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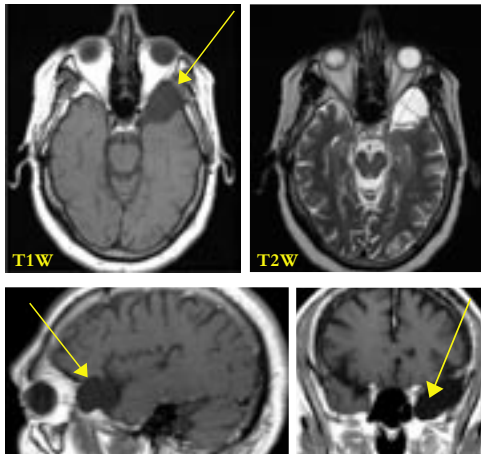
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Arachnoid Cysts...An Inside Look at a Rare Disease



Donald L. Sinden, DO
Family Practice
Sound Family Medicine

Dr. Donald L. Sinden, a family practice physician with Sound Family Medicine at the Puyallup/Sunrise clinic, felt after examining his patient that he had an arachnoid cyst. He called Dr. Martin Graham, Medical Imaging Northwest radiologist, with his suspicions. Dr. Graham got the patient right in for a Brain MRI. "The MRI confirmed my diagnosis so the patient could move on for treatment. The patient was relieved to receive prompt diagnostic evaluation and I was pleased with the quick and professional service," reported Dr. Sinden.



Case Study:

This 59 year old patient had a history of headaches. An MRI of the brain was performed with and without contrast at Sunrise Imaging Center, and read by Dr. Martin L. Graham, Medical Imaging Northwest radiologist.

Findings: At the skull base, there is a low attenuation area consistent with an arachnoid cyst which measures 2.5 x 3.6 CM. This is high in signal on T2 and low in signal on FLAIR and T1. The remainder of the skull base is normal. No subdural or epidural collection. No midline shift. There is no hemorrhage or mass lesion other than the arachnoid cyst.

Conclusion:

1. MRI demonstrated a left middle cranial fossa arachnoid cyst, measuring 2.5 X 3.6 CM
2. Otherwise, normal Magnetic Resonance Imaging of the brain.



Martin L. Graham, M.D.
Board Certified Radiologist

"My goal is to provide insight into each medical condition by combining medical knowledge and today's innovative technology."

What are arachnoid cysts?

Arachnoid cysts are fluid-filled sacs that occur on the arachnoid membrane that covers the brain (intracranial) and the spinal cord (spinal). Arachnoid cysts are collections of CSF cerebrospinal fluid contained within the arachnoid lining of the brain. They represent approximately one percent of brain mass lesions. Most common in infants, they may also present in adulthood. There are three membranes covering these components of the central nervous system: dura mater, arachnoid, and pia mater. Arachnoid cysts appear on the arachnoid membrane, and they may also expand into the space between the pia mater and arachnoid membranes (subarachnoid space). The most common locations for intracranial arachnoid cysts are the middle fossa (near the temporal lobe), the suprasellar region (near the third ventricle) and the posterior fossa, which contains the cerebellum, pons, and medulla oblongata. In infants, they cause head enlargement or signs of obstructive hydrocephalus such as headache, lethargy, double vision, and developmental delay. In adults, they are more likely to cause seizures, particularly those of the middle cranial fossa. Arachnoid cysts are readily seen on CT and MRI scans as non-enhancing cystic masses of near CSF density/intensity. Treatment options include fenestration of the cyst into normal CSF pathways, either endoscopically or by open craniotomy, or shunting of the cyst and/or ventricles into the peritoneal cavity. Successful cystic opening or fluid diversion is usually effective treatment.

What're the symptoms of arachnoid cyst?

Most arachnoid cysts that become symptomatic do so in early childhood. Most arachnoid cysts cause no symptoms. If cysts are found incidentally, they may be followed with occasional re-scanning and repeated neurological examination.

Those causing raised intracranial pressure, particularly by CSF obstruction, warrant surgery. Surgery creates drainage for the cyst, sometimes with a shunt, relieving the obstruction or pressure on other structures.

Most cases begin during infancy, however the onset may be delayed until adolescence. Symptoms of an arachnoid cyst are related to the cyst size and location. Small cysts are usually asymptomatic and are discovered only incidentally. Large cysts may cause cranial deformation or macrocephaly (enlargement of the head), producing such symptoms as headaches, seizures, hydrocephalus (excessive accumulation of cerebrospinal fluid), increased intracranial pressure, developmental delay, and behavioral changes. Other symptoms may include hemiparesis (weakness or paralysis on one side of the body) and ataxia (lack of muscle control).

Is there any treatment?

There has been active debate about how to treat arachnoid cysts. The need for treatment depends mostly upon the location and size of the cyst. If the cyst is small, not disturbing surrounding tissue, and not causing symptoms, some doctors will refrain from treatment. In the past, doctors placed shunts in the cyst to drain its fluid. Now with microneurosurgical techniques and endoscopic tools that allow for minimally invasive surgery, more doctors are opting to surgically remove the membranes of the cyst or open the cyst so its fluid can drain into the cerebrospinal fluid and be absorbed.

What is the prognosis?

Untreated, arachnoid cysts may cause permanent severe neurological damage when progressive expansion of the cyst(s) or hemorrhage injures the brain or spinal cord. Symptoms usually resolve or improve with treatment.

More information may be found at:
www.rarediseases.org

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If you have questions, comments or ideas for future publications, you may contact Vicki Brown, Marketing Communications Manager at Vbrown@minw.com 253-841-4353.

Thank you for your interest.

Q: How do I determine if the patient needs to have a Head (brain) CT or a brain MRI?

The Answer is CT When:

- Acute trauma or acute hemorrhage suspected
- Rapid screening for abnormalities (pediatrics)
- Head CT of the Brain is used if MRI is contraindicated: Because of implanted devices such as a pacemaker

The Answer is MRI When:

- MRI Brain is used for routine exams
- If an evaluation for other potential disease is indicated, order exams for:
 - o Multiple sclerosis
 - o IACS
- Dizziness with hearing loss or ringing in the ears of vertigo
- If looking for stroke consider routine brain MRI after screening CT
 - o Orbits
 - o Seizures
 - o Pituitary tumors
 - o Other brain tumors and tumor F/U
 - o Vascular anomalies (MRA for aneurysm or stenosis, or malformations)
 - o Developmental anomalies
 - o Brainstem lesions and other cranial nerve lesions

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