SMRT Student Scope Submission

The following is a checklist for you to follow when submitting your Student Scope for presentation and posting on the SMRT Web Page. Please follow these guidelines to ensure successful submission. Please remember to check grammar and spelling prior to submission. This submission should be reviewed by your supervisor or mentor.

Title and Author(s)

Include Title of your submission and any collaborator as co-authors

Anaplastic Astrocytoma

Ashley Pedersen R.T.(R)

Stephanie Setter/University of Iowa Hospitals and Clinics

April 28, 2005

Introduction or Patient History

41-year-old female with a history of Anaplastic Astrocytoma on therapy. This MRI study was performed post resection. On April 20, 2004 an MRI examination of the brain was performed and compared to a previous performed on February 23, 2005.

Patient Preparation and Scan Set up

A GE Signa 1.5 Tesla scanner was used for this exam. The patient was screened prior to the examination in accordance with MR guidelines. Next, the patient was placed supine on the GE table with her head in the head coil. Earplugs were provided to protect the patient's hearing. Sponges were placed on both sides of the patient's head along with tape across her forehead to ensure stability. 20 cc of gadolinium was administered halfway through the exam.

MR Imaging Parameters

The imaging parameters used are as follows:

Phase Sequence	TR	TE	Slice Thickness	Interspace Thickness	Field of View	Bandwidth	Matrix	Signal Average /NEX
Sagittal T1	367	14	5	2	24x24	16 kHz	256x192	2
Axial Flair	9002	160	5	2	24x24	32 kHz	256x192	1
Axial T2	3367	104	5	2	24x18	20.8 kHz	256x256	2
Axial Gradient	384	11	5	2	24x18	15.6 kHz	256x192	2
Axial Diffusion	5000	95	5	1	32x21	112kHz/f	128x128	1
20 cc Gadolinium								
Sagittal T1	467	20	5	2	24x24	16 kHz	256x192	2
Axial T1 Fat Sat	417	14	5	2	24x18	16 kHz	256x192	2
Coronal T1	467	14	5	2	24x18	16 kHz	256x192	2

Findings and Discussions

Stable postoperative changes were found with this MRI examination, which were consistent with left craniotomy. The left frontal lobe had postoperative changes and there were mild postoperative changes to the medial right frontal lobe. Stable left frontal meningeal enhancement was found along with enhancing nodules in the resection cavity. This is believed to be associated with postoperative changes or residual tumor. Additionally, sinus disease was found in the ethmoid and frontal sinuses.

Conclusions

This brain MRI examination was early in my training so the screening prior to the exam, and the positioning of the patient were beneficial for me to becoming familiar with routine guidelines. Throughout this exam I became very interested in anaplastic astrocytomas. After researching anaplastic astrocytoma, the symptoms and associated pathology were recognizable. Astrocytomas arise from astrocyte cells and are commonly found in the cerebral hemispheres. Typically symptoms include headache, focal neurological deficits, and depressed mental status. The survival rate is usually 2 to 5 years. While performing this examination I learned first hand how beneficial MRI was with diagnosing this tumor. I found an interesting aspect of the MRI exam was discovering the sinus disease while checking the status of the Astrocytoma.

References

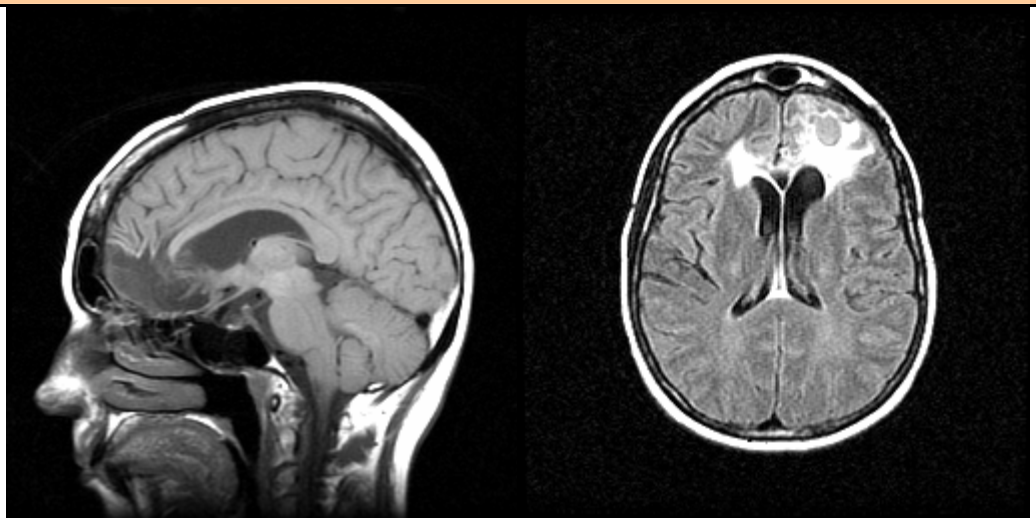
Anaplastic Astrocytoma. http://rad.usuhs.mil/rad/who/Anaplastic.html, 1997, 2000. 27 April 2005.

Astrocytoma. www.emedicine.com/med/topic2693.htm. 2005. 24 April 2005.

Ellingston, Andrew N. University of Iowa Hospital and Clinics. 20 April 2005.

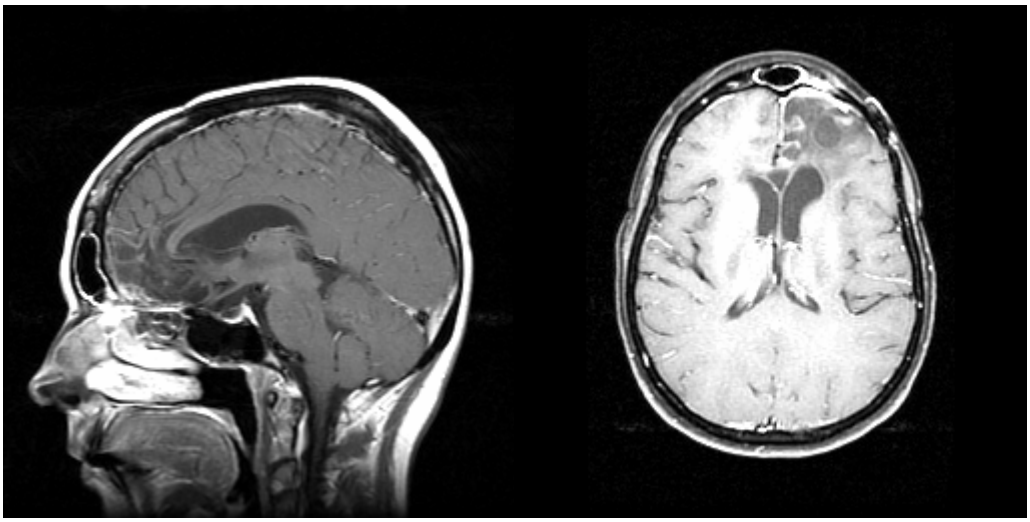
Lee, Ho Kyu. University of Iowa Hospitals and Clinics. 20 April 2005.

Images



Sagittal T1 Pre Gad

Axial Flair Pre Gad



Sagittal T1 Post Gad

Axial T1 Fat Sat Post Gad