

SMRT Student Scope Submission

Title and Author(s)

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

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Introduction or Patient History

- In 1999, a 25-year-old male with a history of seizures and headaches was referred to the Nebraska Medical Center for treatment. After diagnostic testing, including MRI, the patient was diagnosed with oligodendroglioma. Oligodendroglioma is a cancerous tumor that develops from cells called oligodendrocytes that produce the fatty covering of nerve cells. The most common location of an oligodendroglioma is the cerebrum, particularly in the frontal and temporal lobes. After the diagnosis was made, the patient underwent a craniotomy with tumor resection. Following surgery, the patient was scheduled to have routine brain MRIs, head and neck CTs, and routine chest radiographs to rule out tumor reoccurrence and/or metastases. The patient is now 30 years old and has undergone a total of 15 surgeries to remove recurrent tumors. The patient has lost use of his arms and legs and has severely obtunded mental function.

Patient Preparation and Scan Set up



This exam was completed on a 1.5T Philips superconducting magnet, same as all the other MRI exams performed previously. The patient was thoroughly questioned and examined for any contraindications to having an MRI scan and changed into a gown for safety issues. The patient was then positioned on the table supine with his head placed in the birdcage head coil. In the head coil the patient's head was aligned straight and held in place by placing sponges next to his ears and by using a Velcro strap across his forehead. The patient was reminded of the importance of holding his head still for the exam and was given earplugs for hearing protection. The patient was also given a squeeze ball to hold on to during the scan in case of an emergency while scanning.

MR Imaging Parameters



Eight sequences were performed on this patient's brain to look for tumor reoccurrence.

<u>Sequence</u>	<u>FOV</u>	<u>Slices</u>	<u>TR</u>	<u>TE</u>	<u>Spacing</u>	<u>Matrix</u>	<u>NSA</u>
Sagittal T1	240	16	400	11	5 skip 2.5	512	2
Axial FLAIR	230	24	6000	100	5 skip 1	512	3
Axial T2	230	24	4833	90	5 skip 1	512	4
Axial T1	230	24	550	12	5 skip 1	512	1
Diffusion	230	24	3713	81	5 skip 1	256	2
Axial FFE	230	24	478	14	5 skip 1	512	2
*Administered 20cc of Gadolinium Contrast							
Axial T1+C	230	24	550	12	5 skip 1	512	1
Coronal T1+C	230	24	504	11	5 skip 1	512	2

Findings and Discussions



The results of the recent brain MRI demonstrated increased contrast enhancement of the left anterior temporal lobe. There is some contrast enhancement seen in the posterior medulla. The ventricles of the brain are enlarged with CSF, possibly from surgery. The enlargement of the ventricles is not causing a midline shift of the brain or compressing any other structures. The segment of the brain that was removed is now filled with CSF. Anterior to the left parietal lobe, which has been removed, there is a suspicious heterogeneous mass that is enhanced by contrast. This enhancement of the brain could be an indication of a new tumor growing or just be edema or scar tissue from surgery.

Conclusions



When studying this case I learned that oligodendrogliomas typically occur in males over the age of 40, which makes this case rare because this patient was a 25-year-old male when diagnosed. Also I found that there are two types of oligodendrogliomas; well-differentiated tumors (which are slow growing) and anaplastic oligodendroglioma (fast growing). When a person is diagnosed with an oligodendroglioma, surgery is a safe method to remove the tumor but there is a high incidence of reoccurrence even when followed with chemotherapy. MRI is the best imaging technique to diagnose an oligodendroglioma because of enhancement of the tumor with contrast.

References



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Images



(all images are in jpeg form)



