

## A ventral intradural arachnoid cyst on the cervical spine in a child

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Dear Editor:

Spinal arachnoid cysts on the ventral cervical spine are rare, especially in children, and few cases have been reported. We herein present a successfully treated case.

A 5-year-old girl presented with a 1-month history of upper back pain. Her skin had no congenital abnormalities. A neurological examination showed no deficits. Magnetic resonance imaging (MRI) demonstrated a ventral intradural extramedullary cystic mass that had low intensity on the T1-weighted image and high intensity on the T2-weighted image, and no enhancement (Figs. 1a, b). There was no vertebral body scalloping.

A wide fenestration of the cyst was performed with C6-7 open-door laminoplasty. The dura was partially thin, and cerebral spinal fluid (CSF) erupted when the arachnoid was opened because of the high pressure. Cutting the dentate ligament made the spinal cord relaxed and rotatable, and it was easier to expose the cyst. The cyst wall was slightly thick, and fluid in the cyst resembled normal CSF. The cyst was separated from

the neural foramen. The histological findings of the cyst wall demonstrated a single layer of arachnoid cells, and they were not stained with PAS. The pathological diagnosis was an arachnoid cyst (Fig. 1c). The patient's chief complaint was completely resolved. No recurrence has been observed during the 40-month follow-up (Fig. 1d).

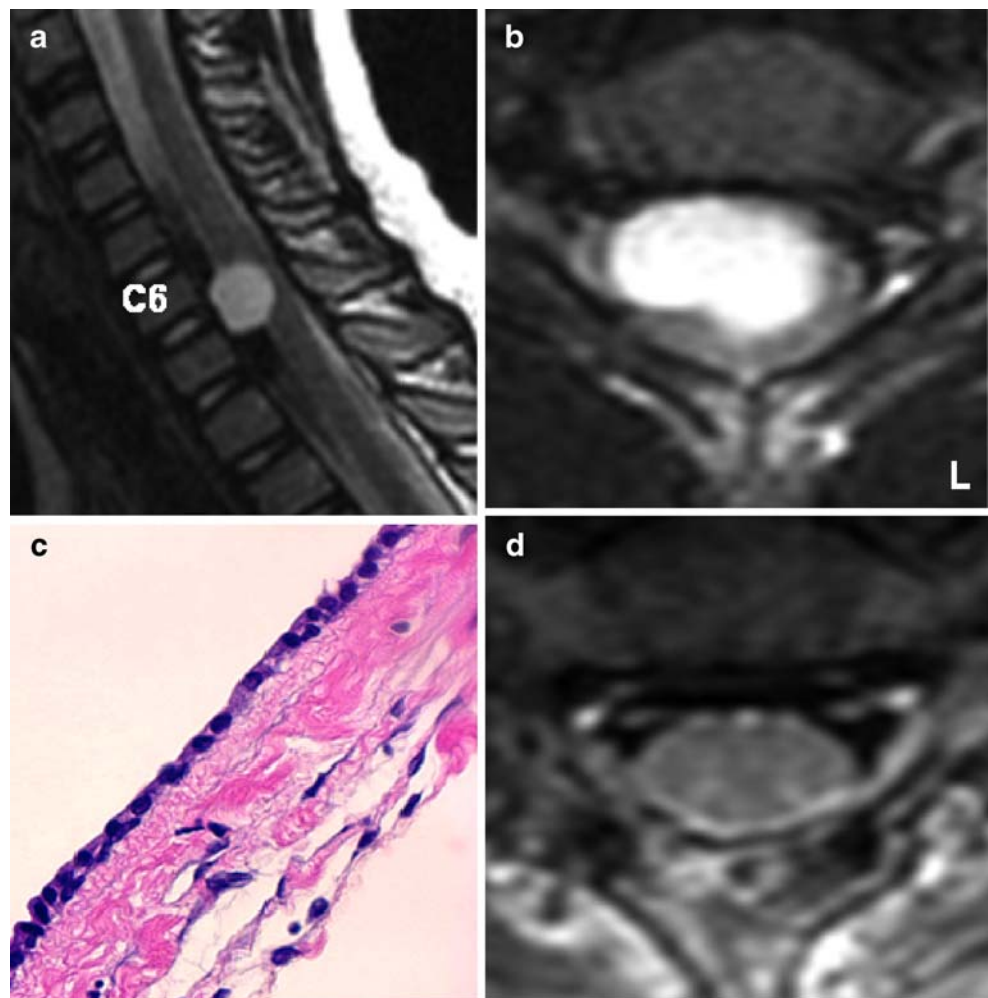
Intradural spinal arachnoid cysts are rare; especially in pediatrics, several cases have been reported [4]. The cysts are congenital, traumatic, arachnoiditis, neural tube defects [6], and sometimes iatrogenic [3, 5]. Cysts are regarded as resulting from an alteration of the arachnoid trabeculae and enlarge because of a valve-like mechanism.

Surgery is necessary for symptomatic cases. Resection, fenestration of the wall, cyst shunting to the peritoneal or subarachnoid space, and setting of a subcutaneous reservoir have been performed. Recurrence of the cyst has been reported after incomplete resections [1]. The range of the bony opening depends on the histological findings. A small opening is sufficient for an arachnoid cyst, and a wide opening is necessary for an endodermal cyst, because incomplete removal is associated with recurrence [2]. In the presented case, open-door laminoplasty at the level of C6-7 seemed less invasive and sufficient to cope flexibly with the intraoperative diagnosis. Furthermore, a wide fenestration and practical resection of the cyst wall were performed, which may prevent recurrence by providing maximal communication with the subarachnoid space.

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**Fig. 1** Sagittal view at the cervical area. Preoperative T2-weighted image, sagittal (a) and axial (b) view, demonstrates a cystic lesion, and the cord is pressed remarkably. Microscopic view of the cyst wall, the single layer of an arachnoid cell. H&E,  $\times 100$  (c). After the operation, the cyst disappeared (d)



## References

1. Bassiouni H, Hunold A, Asgari S, Hübschen U, König HJ, Stolke D (2004) Spinal intradural juxtamedullary cysts in the adult: surgical management and outcome. *Neurosurgery* 55:1352–1360. doi:10.1227/01.neu.0000143031.98237.6d
2. Devkota UP, Lam JM, Ng H, Poon WS (1994) An anterior intradural neurenteric cyst of the cervical spine: complete excision through central corpectomy approach-case report. *Neurosurgery* 35:1150–1153. doi:10.1227/01.neu.00006123-199412000-00021
3. Jea A, Navarro R, Green BA (2005) Rapid expansion of a ventral arachnoid cyst after syringo-subarachnoid shunting in the thoracic spinal cord: case report. *Surg Neurol* 64:86–89. doi:10.1016/j.surneu.2004.11.032
4. Lee HJ, Cho DY (2001) Symptomatic spinal intradural arachnoid cysts in the pediatric age group: description of three new cases and review of the literature. *Pediatr Neurosurg* 35:181–187. doi:10.1159/000050419
5. Taguchi Y, Suzuki R, Okada M, Sekino H (1996) Spinal arachnoid cyst developing after surgical treatment of a ruptured vertebral artery aneurysm: a possible complication of topical use of fibrin glue. *J Neurosurg* 84:526–529
6. Wang MY, Levi AD, Green BA (2003) Intradural spinal arachnoid cysts in adults. *Surg Neurol* 60:49–56. doi:10.1016/S0090-3019(03)00149-6