

An Unusual Cause of Low Back Pain: A Giant Tarlov Cyst

Emine Dagistan¹, Betul Kizildag¹, Arzu Canan^{2*}, Ahmet Ozden¹

¹Abant Izzet Baysal University, School of Medicine, Department of Radiology, Bolu, Turkey

²Antalya Ataturk State Hospital, Radiology Clinic, Antalya, Turkey

*Corresponding Author:

Name: Dr Arzu Canan

Email: arzuolcun@gmail.com

Abstract: Tarlov cysts are fluid-filled meningeal dilations in the spinal perineural space. They are one of the common incidental findings in lumbar MRI in daily practise, and mostly asymptomatic. Rarely, they could reach giant diameters and cause compression symptoms including sacral radiculopathy and other radicular pain syndromes. They should be kept in mind in differential diagnosis of lumbar and sacral region pain after excluding most common entities such as disc herniations, degenerative processes or masses. We report a 20-year-old patient with a giant Tarlov cyst in the lumbosacral region which compressed cauda equina and present with low back and right thigh pain.

Keywords: Low back pain, magnetic resonance imaging, perineural cyst, Tarlov cyst.

INTRODUCTION

Tarlov cysts are determined incidentally on magnetic resonance imaging (MRI) performed for low back pain. The prevalence in adult population is approximately 5% and cysts are more commonly seen in females [1]. They are generally asymptomatic but, symptomatic only in 1% of the population. Clinical presentation are variable due to their size and location. The patients usually present with sacral radiculopathy and other radicular pain syndromes [2, 3]. We described a patient with low back and right thigh pain due to a giant Tarlov cyst located in the lumbosacral region.

CASE REPORT

A 20-year-old woman was referred to Neurosurgery clinic with low back and right leg pain for the last 8-9 months. Her complaints were aggravated while walking and upstanding with a little relief upon lying down. There was also intermittent electrifying sensation radiating from right buttock to the leg. Her medical records revealed no significant trauma, infection or surgery. No sphincteric disturbances, weakness or sensory loss as well as perineal pain was noted. The straight leg raise test was pozitiv at 60 degree. Neurological examination revealed mildly decreased deep tendon reflexes as well as hypoesthesia on her unilateral lower extremity.

The patient was referred to radiology department for lumbar spine MRI study in order to evaluate lumbar disc herniation. The plain graphy of the lumbosacral spine showed scalloping of the vertebral bodies in lower lumbar and almost all sacral levels. Unenhanced lombar MRI demonstrated a well

circumscribed, giant cystic mass arising from L5 to S4 vertebral levels, measuring 4x6,6x9,6 cm with widening of spinal canal and neural foramina bilaterally and scalloping of adjacent vertebral bodies. The lesion had similar signal intensity to cerebrospinal fluid (CSF) on both T1 and T2 weighted images (Fig. 1,2). Cauda equina was displaced to periphery of spinal canal and constricted due to compression of cystic mass (Fig. 3). Additionally, MRI revealed multiple lateral perineural cysts arising from bilateral lower thoracic neural foraminas (Fig. 4). There was no posterior and anterior fusion defects in the vertebral body and posterior components excluding anterior meningocele and neural tube defects (Fig. 2). The spinal cord was ending at the normal level (L1) without tethering (Fig. 1). The patient treated with non-steroidal anti inflammatory and mylorelaxant drugs and her pain was nearly resolved within two weeks.



Fig. 1: Sagittal T1 (A) and T2 (B) weighted images are showing lobulated giant cystic mass and scalloping of adjacent vertebral bodies. The signal intensity of cyst is similar with cerebrospinal fluid

on both T1 and T2 weighted images. The conus was at the normal level (L1)

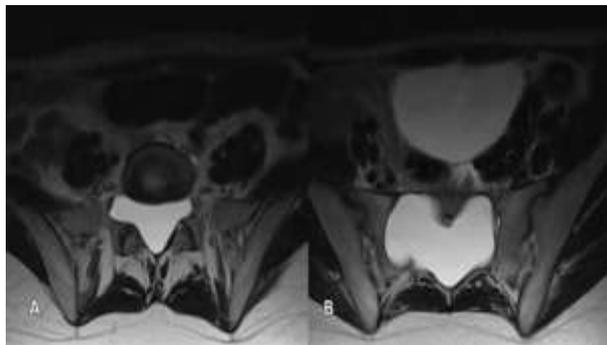


Fig. 2: Axial T2 weighted images of lumbar (A) and sacral (B) regions is depicting enlargement of central canal and neural foraminae due to giant cystic mass

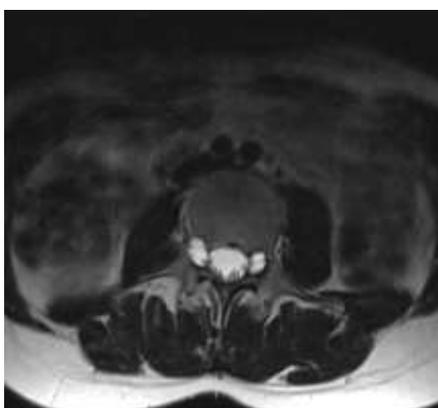


Fig. 3: Axial T2 weighted image of lower thoracic level is demonstrating bilateral perineural cysts

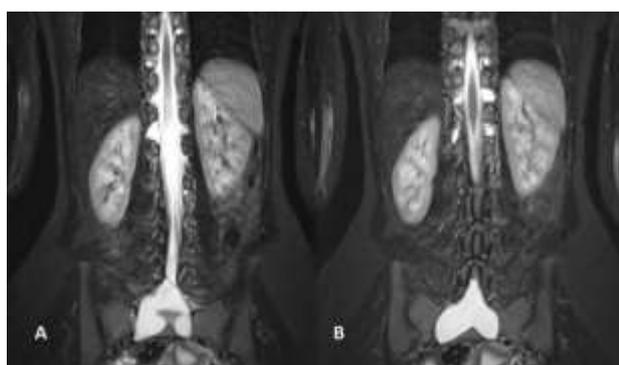


Fig. 4: Coronal STIR images are revealing extradural, giant Tarlov cyst (A) and multiple perineural cysts (B) arising from the bilateral neural foraminae of lower thoracic vertebrae

DISCUSSION

'Perineural cyst', 'sacral meningeal cyst', 'sacral arachnoid cyst', 'occult intrasacral meningocele' are the synonyms of this entity in the literature. They present meningeal dilations along with sacral canal and/or neural foramina. These cysts are typically located at the junction of the dorsal root ganglion and the nerve root

[4]. These cysts may have a communication of subarachnoid space or not. The term 'Tarlov' or 'perineural' cysts are representing cysts which connect subarachnoid space freely. Those free from subarachnoid space are less common form and referred as meningeal cysts. This type tends to reach larger dimensions causing neurological signs. Both types of cysts cause erosions and enlargement in spinal canal and sacral foramina due to pulsations of cerebrospinal fluid and spinal pressure [5]. Nabors et al. [6] classified these cysts in to three types depending on anatomic location either extradural (class 1 and 2) or intradural (class 3), and cysts in extradural location consisting of nerve roots fibers are class 2 (Tarlov cysts, perineural cysts) and without nerve root fibers are class 1. Cysts those having checkvalve mechanism may need surgical intervention. Every class has different surgical management and approach [1].

Tarlov had described these cysts in 1938 at first [3] and had postulated their congenital or developmental origin. The etiologic factors are unknown but trauma, surgery and inflammation were thought to be a reason of perineural cysts. The patient had no accompanying story of trauma, surgery or inflammation. Our patient had a giant Tarlov cyst determined as class 2 according to Nabors' classification which compressed cauda equina and presented with low back pain.

Although MRI is the best choice for Tarlov cysts, the other radiologic modalities can be used such as plain graphy and computed tomography (CT). X-rays are usually normal in patients with perineural cysts [7]. CT can demonstrate cystic masses, located at the foramina or central canal and the remodeling of the adjacent bones and neural foraminae [8]. MRI provides much better soft tissue resolution and allow of multiplanar sections so it is considered the best imaging modality for evaluating perineural cysts. These cysts have similar intensity to CSF on both T1 and T2 weighted imaging. Additionally, MRI is a useful tool for surgical planning [5]. MRI also can depict associated abnormalities. Myelography and contrast enhanced CT myelography is helpful in diagnosing the check valve mechanism especially in multiple cysts. If contrast agent leakage to the cyst is demonstrated by CT myelography that means cerebrospinal fluid flows in one direction [1]. In our patient, plain graphy had demonstrated scalloping of vertebral bodies as well as enlargement of sacral canal. We did not perform CT because MRI provides sufficient information about spinal canal and vertebral bones around in the patient. MRI revealed the giant perineural cyst and its association with cauda equina fibers also MRI showed multiple perineural cysts which located at the neural foraminae of lower thoracic vertebrae.

Differential diagnosis of a giant Tarlov cyst should include cystic sacral masses such as meningoceles, sacral neoplasms for example schwannomas or aneurismal bone cysts [5]. Meningocele known as protrusion of dural sac and its contents through a congenital bony defect on the anterior or posterior part of spinal canal. Anterior meningocele can present as pelvic cystic mass. Posterior meningoceles are more common and vary according to the content of sac (myelocele, myelomeningocele, lipomyelomeningocele) protruding through posterior fusion defect of column vertebralis. These patients should also reveal tethered cord. The perineural cyst in our patients does not contain any neural structures unlike a meningocele and the patient did not have posterior fusion defect or tethered cord [5].

Sacral nerve neurofibromas can mimic a perineural cyst as they enlarge the neural foramina and marked high signal intensity on T2 weighted images. Contrast enhanced images can be helpful in the diagnosis. Aneurismal bone cysts demonstrate multiple blood-filled structures, causing expansion of the sacrum. Fluid-fluid level can be helpful in diagnosis [5].

Symptomatic cysts are treated by conservatively or surgically. Conservative treatment includes pain management and physical therapy. Surgical treatment consists of total excision, CT-guided aspiration, excision of the cyst along with duraplasty or plication of the cyst [3, 9].

CONCLUSION

Although, Tarlov cysts are not uncommon in daily practise, a few of them should cause low back pain or sciatalgia so they should be kept in mind in differential diagnosis.

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