

## INTRAMEDULLARY NEUROEPITHELIAL CYST OF THE SPINAL CORD

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**Key-word:** Spinal cord, cysts

**Background:** A 32-year-old woman presented with low back ache aggravating after several sessions of osteopathy and increasing radiating pain to the right flank. There was no trauma in the medical history and neurological examination was unremarkable.



Fig. 

1A	1B
1C	2

## Work-up

MRI of the thoracolumbar spine (Fig. 1), sagittal T2-weighted image (A) shows a hyperintense well-defined intradural cystic lesion is seen at T9 level. This intramedullary located cyst has an eccentric and exophytic position relative to the spinal cord mimicking an extramedullary lesion. Axial T2-weighted image at T9 level (B) demonstrates a hyperintense cyst on axial T2-weighted image. The spinal cord parenchyma is draped around the lateral and posterior margins of the embedded cyst.

On sagittal T1-weighted image after gadolinium injection (C), the cyst shows no contrast enhancement.

Sagittal T2-weighted MRI of the thoracic spine, performed 16 months after the first MRI-examination (Fig. 2) shows a smaller volume of the cystic lesion at the T9 level.

## Radiological diagnosis

Based on the MRI-appearance the diagnosis of an *intramedullary neuroepithelial cyst of the spinal cord* was made.

MR-imaging performed 16 months later shows an involution of the cystic lesion.

## Discussion

Neuroepithelial cysts are uncommon developmental lesions. Spinal intramedullary cysts are rare and can be located between the level of C2 and L5, but nearly 45 % are found at the thoracolumbar junction, most commonly anterior or anterolateral to the spinal cord. They are derived from displaced ependymal cells during embryogenesis. MRI depicts these lesions with the same signal intensity as CSF. On contrastenhanced scans the cysts do not show enhancement. It is usually difficult to differentiate these cysts from other cystic lesions including neurenteric cysts, arachnoid and dermoid cysts.

The signal characteristics and locations are indistinguishable from a neurenteric cyst, however they can be differentiated based on the fact that they are associated with bony abnormalities like anterior vertebral defects (split cord malformations).

The cyst content of arachnoid cysts is also indistinguishable from CSF but the cyst walls are

quite thin and move slightly with the pulsatile motion of CSF so that cardiac gated cine MRI is a very sensitive method as the cyst will cause some degree of CSF flow obstruction or turbulence. If in doubt, myelography and postmyelographic CT are still valuable for this pathology. Nevertheless, a negative myelogram does not rule out an arachnoid cyst. Furthermore, an arachnoid cyst is mostly situated dorsal to the thoracic spinal cord.

Dermoid cysts, located mostly lumbosacral, are generally associated with complex spinal malformations and display often variable signal characteristics related to the cyst content. As most of them contain some amount of fat or fatty fluid, they usually display a bright signal on T1-weighted images. The cyst wall may enhance with gadolinium.

On the other hand lack of enhancement helps to differentiate benign cystic lesions from neoplastic cystic lesions.

Since the radiological findings and clinical features are non-specific, surgery is the treatment of choice for intramedullary spinal neuroepithelial cysts. In this case however the patient refused operation and preferred follow-up by MRI.

On a MRI examination performed 16 months after the initial diagnosis, we were surprised to see that the spinal cyst has become much smaller. However because these cysts may recur, it remains necessary that patients undergo thorough follow-up examinations.

## Bibliography

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