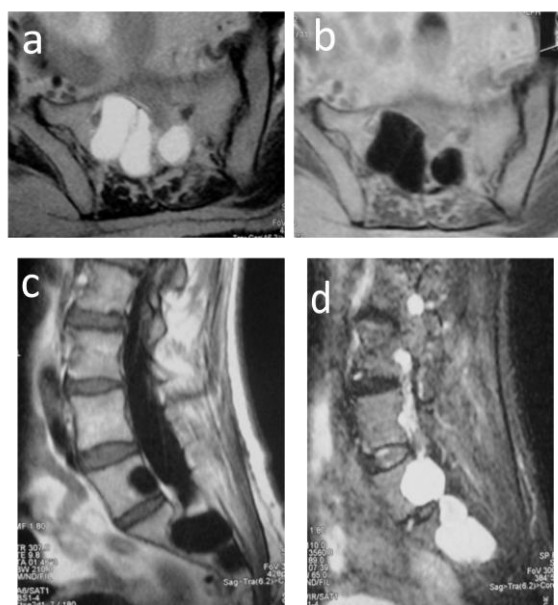


Fig 1 (a, b, c & d): MRI of the lumbosacral spine (in axial plane – figures 1a & b and in sagittal plane – figures 1c & d) revealed multiple, well circumscribed, fluid-filled cystic lesions arising from L5 to S4 vertebral levels, largest one measuring 3.5x2.5 cm with widening of spinal canal, widening of neural foramina and scalloping of adjacent vertebral bodies. The lesions were hypointense on T1W and hyperintense on T2W & STIR images.

Plain radiograph of the lumbosacral spine revealed scalloping of the vertebral bodies in lower lumbar and sacral regions. MRI of the lumbosacral spine (Figures 1a,1b,1c & 1d - in axial and sagittal plane) revealed multiple, well circumscribed, fluid-filled cystic lesions

arising from L5 to S4 vertebral levels, largest one measuring 3.5x2.5 cm with widening of spinal canal, widening of neural foramina and scalloping of adjacent vertebral bodies. The lesions were hypointense on T1W and hyperintense on T2W & STIR images. CT scan of the lumbo-sacral spine (Figure 2a & 2b – in axial section with sagittal reconstruction) revealed cystic lesions with widening of spinal canal and scalloping of the adjacent vertebral bodies from L5 to S4 vertebral levels. The patient was taken for sacral laminectomy, excision of the cyst and plication of the cyst wall, while retaining the nerve root. Histopathological examination of the cyst wall showed nerve cells, which confirmed the diagnosis of Tarlov cyst. Postoperative period was uneventful and the patient made prompt recovery. Patient appreciated relief of pain immediately after the surgery. On nine months follow up, the patient had no pain in lower limbs and back and did not show any evidence of recurrence.

Discussion

Tarlov cysts are rare cause of low back pain and are more commonly seen in females.^{4,7} Clinical presentation of Tarlov cysts is variable. They may cause local and/or radicular pain and 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. Tenderness on firm pressure over the sacrum may be present. Commonly, the symptoms are intermittent at its onset and are most frequently exacerbated by standing, walking and coughing. Bed rest alleviates the discomfort.⁸

Plain X-rays are usually normal; however they may reveal bone erosion of the spinal canal or anterior or posterior neural foramina.⁹ CT scan can demonstrate cystic

masses isodense with CSF located at the foramina.¹⁰ MRI gives a much better soft tissue contrast and is currently the investigation of choice for perineural cysts. The cysts are hypointense on T1WI and hyperintense on T2WI, similar to CSF.⁵ Myelography showing the filling of the meningocele sac 1hr after injection of contrast medium is highly suggestive of a perineural cyst.¹¹

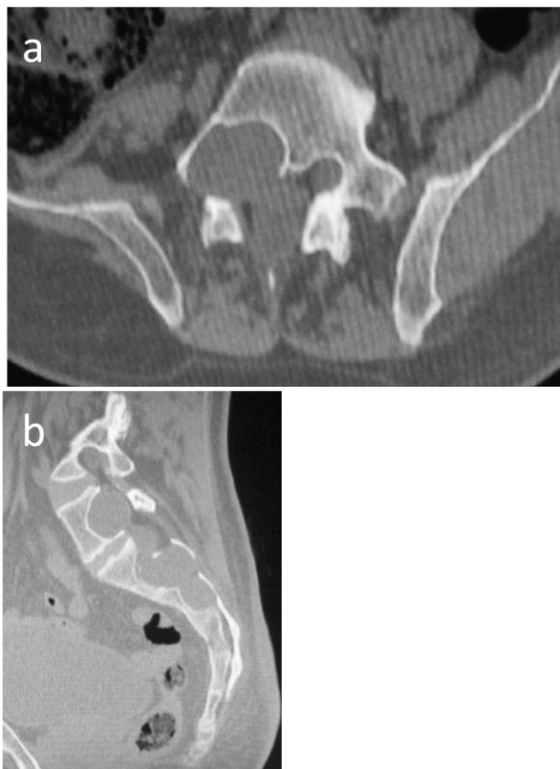


Fig 2a & b: CT scan of the lumbo-sacral spine (in axial section – figure 2a , with sagittal reconstruction – figure 2b) revealed cystic lesions with widening of spinal canal and scalloping of the adjacent vertebral bodies from L5 to S4 vertebral levels.

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 perineurium and the outer layer of the pial cover of 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.¹

The pathogenesis of perineural cysts is uncertain. According to Tarlov, 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.⁸ Schreiber and Haddad also supported this posttraumatic cause of cyst formation.¹² Because many of the patients with perineural cyst in their series did not have histories of trauma, Fortuna et al. believed that the perineural cysts were congenital, caused by arachnoid proliferations within the root sleeve.¹³

Tarlov advised that symptomatic, single perineural cysts should be completely excised together with the posterior root and ganglion from which they arise.⁸ Paulsen reported CT- guided percutaneous aspiration of perineural cysts for the relief of sciatica caused by compression.⁴ According to Caspar microsurgical excision of the cyst along with duraplasty or plication of the cyst wall is an effective and safe treatment of symptomatic sacral cysts and the parent nerve root is always left intact.⁷

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.

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