

Cervical Perineural Cyst Masquerading as a Cervical Spinal Tumor

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Tarlov (perineural) cysts of the nerve roots are common and usually incidental findings during magnetic resonance imaging of the lumbosacral spine. There are only a few case reports where cervical symptomatic perineural cysts have been described in the literature. We report such a case where a high cervical perineural cyst was masquerading as a cervical spinal tumor.

Keywords: Tarlov's cysts; Perineural cyst; Spinal cyst; spine; Cervical spine

Introduction

Tarlov (perineural) cysts of the nerve roots were first described in 1938 [1] and are common and usually incidental findings during magnetic resonance imaging of the lumbosacral spine [2-4]. There are only a few case reports where cervical symptomatic perineural cysts have been described in the literature [5-7]. We report such a case where a high cervical perineural cyst was masquerading as a cervical spinal tumor.

Case Report

A male patient presented with mild ill-defined neck pain and progressive weakness of all four limbs of six months duration. He had difficulty in walking and holding objects in both upper limbs. There was no history of headache, cough, difficulty in speech or difficulty in swallowing. Bowel and bladder functions were normal. His general

and systemic examination was unremarkable. Higher mental functions and cranial nerves were normal. There was increased tone in the upper and lower limbs. Motor power was grade 4+/5 in all groups. There was weakness of bilateral hand grip. Planters were bilateral extensor. Magnetic resonance imaging (MRI) of the cervical spine revealed a large well-defined cystic lesion pushing the cord to the right at the C1–C2 level, that was hypointense on T1W images and hyperintense on T2W and fluid-attenuated inversion recovery sequence images with peripheral enhancement after contrast administration (Figs. 1, 2). Based on the imaging findings, a diagnosis of cystic schwannoma was suspected. The patient underwent C–C2 laminectomy. The lesion was located near the dorsal root ganglion of C2; once the lesion was opened, clear fluid came out of the lesion. The cyst could be excised completely while keeping the nerve root intact. Histopathological examination revealed inflamed layers of meninges and the presence of neural elements (Fig. 3).

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The patient improved after surgery and was doing well at follow-up.

Discussion

Tarlov cysts (perineural cysts) are defined as cysts formed within the nerve root sheath at the dorsal root ganglion [8], and most of them are clinically insignificant [1,7,9]. The estimated incidence is approximately 5% (symptomatic cases are rare, constituting less than 1% of the total) [10], and on MRI it has been estimated that Tarlov cysts are present in 4.6% to 9% of the population, with an estimated 10% becoming symptomatic at some point during life [10]. Commonly Tarlov cysts are found

in the lumbo-sacral region [1,4,7,9], with the S2/S3 nerve roots most commonly affected [4,7]. The exact etiology of perineural cysts remains unclear. It was proposed that hemosiderin deposition caused by blockage of the venous drainage of the perineurium and epineurium after local trauma can lead to the development of these cysts [11], or that congenital arachnoid proliferation along the exiting nerve roots can result in the formation of perineural cysts [12], and it has also been suggested that the ball-valve mechanism is responsible for the entry of cerebrospinal fluid into the cyst during systolic pulsations but that the cerebrospinal fluid is unable to exit through the same portal during diastole [7,9,11]. A histological characteristic of the Tarlov cyst is the presence of nerve fibers

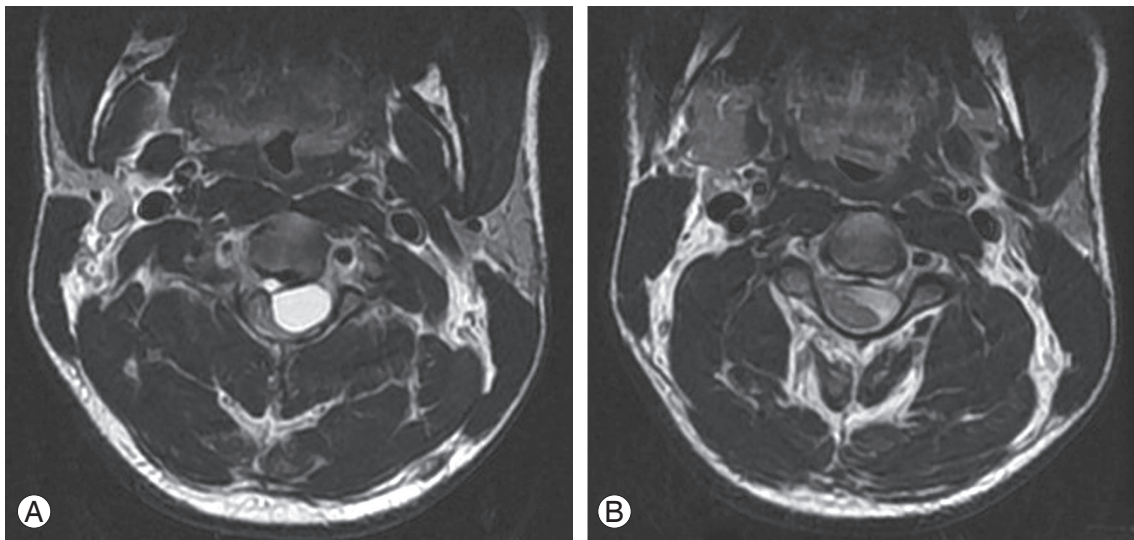


Fig. 1. Magnetic resonance imaging of the cervical spine axial T2 weighted images showing a large cystic lesion pushing the cord to the right. (A) T2 weighted and (B) fluid-attenuated inversion Recovery sequence images.

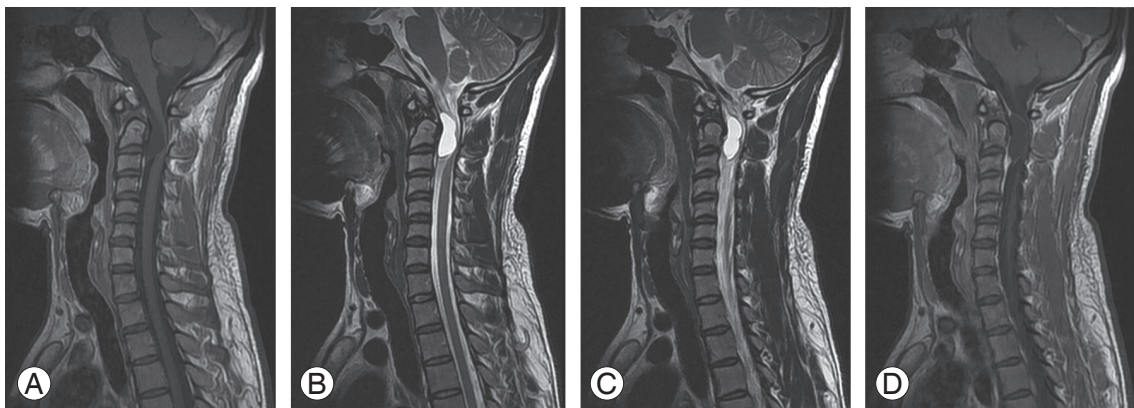


Fig. 2. Magnetic resonance imaging cervical spine sagittal images showing an isointense lesion on the T1W image (A), becoming hyperintense on T2W (B) and fluid-attenuated inversion recovery sequence images (C), with peripheral rim of enhancement after contrast administration (D).

in the cyst wall [1,7-9]. Symptomatic Tarlov cysts are rare and clinical symptoms depend on the location of the cyst; symptoms range from backache, perineal pain or sciatica to overt cauda equina syndrome [4,9]. The symptoms are mostly exacerbated by maneuvers that elevate the intraspinal cerebrospinal fluid pressure, including coughing, walking, change of posture, and the Valsalva maneuver [13]. In the present case, the patient had features of compressive cervical myelopathy because of the location of the cyst. MRI is an effective way to investigate these lesions as it will provide better details such as showing the extent of the lesion and its relationship to surrounding structures [3,6,10]. For symptomatic cases microsurgical excision of the cysts is curative and has a good outcome

[3,4,7]. In the present case, because of the rarity of the lesion, we did not suspect a Tarlov cyst at first; however, the complete microsurgical excision resulted in a good outcome.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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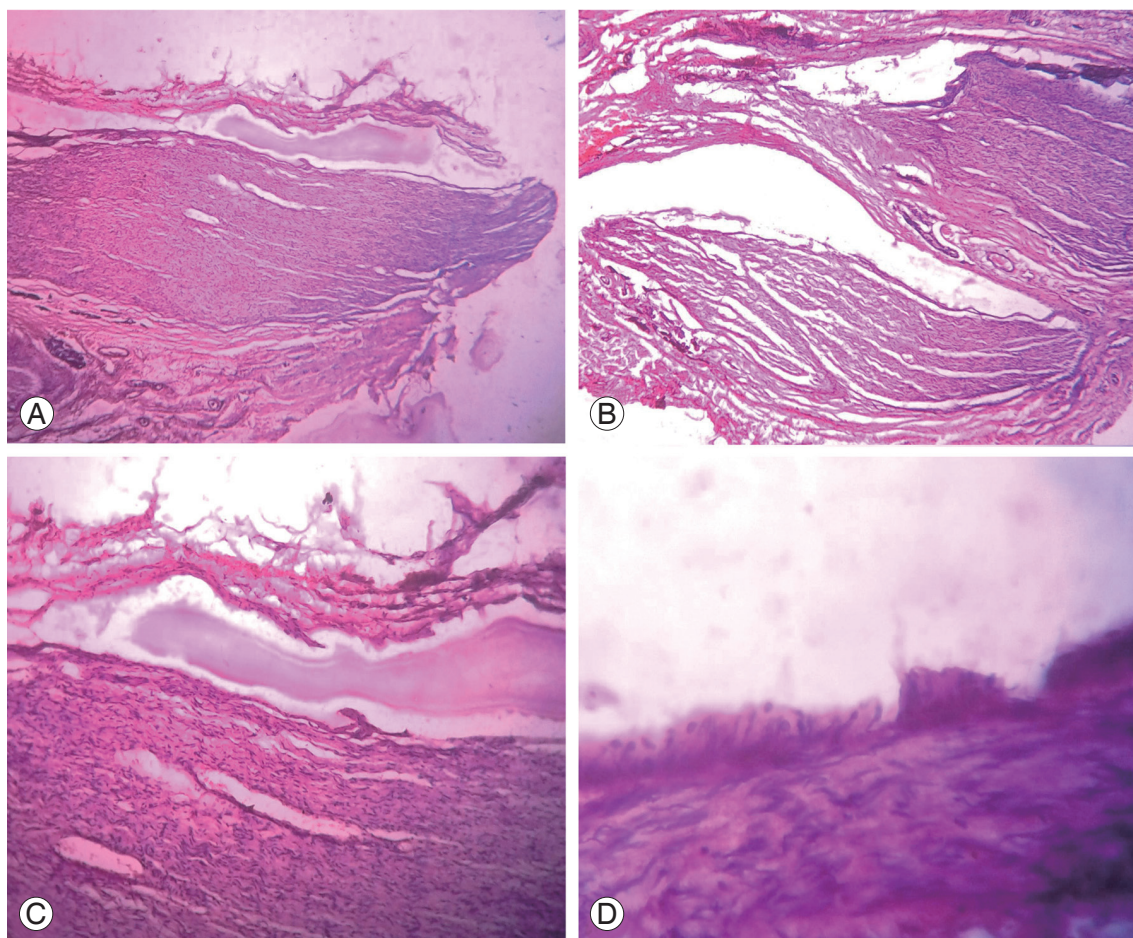


Fig. 3. (A) Section shows a cyst wall lined by flattened to cuboidal lining epithelium. The subepithelial tissue shows a nerve bundle and fibrocollagenous tissue with congested blood vessels (H&E, $\times 50$). (B) Section shows a cyst wall lined by flattened to cuboidal lining epithelium which is thrown into papillae in one foci. The subepithelial tissue shows a nerve bundle and fibrocollagenous tissue with congested blood vessels (H&E, $\times 50$). (C) Section shows a cyst wall lined by flattened to cuboidal lining epithelium which is thrown into papillae in one focus. The subepithelial tissue shows a nerve bundle and fibrocollagenous tissue with congested blood vessels (H&E, $\times 100$). (D) Section shows a cyst wall lined by low columnar epithelium with cells that have round to oval elongated nuclei. The subepithelial tissue showing a nerve bundle (H&E, $\times 400$).

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