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Huge lumbar spinal cystic neurinomas with unusual MR findings.

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AJNR Am J Neuroradiol 1995, 16 (4) 881-882

<http://www.ajnr.org/content/16/4/881.citation>

This information is current as
of April 18, 2024.

Huge Lumbar Spinal Cystic Neurinomas with Unusual MR Findings

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Summary: This report describes two cases of huge cystic spinal neurinomas, the pathohistogenesis of these intratumoral cysts, and the role of MR in their diagnosis.

Index terms: Neuroma; Spine, neoplasms

We describe the highly unusual magnetic resonance (MR) appearance of two lumbar neurinomas, both of which were predominately cystic in nature.

Case Reports

Case 1

A 40-year-old man had low back pain and left leg pain for 2 months. MR disclosed a cystic tumor filling the spinal canal. On T2-weighted images (Fig 1A), fluid in the cyst showed a fluid-fluid level. On contrast with gadopentate dimeglumine (Fig 1B), of the cyst wall showed enhancement. At surgery, an intradural cystic mass was found. Fluid in the mass was a combination of two different fluids, a red fluid with high viscosity containing red blood cells, and a brown fluid with low viscosity. Histologic examination showed a mixture of proliferated cells, which were stellate in shape with long processes and was associated with a fibrous matrix (Antoni type B pattern), diagnostic of a neurinoma. Fatty degeneration and deposits of hemosiderin were also presented in the mass.

Case 2

A 51-year-old man presented with progressive bilateral thigh numbness. Cystic tumor filling the spinal canal was demonstrated on MR (Fig 2A, B). On contrast study with gadopentate dimeglumine (Fig 2B), the cyst wall showed homogeneous enhancement. At surgery, serous fluid was produced when the mass was punctured by a needle. The fluid was transparent, containing no blood or blood products. Histopathologic study revealed a lesion consisting of a mixture of proliferated Schwann cells and fibroblasts, accompanied by numerous fibrous strands of reticulin and collagen fibers, diagnostic of a neurinoma.

Discussion

Although neurinomas of the lumbar spine are common, the presence of a predominately cystic neurinoma is rare. According to Nishi and Enzinger, the degeneration of the Antoni B portion of a neurinoma can result in cyst formation and may then progress to form a large cyst (1, 2). According to Sakamoto, central ischemic necrosis caused by tumor growth results in

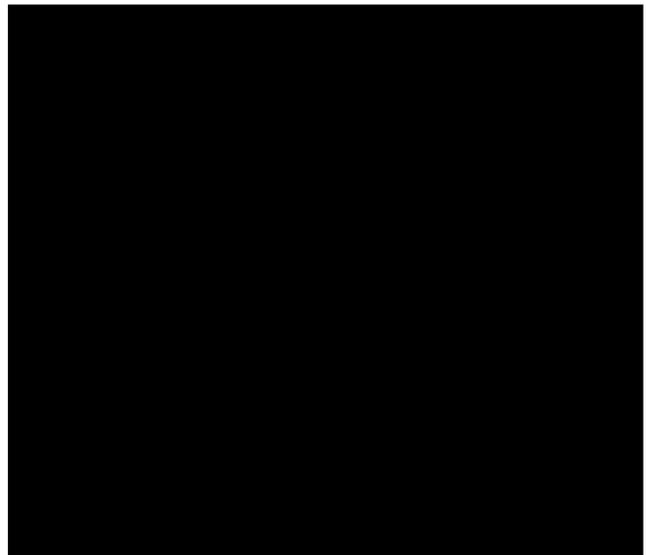


Fig 1. Forty-year-old man with lumbar cystic neurinoma.

A, On sagittal T2-weighted image (1600/90/1 [repetition time/echo time/excitations]), fluid in the cyst shows fluid-fluid level of two distinctly different signal intensities (see "Discussion"). The ventral side has a higher intensity than the dorsal side. The spinal fluid caudal to the tumor also demonstrates a higher signal intensity than that of normal cerebrospinal fluid, because of a block of the cerebrospinal fluid, with resulting high protein and diminished cerebrospinal fluid pulsations.

B, Sagittal T1-weighted contrast-enhanced image (600/15/2) shows homogeneous enhancement of the cyst wall.

Received March 24, 1993; accepted after revision November 17.

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AJNR 16:881-882, Apr 1995 0195-6108/95/1604-0881 © American Society of Neuroradiology

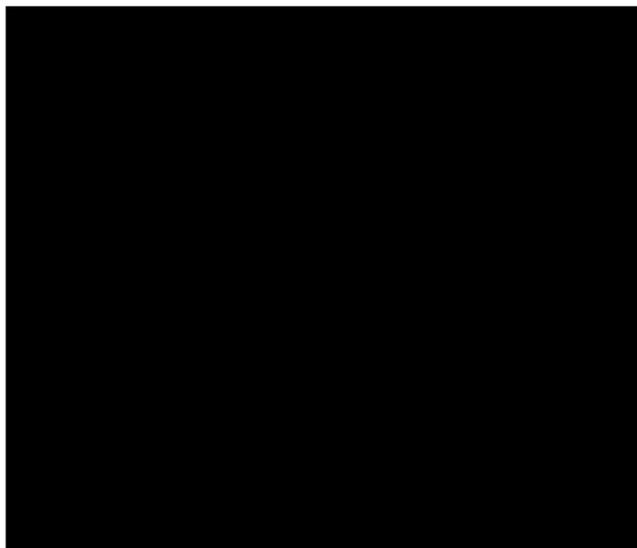


Fig 2. Fifty-one-year-old man with lumbar cystic neurinoma.

A, On sagittal T2-weighted image (1600/90/1), the mass shows a homogeneous higher intensity than that of cerebrospinal fluid.

B, On axial T1-weighted contrast-enhanced image (600/15/2), the thin cystic wall shows homogeneous enhancement.

cyst formation within the tumor (3). In our case 1, T2-weighted images demonstrated intratumoral fluid-fluid levels; the ventral side was

brighter and the dorsal side darker than normal cerebrospinal fluid. The fluid in the tumor was verified at surgery as a combination of two different fluids, a red fluid containing red blood cells (dorsal fluid) and a brown fluid with low viscosity (ventral fluid). This suggests separate episodes of bleeding within the tumor. On histologic study, the deposits of hemosiderin were identified in the tumor wall, again suggesting repeated episodes of intratumoral bleeding resulting in necrosis and cyst formation.

In case 2, the tumor contained serous fluid with low viscosity, but no blood or blood products were identified. The main differential diagnosis of such a large cyst includes a cystic neurinoma, ependymoma, epidermoid, and arachnoid cyst.

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