

SMRT Student Scope Submission

Title and Author

- Include Title of your submission and any collaborator as co-authors
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Introduction or Patient History

- A 17 year old male was ordered to have an MRI by a neurosurgeon in Lincoln, NE. The patient was experiencing headaches and dizziness stemming from a concussion that was sustained a couple of weeks ago while he was playing football for his high school. A routine brain with and without contrast was ordered and performed on this individual. An orange-sized meningioma tumor was clearly demonstrated on the resulting images. The tumor was located mid-sagittally and superior to the parietal lobe. Meningioma brain tumors generally occur in older patients and are usually smaller in size; since neither of these generalities was true in this case, this individual underwent a surgery to remove the tumor. The surgery was a success, in that the patient experienced no side-effects; however, because of the position and size of the tumor only about 75% of it could be removed. Test results after the tumor definitively defined the tumor as a meningioma. The neurosurgeon decided the best course of action would be to monitor the tumor with subsequent MR's. If at any time it indicates that it is growing again then a stereotactic surgery called Gamma Knife could be employed to reduce the remaining tumor. It has been seven years since the first surgery and the patient still has had no side-effects and the tumor has remained stagnant.

Patient Preparation and Scan Set up

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The exam was performed on a 1.5 Tesla GE Signa Scanner. The patient was screened to ensure that no ferrous object was on or in him. Once it was certain nothing of the sort was present, he was changed into a hospital gown and taken to our radiology nurses so an IV could be started. When the patient was taken back to the scanner, another quick check for ferrous objects was done and then he was taken into the scan room and placed on the table. The patient was quite comfortable with the whole process because this was one of many follow-up examinations for him. He was given ear plugs to shut out the noise and a squeeze ball to ensure his safety while in the scanner. He was then properly positioned inside of the 8 channel GE head coil and we zeroed the machine to a level at the eyebrows.

MR Imaging Parameters

Eight sequences were performed for the routine brain, including post contrast imaging. 18 cc of Mulithance were administered for the contrast images.

Sequence	FOV	Slices	TR	TE	Spacing	Matrix
Sag T1	24	18	400	Min Full	5/2.5	256x192
Axial T2	22	24	4000	85	5/1.0	320x256
Axial Flair	22	24	9000	124	5/1.0	256x192
Axial T1	22	24	400	Min Full	5/1.0	256x192
Diffusion	22	24	10000	Minimum	5/1.0	128x128
Tensor	26	33	9000	Minimum	3/0.0	128x128
Axial MPGR	22	24	600	30	5/1.0	256x192
Axial T1 +C	22	24	400	Min Full	5/1.0	256x192
Coronal T1 +C	22	26	400	Min Full	5/1.0	256x192



Findings and Discussions



This exam was a follow-up several years after the tumor was excised. The radiologist compared this exam to previous follow-up exams and concluded that there was no appreciable difference in the shape or size of the remaining tumor. Based on these findings, the patients' neurosurgeon has scheduled another follow-up MRI to be completed two years from this one.

Conclusions



I learned that meningioma brain tumors are generally slow growing and do not harm neighboring brain tissue. Since, they are a benign variety of brain tumor they do not metastasize to the rest of the body. Nearly 20% of all primary brain tumors are meningiomas. They are most prominent in middle-aged to elderly adults and are the only brain tumor that occurs more frequently in women than men. This particular patient did not fit any of these criteria; he was a young male and his tumor was much larger than normal. These facts made this case interesting since it was a very abnormal finding.

References



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Images





