Spinal Arachnoid Cyst
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History
7 year old neurologically intact female with intraspinal/paraspinal cyst noted on CT of the abdomen obtained for abdominal pain.

Diagnosis
Spinal arachnoid cyst

Discussion
Spinal arachnoid cysts, also known as meningeal cysts, are one of three categories of extramedullary cysts found in the spinal canal. They develop from defects in the meningeal coverings of the spinal cord allowing arachnoid mater to form cystic spaces filled with a CSF like cyst fluid. Symptoms are usually due to compression of neural tissue resulting in progressive myelopathy, myeloradiculopathy or radiculopathy. Spinal arachnoid cysts are divided into three types. Type 1 is an extradural arachnoid cyst that contains no neural tissue. Type 1 arachnoid cysts arise form the herniation of arachnoid through congenital or acquired dura mater and can remodel bones and herniate through neural foramen. Type 2 spinal arachnoid cysts are extradural cysts containing nerve roots or spinal cord. They typically arise in the lower spine within the perineural space between the endoneurium and perineurium distal to the dorsal root ganglia. Type 3 spinal arachnoid cysts are intradural loculations of arachnoid. These can be caused by congenital hypertrophy of arachnoid granulations or bulging of weak arachnoid in response to CSF pressure changes. They can also be acquired through trauma or inflammation that causes arachnoiditis and subsequent dilation of arachnoid granulations. On imaging the subtypes of spinal arachnoid cysts have distinct features. Type 1 spinal arachnoid cysts have a sharp border with the subarachnoid space due to the dura mater separating them that is most apparent on T2 weighted images. The signal may be slightly hyperintense compared to CSF due to high protein content. Expansion of the spinal canal may be present. Extradural arachnoid cysts are most common in the mid to lower thoracic spine often were the meninges join the dorsal root nerve covering. They typically enlarge over time. They often project dorsally and can protrude into the neural foramen. Type 2 cysts are often in the lower spine distal to the dorsal root ganglia. On T2-weighted imaged they are hyperintense fluid collections often with an area of hypointensity due to the presence of neural tissue. Spinal cord atrophy may be present. Both type 1 and 2 spinal arachnoid cysts will accumulate intrathecal contrast. Type 3 cysts are found in the thoracic spine with congenital intradural arachnoid cysts being located dorsally and acquired occurring on anyside. Type 3 cysts may be communicating or non-communicating and thus may not accumulate intrathecal contrast. Differential considerations include cystic neoplasms/metastases, pseudomeningoceles (from trauma, hemorrhage or inflammation), juxtaarticular cysts, and neuroenteric cysts.

Findings
MR-3 plane T2 images show a large intraspinal fluid collection insinuating into multiple neural foramina and displacing the thecal sac and cord anteriorly.

Reference
Khosla A and Wippold FJ. CT myelography and MR imaging of extramedullary cysts of the spinal canal in adult and pediatric patients. AJR (2001); 178:201-207.

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