

# Conservative Management of Symptomatic Sacral Tarlov Cyst – A Rare Case Report

Sathish Muthu<sup>1,2,3</sup>, Srinivasacholan Chandrasekaran<sup>4</sup>

## Learning Point of the Article:

Symptomatic presentation of Tarlov cyst though rare should be considered in the differential diagnosis and managed appropriately if identified as the source of symptoms.

## Abstract

**Introduction:** Tarlov cysts are rare perineural cysts noted as an incidental finding in approximately 1% of lumbar magnetic resonance imaging (MRI) arising from extradural components near the dorsal root ganglion. Due to its localization, it may cause sensory symptoms in some cases. However, most of these cysts are asymptomatic.

**Case Report:** We present the case of a 55-year-old woman with complaints of severe pain localized to the inner aspect of the thigh and gluteal region for the past 6 months, which has not been relieved by conservative management. On examination, there was a loss of sensation around the S2 and S3 dermatome with preserved motor functions. MRI showed a cystic lesion occupying the spinal canal with a size of about 1.3 × 0.7 cm with remodeling changes around the S2 vertebra. The cyst appears hypointense on T1 and hyperintense T2-weighted images. The diagnosis of the symptomatic Tarlov cyst was made and was managed with an epidural steroid injection. The patient was relieved of symptoms and remained asymptomatic till the latest follow-up at 1 year.

**Conclusion:** Symptomatic presentation of Tarlov cyst though rare should be considered and managed appropriately if identified as the source of symptoms. Conservative management with epidural steroids is a successful method in the management of smaller cysts without motor symptoms.

**Keywords:** Tarlov cyst, sacrum, spine, decompression.

## Introduction

In 1938, Tarlov first described a cystic finding in his autopsy studies of filum terminale as an incidental finding [1]. Tarlov cysts are rare perineural cysts noted as an incidental finding in approximately 1% of lumbar magnetic resonance imaging (MRI) [2]. “Perineural cyst” and “Nerve root cyst” are various synonyms for this condition arising from extradural components near the dorsal root ganglion. Due to its localization, it may cause sensory symptoms in some cases. However, most of these cysts are asymptomatic. Only a few cases have been reported so far in

the literature on this lesion being symptomatic and its effective management strategies are debated [3, 4, 5, 6, 7]. We present a case of symptomatic Tarlov cyst presenting in the sacral root and discuss the strategies involved in their management.

## Case Report

We present the case of a 55-year-old woman with complaints of severe pain localized to the inner aspect of the thigh and gluteal region for the past 6 months. Our patient did have any history of

Access this article online

Website:  
www.jocr.co.in

DOI:  
<https://doi.org/10.13107/jocr.2023.v13.i06.3694>

## Author's Photo Gallery



Dr. Sathish Muthu



Dr. Srinivasacholan  
Chandrasekaran

<sup>1</sup>Department of Orthopaedics, Government Medical College, Dindigul, Tamil Nadu, India,

<sup>2</sup>Orthopaedic Research Group, Coimbatore, Tamil Nadu, India,

<sup>3</sup>Department of Biotechnology, Faculty of Engineering, Karpagam Academy of Higher Education, Coimbatore, India,

<sup>4</sup>Department of Orthopaedics, Government Kilpauk Medical College, Chennai, Tamil Nadu, India.

### Address of Correspondence:

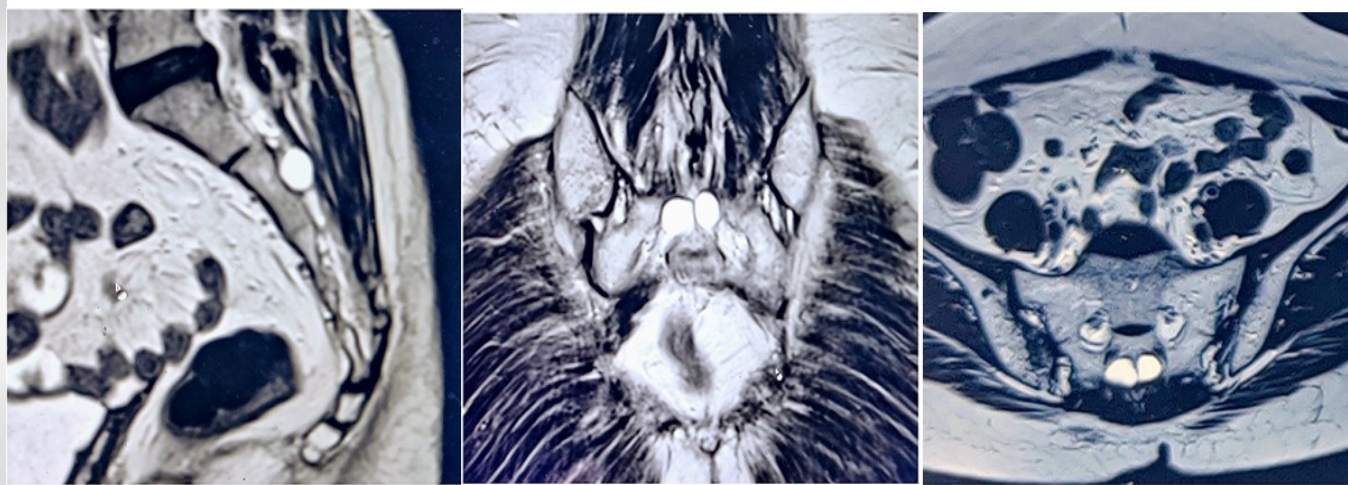
Dr. Sathish Muthu,  
Department of Orthopaedics, Government Medical College, Dindigul, Tamil Nadu, India.  
E-mail: drsathishmuthu@gmail.com

Submitted: 09/03/2023; Review: 13/04/2023; Accepted: May 2023; Published: June 2023

DOI: <https://doi.org/10.13107/jocr.2023.v13.i06.3694>

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License <https://creativecommons.org/licenses/by-nc-sa/4.0/>, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms





**Figure 1:** Magnetic resonance imaging in the sagittal, coronal and axial planes showing a cystic lesion occupying the spinal canal with a size of about  $1.3 \times 0.7$  cm. The cyst appears hypointense on T1 and hyperintense T2-weighted images.

urinary incontinence, constipation, or sexual dysfunction. The patient had a history of hysterectomy done 5 years ago which was uneventful. The patient was put on conservative management elsewhere with pain medications and physiotherapy which did not relieve her symptoms.

On examination, the pain was corresponding to S2 and S3 sacral dermatomal levels with loss of sensation and preserved motor functions without any neurological deficit elsewhere. MRI showed a cystic lesion occupying the spinal canal with the size of about  $1.3 \times 0.7$  cm around the S2 vertebra, as shown in Fig. 1. The cyst appears hypointense on T1 and hyperintense T2-weighted images. Remodeling changes were noted around the

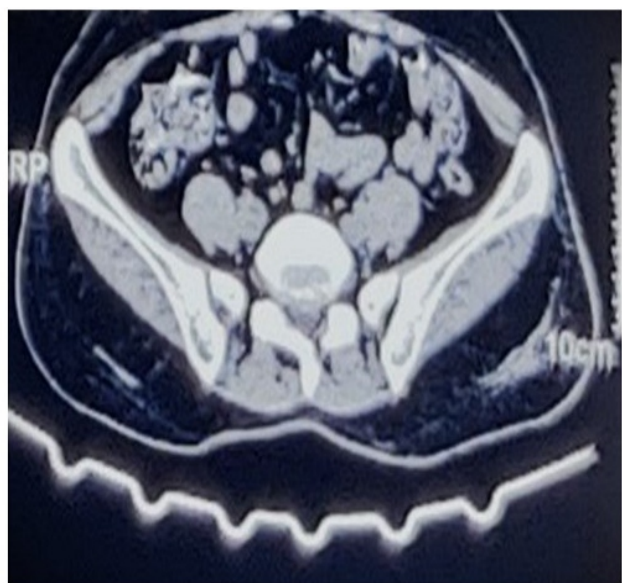
canal in computed tomography (CT) imaging of the sacrum, as shown in Fig. 2. No additional cysts were noted on whole spine screening elsewhere in the spinal canal, as shown in Fig. 3.

We also noted degenerative changes at L3–L4 and L4–L5 levels but the clinical presentation did not corroborate with the degenerative changes at those levels to be considered as the cause of the symptomatology. The diagnosis of a symptomatic Tarlov cyst was made and was planned for conservative management with epidural steroid injection considering the size of the cyst. Following the epidural steroid injection, the patient was relieved of symptoms and remained asymptomatic till the latest follow-up at 1 year.

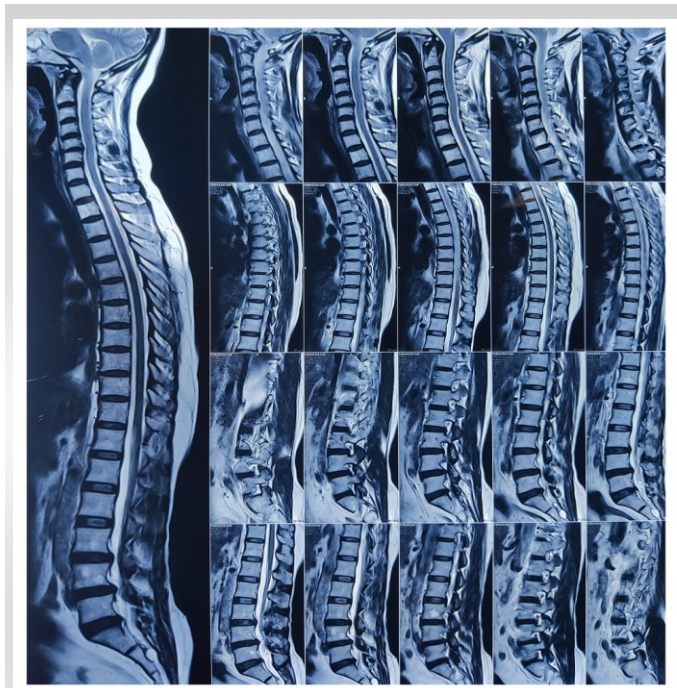
### Discussion

Tarlov postulated that these cysts occur due to the breakage of perineural venous drainage after any trauma [8]. Fortuna et al. [9] have considered these as congenital proliferation of the arachnoid membrane along the path of the exiting sacral nerve roots. The increase in the size of the cyst with time is due to the ball valve effect whereby cerebrospinal fluid enters during systole but fails to escape during diastole [7].

The spinal meningeal cysts have been classified by Nabors et al. [5] into three types where type 1 represents the extradural cyst not containing the spinal root fibers, while type 2 comprises the extradural cyst containing the spinal root fibers (Tarlov cyst classified as type 2) and type 3 intradural cyst. A recent survey by the Tarlov Cyst support group [10] noted that majority of the respondents were female (86.6%) and male population with this condition limited (13.4%). Similarly, the common age group of the respondents was between 31 and 60 years. Our patient also fits into this demographic profile. Apart from the



**Figure 2:** Remodeling changes around the canal in computed tomography imaging of the sacrum.



**Figure 3:** Whole spine screening magnetic resonance imaging of the patient to rule out similar cysts elsewhere in the spinal canal.

cyst in the meninges, 33% respondents reported the presence of cysts in other regions of the body of which the common locations were abdomen, hand, and wrists. On analyzing the clinical presentation of the respondents, only 3% were without pain while 4.2% suffered from very mild pain; 7.6% mild pain; 31.5% moderate; 38.6% severe; and 15.1% suffered very severe pain due to the condition.

The clinical features are sciatica, urinary incontinence, headache, constipation, sexual dysfunction, and loss of sensation, though the majority are asymptomatic. It may produce symptoms if it increases in size and compresses ventral roots which may produce motor deficits. MRI is usually diagnostic but delayed myelogram and CT myelogram are used to assess communication of the cyst with subarachnoid space. In our case report, this patient had prolonged symptoms that were not relieved by any medications or physiotherapy. During the MRI study, we identified a Tarlov cyst at the level of the S2 vertebra which corresponds to her pain distribution. Moreover, we did not find any other cause to explain her symptoms which made us diagnose the case as a symptomatic Tarlov cyst rather than an incidental finding.

There is no clear indication for Tarlov cyst management. Some authors recommend cysts larger than 1.5 cm and or with bony destruction need to be managed with surgical decompression [11]. There are various treatment options such as percutaneous drainage, fenestration, and imbrication partial or total excision

lumbar-peritoneal shunt, but everything has a controversial discussion in areas of failure, recurrences, and complications. Mostly, these surgical decompressive measures are only needed in large cysts with significant nerve root compression [3, 11, 12, 13, 14, 15]. There has been a successful report of cases managed with non-surgical measures such as oral steroids and epidural steroid injections [16, 17]. Hence, we decided to manage our case initially with an epidural steroid injection since the cyst was <1.5 cm, and depending on her response, we further planned for surgical decompression if deemed necessary. Fortunately, our patient showed a greater response to her symptoms with an epidural steroid injection. Voyadzis et al. [18] suggested larger cyst >1.5 cm in diameter greatly responded to motor symptoms of patients after excision and our patient presented only with sensory symptoms so we did not put her through further surgical decompression measures.

In our case, the degenerative changes in the lumbar levels did not attribute to the cause of the pain based on her symptomatology but could not be exclusively ruled out, and hence, the successful result from epidural steroid might have an alternate hypothesis other than Tarlov cyst which might also be addressed with its usage.

### Conclusion

Symptomatic presentation of Tarlov cyst though rare should be considered and managed appropriately if identified as the source of symptoms. Conservative management with epidural steroids is a successful method in the management of smaller cysts without motor symptoms. Further, reporting and analysis of similar cases are needed to know about the exact mechanism of these cyst formations and to establish various aspects of its effective treatment measures.

### Clinical Message

- Tarlov cysts are rare perineural cysts noted as an incidental finding in approximately 1% of lumbar MRI.
- The clinical features include sciatica, urinary incontinence, headache, constipation, sexual dysfunction, and loss of sensation, though the majority are asymptomatic.
- Symptomatic Tarlov cyst though rare should be kept in mind if found at an appropriate level without any other identifiable cause of patient symptomatology.
- Conservative management with epidural steroids is a successful method in the management of smaller cysts without motor symptoms.

**Declaration of patient consent:** The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

**Conflict of interest:** Nil **Source of support:** None

## References

1. Tarlov IM. Perineural cysts of the spinal nerve roots. *Arch Neurol Psychiatry* 1938;40:1067-74.
2. Paulsen RD, Call GA, Murtagh FR. Prevalence and percutaneous drainage of cysts of the sacral nerve root sheath (Tarlov cysts). *AJNR Am J Neuroradiol* 1994;15:293-7.
3. Davis DH, Wilkinson JT, Teaford AK, Smigiel MR. Sciatica produced by a sacral perineurial cyst. *Tex Med* 1987;83:55-6.
4. Mummaneni PV, Pitts LH, McCormack BM, Corroo JM, Weinstein PR. Microsurgical treatment of symptomatic sacral Tarlov cysts. *Neurosurgery* 2000;47:74-8.
5. Nabors MW, Pait TG, Byrd EB, Karim NO, Davis DO, Kobrine AI, et al. Updated assessment and current classification of spinal meningeal cysts. *J Neurosurg* 1988;68:366-77.
6. Schreiber F, Haddad B. Lumbar and sacral cysts causing pain. *J Neurosurg* 1951;8:504-9.
7. Seaman WB, Furlow LT. The myelographic appearance of sacral cysts. *J Neurosurg* 1956;13:88-94.
8. Tarlov IM. Spinal perineurial and meningeal cysts. *J Neurol Neurosurg Psychiatry* 1970;33:833-43.
9. Fortuna A, La Torre E, Ciappetta P. Arachnoid diverticula: A unitary approach to spinal cysts communicating with the subarachnoid space. *Acta Neurochir (Wien)* 1977;39:259-68.
10. Tarlov Cyst Support Group. Tarlov Cysts: What are they and How can they be Treated?. Available from: <https://www.aans.org/>. [Last accessed on 2022 Dec 24].
11. Medani K, Lawandy S, Schrot R, Binongo JN, Kim KD, Panchal RR. Surgical management of symptomatic Tarlov cysts: Cyst fenestration and nerve root imbrication-a single institutional experience. *J Spine Surg* 2019;5:496-503.
12. Bartels RH, van Overbeeke JJ. Lumbar cerebrospinal fluid drainage for symptomatic sacral nerve root cysts: An adjuvant diagnostic procedure and/or alternative treatment? Technical case report. *Neurosurgery* 1997;40:861-4.
13. Patel MR, Louie W, Rachlin J. Percutaneous fibrin glue therapy of meningeal cysts of the sacral spine. *AJR Am J Roentgenol* 1997;168:367-70.
14. Morio Y, Nanjo Y, Nagashima H, Minamizaki T, Teshima R. Sacral cyst managed with cyst-subarachnoid shunt: A technical case report. *Spine (Phila Pa 1976)* 2001;26:451-3.
15. Caspar W, Papavero L, Nabhan A, Loew C, Ahlhelm F. Microsurgical excision of symptomatic sacral perineurial cysts: A study of 15 cases. *Surg Neurol* 2003;59:101-5.
16. Mitra R, Kirpalani D, Wedemeyer M. Conservative management of perineural cysts. *Spine (Phila Pa 1976)* 2008;33:E565-8.
17. Langdown AJ, Grundy JR, Birch NC. The clinical relevance of Tarlov cysts. *J Spinal Disord Tech* 2005;18:29-33.
18. Voyadzis JM, Bhargava P, Henderson FC. Tarlov cysts: A study of 10 cases with review of the literature. *J Neurosurg* 2001;95:25-32.

**Conflict of Interest:** Nil  
**Source of Support:** Nil

**Consent:** The authors confirm that informed consent was obtained from the patient for publication of this case report

## How to Cite this Article

Muthu S, Chandrasekaran S. Conservative Management of Symptomatic Sacral Tarlov Cyst – A Rare Case Report. *Journal of Orthopaedic Case Reports* 2023 June;13(6): 57-60.

