

## Case Report

# Symptomatic Tarlov Cyst – Case Report and Review of the Literature

Uddin MN<sup>1</sup>, Ahmed NI<sup>2</sup>, Baqui MN<sup>3</sup>, Khan MAI<sup>4</sup>

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**Contribution to authors:** Md. Nasir Uddin

**Manuscript Preparation:** Nafees Imtiaz Ahmed

**Data Collection:** Muhammad Nazmul Baqui

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### Abstract:

*Here we describe the case of a 53 year old woman presenting with low back pain with radiation was diagnosed with sacral bilateral Tarlov cyst. She was treated by laminectomy, disintegration of cyst and duroplasty. Histopathological examination of the cyst wall was confirmed the diagnosis. 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.*

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### Introduction:

Tarlov cysts or perineural cysts commonly originate in the sacral region within the nerve roots<sup>1</sup>. They arise between the covering layer of perineurium and the endoneurium near the dorsal root ganglion. Perineural cysts were first described by Isadore Max Tarlov in 1938 as an incidental finding during autopsy<sup>2</sup>. The prevalence of Tarlov cysts in the adult population can be as high as 4.6%<sup>2</sup>. Most of them are small and become asymptomatic; It is most commonly found in women, and usually detected on magnetic resonance imaging (MRI) as incidental findings, while symptomatic Tarlov cysts seem to be rare<sup>2</sup>. Cysts causes the patient may come with low back pain, sciatica, coccydynia or cauda equina syndrome. The

cysts are usually diagnosed on MRI<sup>3</sup>. Over the past decades, many authors advised extensive surgery with sacral laminectomy and excision of the cyst along with the nerve root. Microsurgical excision of the cyst has been advocated recently, combined with duraplasty or plication of cyst wall<sup>2</sup>. Here we report a case of symptomatic Tarlov cyst presenting as lower back pain diagnosed with MRI and microsurgical treatment performed by laminectomy, disintegration of cyst and duroplasty.

### Case Report:

A 53-year-old woman presented with off and on pain in the lower back and back of right thigh for four years. The pain was not associated with specific time,

1. Md. Nasir Uddin, Specialist, Department of Neurosurgery, Evercare Hospital Chattogram

2. Nafees Imtiaz Ahmed, Senior Medical Officer, Department of Neurosurgery, Evercare Hospital Chattogram

3. Muhammad Nazmul Baqui, Consultant, Department of Histopathology, Evercare Hospital Chattogram

4. Md. Anisul Islam Khan, Senior Consultant & Coordinator, Department of Neurosurgery, Evercare Hospital Chattogram

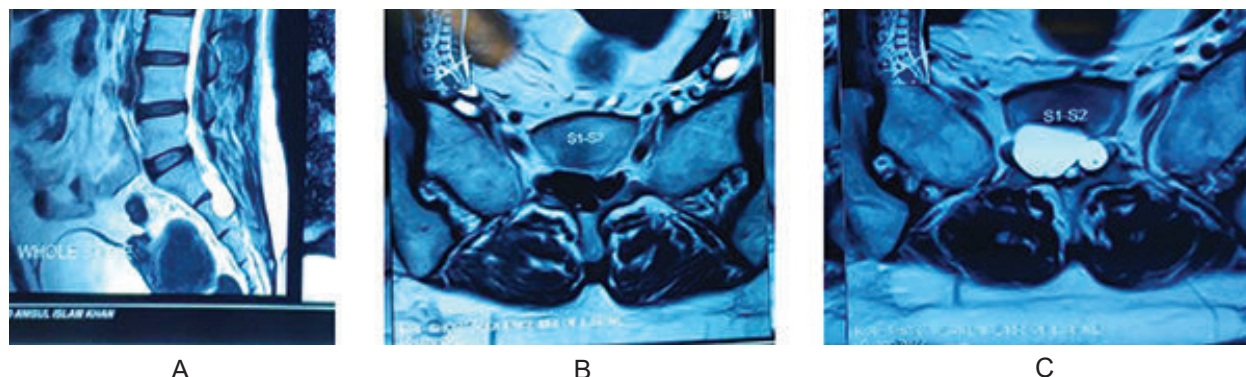
**Address of Correspondence:** Dr. Md. Nasir Uddin, Department of Neurosurgery, Evercare Hospital Chattogram, e-mail: dr.nasirneuro@gmail.com

posture or activity and it used to get relieved by non steroidal anti-inflammatory drugs (NSAID). For last two 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 right lower limb down to the ankle. The pain was aggravated by activity and prolonged standing. Examination revealed a absent ankle jerk on the right side and hypoesthesia along the S1 and S2 dermatomes. Straight leg raising was limited on the right side, and the Lasegue’s sign was also positive.

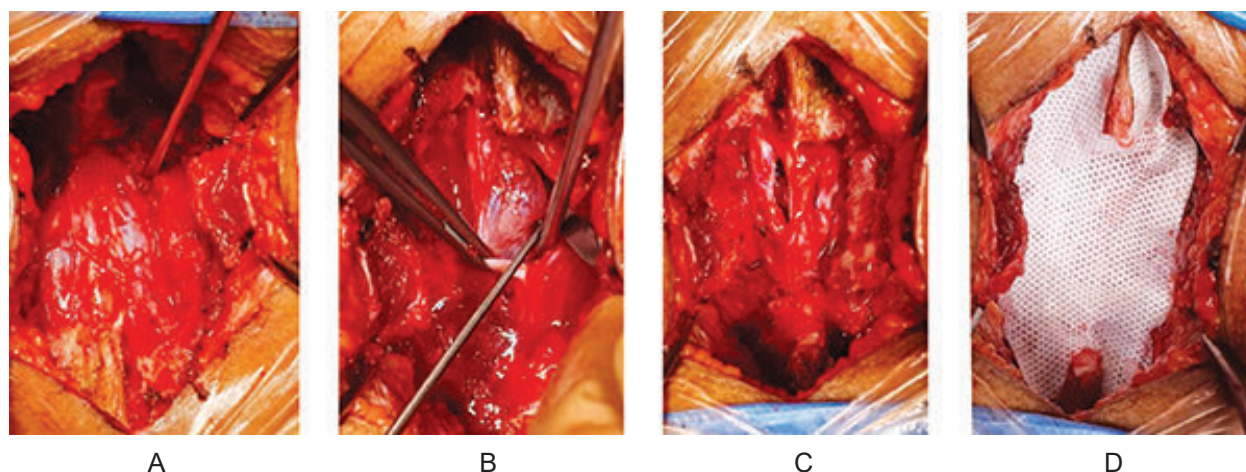
X-ray of the lumbosacral spine did not reveal any abnormality. The Magnetic resonance imaging (MRI) of the spine revealed oval shaped CSF signal intensity bilateral cyst at at perineural space in lateral recess and intervertebral foramen region at the level of S1

and S2 vertebra measuring about 10 x 15 x 32 mm (Right) and 5 x 5 x 10 mm (Left) [Figure 1].

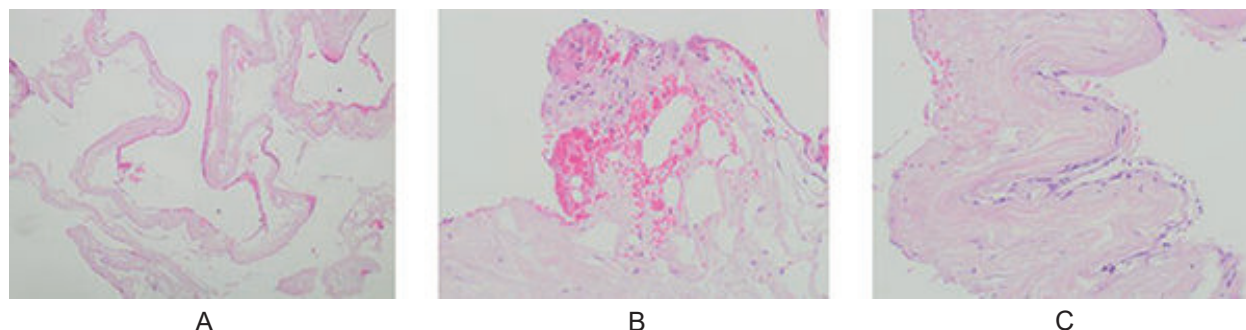
The patient was taken for sacral laminectomy and two cysts were exposed after laminectomy. It was located near the dorsal root ganglion of S1 (Right) and S2 (Left) nerve root. It was filled with cerebrospinal fluid and nerve fiber was found inside the cyst. Dissection and disintegration of both cyst done and duroplasty done with artificial dura [Figure 2]. Histopathological examination of the cyst wall showed a cyst wall composed of fibro-collagenous tissue lined by flattened arachnoid lining, Area of hemorrhage also seen. [Figure 3]. Patient reported marked pain relief immediately after the surgery. Postoperative period was uneventful and the patient made prompt recovery.



**Fig.-1:** MRI of lumbosacral spine T2 WI (A), T1 WI (B) and T2WI (C) imaging showing a fluid-filled cystic lesion sitting opposite the first and second sacral vertebra



**Fig.-2:** Peroperative images showing Sacral laminectomy and exposed cyst (A). Disintegration of the cyst (B), After excision of cyst wall (C) and Dural enhancement (D)



**Fig.-3:** Histopathology showed a cyst wall composed of fibro-collagenous tissue lined by flattened arachnoid lining (A & C), Area of hemorrhage (B)

### Discussion:

Tarlov cysts, which were also termed “Perineural cysts”<sup>4</sup>. The etiology of Tarlov cysts is not clear; have many theories. It might be congenital, traumatic, and inflammatory factors. These factors lead to the growth of the arachnoid membrane. Studies have attributed the cause of the growth of the cyst to the active secretion of the inner cells of the cyst, the osmotic difference between the arachnoid membrane and cyst, and the formation of a valve between the cyst and subarachnoid space<sup>8</sup>. Four out of the seven patients in Tarlov’s 1970 article had a history of trauma. Schreiber and Haddad also supported this posttraumatic cause of cyst formation. 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 arachnoidal proliferations within the root sleeve. They are more common in females. Tarlov cysts are rare cause of low back pain (less than 1% of occurrences). Clinical presentation of Tarlov cysts is variable. The symptoms are similar to other spinal lesions, so it is difficult to differentiate based on the symptoms only<sup>9</sup>. 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 alleviates the discomfort<sup>5</sup>. MRI is considered the imaging study of choice in identifying these cysts. As compared with

CT scanning, MRI provides better resolution of tissue density, absence of bone interference, multiplanar capabilities, and is non-invasive. Because these cysts are filled with CSF, a low signal is seen on T1 and a high signal is noted on T2<sup>7</sup>. A CT scan can demonstrate cystic masses isodense with CSF located at the foramina. Bony changes may also be present<sup>4</sup>. Plain X-rays are usually normal. However, they may reveal characteristic scalloping or bone erosion of the spinal canal or anterior or posterior neural foramina. Myelography showing the filling of the meningocele sac 1h after injection of contrast medium is highly suggestive of a perineural cyst<sup>5</sup>.

Treatment is indicated only when the cyst is symptomatic. 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. Paulsen reported CT-guided percutaneous aspiration of these perineural cysts in two patients for the relief of sciatica caused by compression<sup>5</sup>. According to Caspar microsurgical excision of the cyst combined with duraplasty or plication of the cyst wall is an effective and safe treatment of symptomatic sacral cysts. The parent nerve root is always left intact. Options include external cerebrospinal fluid drainage<sup>1</sup>, percutaneous cyst drainage<sup>1,5</sup> percutaneous fibrin glue injection<sup>5</sup>, insertion of a cyst-subarachnoid shunt<sup>1</sup>, a cyst-peritoneal shunt or a lumboperitoneal shunt, simple decompressive laminectomy, resection of the cyst neck<sup>1,5</sup>, cyst wall resection<sup>2,1</sup> and cyst imbrications<sup>1,4</sup>. Possible complications after excision include infection, cerebrospinal fluid leakage, and neurological deficit (as nerve fibres may entangle with the cyst wall)<sup>1</sup>. There was no nerve root damage or neural deficit. we did not use any lumbar subarachnoid drain or perform lumbar

puncture. However, if CSF leakage occurs lumbar subarachnoid drainage should be useful.

### Conclusion:

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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