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

Title: Pituitary Macroadenoma

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University of Iowa Hospitals and Clinics, Iowa City, Iowa

Date of Submission: November 30, 2004

Introduction or Patient History

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A 41 year-old male was referred to the University of Iowa Hospitals and Clinics from his physician in Des Moines, Iowa. The only known patient history on this gentleman was an increased level of prolactin on a blood test. A routine brain exam was completed with an emphasis on the pituitary/sella region. There were no previous images or exams done on this patient.

Patient Preparation and Scan Set up

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This exam was completed on a GE Signa 1.5 Telsa scanner. The patient was routinely screened for any ferrous metal objects inside and/or outside his body prior to starting the exam. The patient was positioned on the scanning table supine with head in the appropriate coil. The patient's head was positioned straight within a birdcage head coil with the interpupilary line perpendicular to the scanning table. Soft sponges were used to restrict voluntary movement as well as keep the patient comfortable. Earplugs were also provided to reduce the noise level during the scan.

MR Imaging Parameters

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There were eight different imaging sequences that were carried out during this exam. These include:

Sequence	TR	TE	Field of View	Averages	Slice Thickness
Sagittal T1	366	14	20cm x 20cm	3	5mm skip 2mm
Axial FLAIR	9002	165	24cm x 24cm	1	5mm skip 2mm
Sagittal T1 Thin	383	14	20cm x 20cm	3	3mm skip 1mm
Coronal T1 Thin	416	14	20cm x 20cm	3	3mm skip 1mm
Axial Diffusion	5000	94.7	32cm x 21cm	1	5mm skip 1mm
Administered 20 cc of Gadolinium Contrast					
Sagittal T1 Thin + Contrast	433	14	20cm x 20cm	3	3mm skip 1mm
Coronal T1 Thin + Contrast	416	14	20cm x 20cm	3	3mm skip 1mm
Axial T1 Fat Saturation + Contrast	416	14	24cm x 18cm	2	5mm skip 2mm

Findings and Discussions

Within the sets of pictures, a large homogenously enhancing mass was found located through the sella and surrounding tissues. The mass is isointense on the T1 images and hyperintense on the FLAIR images. This mass measures 5.2 cm from head to toe, 3.5 cm from anterior to posterior, and 4.7 cm transversely. It is evident on these pictures that the tumor extends into the superior and mid clivis and into the posterior sphenoid sinus. The tumor also invades the suprasellar cistern, which is therefore compressing the optic chiasm. The prepontine cistern is also invaded and the tumor mildly indents the pons. This tumor surrounds the internal carotids and creates a displacement of the anterior cerebral arteries. With the patient's history and the characteristics of this tumor, it is consistent with pituitary macroadenoma.

Conclusions

I learned that macroadenomas are usually invasive to the surrounding tissues in the brain and pituitary region, which was very evident in this patient's case. Also, the tumor size generally corresponds to the amount of prolactin concentration in the blood. Males usually tend to have larger macroadenomas than women, but the gender ratio is 1:1. Some symptoms besides increased prolactin levels include headaches, visual effects, loss of libido, and infertility. I also learned that when imaging tumors, such as this one, it might be necessary to change an imaging protocol to help in the diagnosis process (i.e. slice thickness).

References

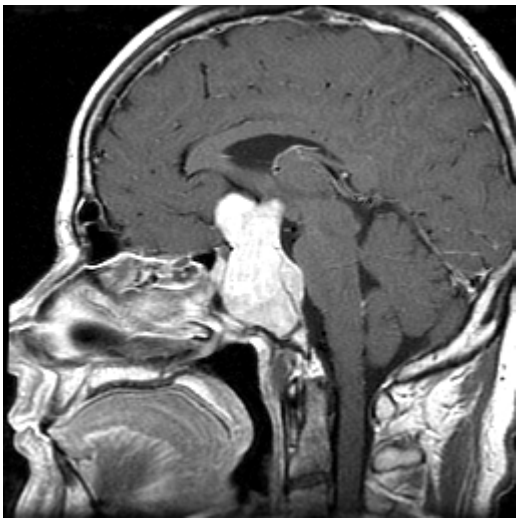
White MD, Matthew L. MRI exam dictation, staff physician. University of Iowa Hospitals and Clinics. 10 Oct. 2004.

McDonald MD, Joshua M. MRI exam dictation, resident physician. University of Iowa Hospitals and Clinics 10 Oct. 2004.

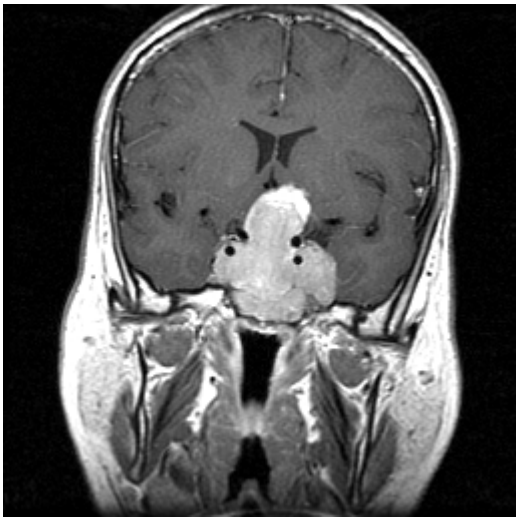
McGraw-Hill's Access Medicine Online. 28 Nov. 2004. McGraw-Hill Companies. 2004 <www3.accessmedicine.com>

Images

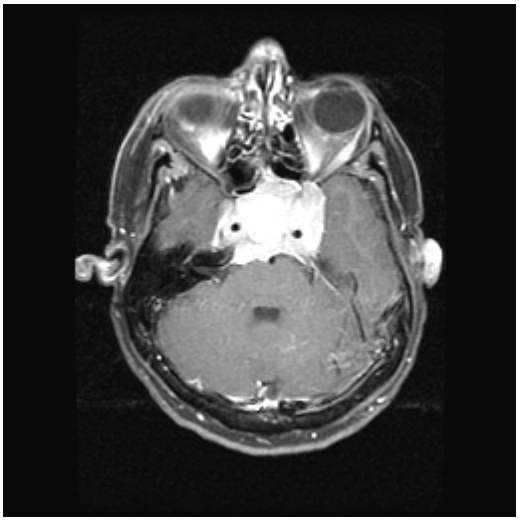
(all images in jpeg form)



Sagittal T1 Post Contrast



Coronal T1 Post Contrast



Axial T1 Post Contrast