

Cystic-Appearing Intra-Axial Mass within the Inferior Right Frontal Lobe



Dan H. Martin M.D.
Board Certified Radiologist

In October of 2007, a 55-year-old patient presented to his doctor with altered mental state, confusion, headaches and seizures. A Head CT without contrast performed at Good Samaritan Hospital, read by **Dan Martin, MD, Neuroradiologist of Medical Imaging Northwest**, revealed a

focal low-attenuation area in the right frontal lobe.

Image 1: Head CT without contrast



Kelvin Ma, MD
Neurologist

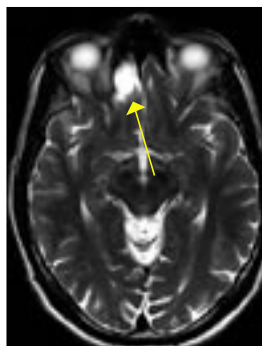
After seeing **Dr. Kelvin Ma, Neurologist** in November 2007, the patient was referred for a Brain MRI to Puyallup Imaging Center located at 222 15th Ave. SE, Puyallup. Non-contrast images revealed a cystic-appearing intra-axial



Jonathan M. Kell M.D.
Board Certified Radiologist

mass within the inferior right frontal lobe adjacent to the olfactory tract. **Jonathan Kell, MD, Neuroradiologist for Medical Imaging Northwest**, recommended that the patient return for contrast-enhanced images and further evaluation (below).

Image 2: MRI T2



At the request of **Dr. Ma**, the patient returned for an **MRI with gadolinium** later that same day. The right frontal lobe intra-axial mass did not enhance, and was unchanged in size and appearance.

Image 3: MRI Pre-contrast

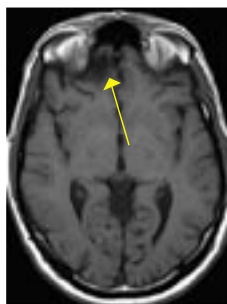


Image 4: MRI Post-contrast



Differential Diagnosis (expanded more below):

1. Low-grade tumors
 - a. low grade astrocytoma
 - b. non-gliomatous lesion such as ganglioglioma
2. Benign brain cysts - Neuroepithelial cyst is considered less likely

Biopsy should be considered.

1. Low Grade Tumors

a. Low grade Astrocytomas

Within the brain and spinal cord there are nerve cells and also cells that support and protect the nerve cells. The supporting cells are called glial cells. A tumor of these cells is known as a glioma.

Astrocytic tumors are the most common type of glioma and develop from a type of star-shaped cell called an astrocyte. They can occur in most parts of the brain and occasionally in the spinal cord. However, they most commonly grow in the main part of the brain, the cerebrum.

Low-grade astrocytic tumors are usually slow-growing and are not likely to spread. Many low-grade astrocytic tumors

(Continued on Back)



Bonney Lake Imaging Center
21110 SR 410 E., Ste. 110, Bonney Lake, WA

Appointment Hours:

Mon-Fri 8:00am-5:00pm

*1.5 T MRI - short-bore, open, 16 Slice CT,
Ultrasound, Mammography and X-ray*



222 Professional Center
222 15th Ave SE, Puyallup, Washington

Evening Appointment Hours:

MRI | Mon-Fri Last Appointment 6:30pm

Mammo | Mon-Fri Last Appointment 6:50pm



Sunrise Imaging Center
11212 Sunrise Blvd, Suite 200, Puyallup, WA

Evening Appointment Hours:

MRI | Mon-Fri Last Appointment 7:00pm

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Thank you for your interest.

can be removed with surgery, and are unlikely to come back if they have been completely removed.

Symptoms such as seizures and changes in behavior and personality can occur because of the position of the tumor in the brain.

A tumor of the frontal lobe of the brain may cause gradual changes in mood and personality. There may also be paralysis on one side of the body. A tumor in the temporal lobe of the brain may cause problems with coordination and speech, and may affect memory.

b. A non-gliomatous lesion such as ganglioglioma

Ganglioglioma was first described in 1930 as a central nervous system neoplasm containing both astrocytic and neuronal components. Gangliogliomas may occur anywhere in the central nervous system but are not encountered commonly. Similar to other brain tumors, imaging techniques define the tumor location and its relationship to adjacent structures. Because of its relative rarity and nonspecific appearance, ganglioglioma is only infrequently considered a presurgical diagnosis.

Most gangliogliomas are observed in the brain. Temporal lobes and cerebellar hemispheres are the most common locations. Gangliogliomas have been reported in unusual locations, such as the pineal gland, basal ganglia, hypothalamus, and optic chiasm. Rarely, they may also develop in the spinal cord.

Presentation depends on patient age and the location and aggressiveness of the tumor. Most gangliogliomas are non-aggressive, and most patients present with long-standing progressive symptoms. Temporal lobe gangliogliomas usually present with temporal lobe seizures. Now that MRI screening of seizure patients is more routine, these are increasingly identified on imaging.

Preferred Examination: MRI with contrast enhancement is more sensitive and specific than other imaging techniques in determining the presence and location of

lesions and in characterizing the lesion's cystic and/or solid components.

2. Benign Brain Cysts- a neuroepithelial cyst is considered less likely

Neuroepithelial cysts represent a heterogeneous group of lesions of uncertain etiology. They most likely arise from sequestration of developing neural ectoderm and are lined by epithelial-like cells. Although neuroepithelial cysts can be identified at any age, they predominate in the older population. These cysts may occur anywhere within the intra-axial central nervous system.

**Reflections of 2007-
Team Medicine**

Thank you for your confidence in 2007. Together, for the good of our patients, we have accomplished many things. We have much to be thankful for.

Highlights:

- We have listened to your needs, and developed ways to improve your service and our patients' experience.
- New technology and equipment in our fully-digital imaging centers provide you and your patients the best possible radiological exams.
- Three new highly qualified radiologists have joined MINW:
 - o Roderick Saxey, MD - Diagnostic Radiologist
 - o Scott A. Walker, MD, Ph.D. - Neuroradiologist
 - o T. Ben Johnson, MD - Body Imager/Medical Informatics
- We have opened a new outpatient center in Bonney Lake to serve those who live and work there.
- We have provided better direct access to our radiologists by adding three positions at our 222 location. A radiologist will be available to consult with you.
- We also have direct lines to Musculoskeletal and Neurology specialists.
- With our MultiCare partners, we have opened the Medical Plaza in Gig Harbor and Building C at Allenmore Hospital.

We look forward to serving you and your patients in 2008!

For additional information visit www.minw.com