

Title and Author

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

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Introduction or Patient History

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This patient was a 46 year old male that came into the emergency room with acute right eye blindness, exophthalmos, and headaches. A CT of the head was ordered by the emergency room doctor, but no previous images are available for comparison. The CT of the head demonstrated a right cranio-orbital dumbbell shaped mass through the right optic canal. A differential diagnosis concluded that the large mass may be a perioptic meningioma, schwannoma, an unusual ophthalmic aneurysm, or a hemangioma. A MRI/MRA of the brain was suggested for further evaluation. A MRI of the brain with and without contrast was performed the same day as the CT scan. From the MRI scan the radiologist diagnosed the patient with a right planum sphenoidal and retroorbital meningoma contributing to right orbital proptosis. Treatment of the meningoma is unknown at this time.

Patient Preparation and Scan Set up

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A GE 3.0 Tesla MR scanner was used for this study. The patient was screened prior to the study to ensure there was no metal in their body that could harm the patient or disrupt the scan. The patient was positioned in the scanner supine and head first. The patient's head was properly aligned inside the 8 channel GE head coil and sponges were placed around the head to ensure no movement. The patient was reminded to make as little movement as possible. Ear plugs were also given to the patient to help protect their ears.

MR Imaging Parameters



Ten sequences were performed for the routine brain, including three post contrast images. 15 ml of Gadopentetate dimeglumine (Magnevist; Berlex Laboratory) was administered for the contrast images.

Sequence	FOV	Slices	TR	TE	Spacing	Matrix
Sagital 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	3/1.0	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	24	400	Min Full	5/1.0	256x192
Sagital T1 + C	24	18	400	Min Full	5/2.5	256x192

Findings and Discussions



The results of this Brain MRI demonstrated a homogenously enhancing bi-lobed mass at the planum sphenoidal region extending through the optic canal to the right retroorbital space consistent with meningioma. The retroorbital aspect of the mass measures 2.8 x 2.5 cm and the planum sphenoidal aspect measures 2.3 x 2 x 2 cm. The total length measures 4.7 cm. The mass contributes to right orbital proptosis. No pulsation artifact is seen to suggest an aneurysm and there is a draining vein seen within this mass which makes schwannoma unlikely. The sella is unremarkable. The optic chiasm is normal. The ventricles and subarachnoid spaces are within normal limits.

Conclusions



After reviewing this case, I have learned that meningiomas are the most common benign tumors of the brain, accounting for 95% of benign tumors. Even if a meningioma is benign, it is not harmless. A meningioma can press on the brain and spinal cord, causing vision loss (as is the case for this patient) or paralysis. Meningiomas can also be malignant, although it is very rare. They appear to be more common in females than in males and have a peak incidence in the sixth and seventh decades. This patient is unique in that he does not fall under these two common categories of age or sex associated with meningiomas. The particular treatment for this patient is unknown at this time but there are many options available including surgical resection. Meningiomas can usually be surgically resected with permanent cure if the tumor is superficial, but most tumors are not easily accessible and total removal is nearly impossible. Radiation therapy may be pursued in cases of inoperable or unresectable tumors. Brain scans every 3 to 6 months should be done to ensure the meningioma has not returned or grown in size from previous scans.

References



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Images

