

Abstract: A 63 year old male presents with a frontal headache which has been present for about 6 weeks. Through a CT scan, the patient appears to have meningiomas. Meningiomas are tumors that arise from arachnoid cap cells which are cells within a thin membrane that resembles a spider web and covers the brain and spinal cord. They are the most common brain tumor to originate in the central nervous system. Although most meningiomas are benign and do not require immediate medical attention, the growth of them may cause serious problems and some may even be fatal.

Introduction: The patient has a medical history of hypertension, type 2 diabetes mellitus, and hyperlipidemia. Hyperlipidemia is a condition where there are high levels of fat in the blood and it is common in patients with mellitus. He does use over-the-counter painkillers for his headache, but they only relieve the pain minimally. The patient's wife, who accompanies him, states that the patient's balance is off, and she has seen him walk into walls multiple times. She also states that the patient's personality has changed slightly, and he doesn't seem to care about the things he used to. However, the patient, himself, is rather confused, and he doesn't have any memory of doing the actions his wife states he did. As shown through the CT scan, the patient appears to have meningiomas which explains the persistent headaches. Meningiomas are most common in patients aged 50-60, and they are two to three times more common in women. Five-year survival rates with meningiomas are greater than 80%, ten-year rates range from 74-79%, and fifteen-year survival rates at 70%. But about 80% of patients can be cured with surgery. Risk factors of meningiomas include exposure to ionizing radiation and deletion of the NF2 gene. Ionizing radiation is a type of energy released by atoms in the form of electromagnetic waves. Ionizing radiation is found in many agricultural and medical devices such as X-rays. The NF2 gene provides instructions for the protein merlin which functions as a tumor suppressor, preventing cells from multiplying in an uncontrolled way.

Case Presentation: The patient seems well nourished according to the physical examination. His blood pressure is 140/70, temperature is 98.9, and pulse is 77. HEENT (head, ears, eyes, nose, throat) examination was unsurprising and did not reveal anything abnormal. The patient's neck was supple with no signs of JVD or lymphadenopathy. JVD (Jugular Vein Distention) is a condition where the increased pressure of the superior vena cava causes the jugular vein to bulge, making it more visible. The jugular vein carries oxygen-depleted blood from the brain, face, and neck and returns it to the heart via the superior vena cava. Lymphadenopathy is a disease of the lymph nodes that causes them to be abnormally large. Auscultation shows lungs are clear and cardiac examination reveals they are at a regular rate and rhythm. Abdominal examination shows there is no enlargement of organs or tenderness. GU (genital and urinary) exam was within limits. According to neurological examination, the patient's cranial nerves are intact, his motor strength has diminished slightly, and his sensory examination was within limits. The patient was then sent for a CT scan of the head which revealed the presence of a 4*6 cm mass in the frontoparietal region of the brain. The MRI, which

was performed soon after, revealed the same mass, and a radiologist suggested that this mass is a meningioma. CT and MRI are both very good imaging techniques for detecting meningiomas. A CT scan uses X-rays while MRI uses strong magnetic fields. CT scans are less expensive, but MRI provides more detailed images. The patient is later referred to a neurosurgeon who believes the tumor is able to be removed by surgery. The patient undergoes craniotomy (opening into the skull) and the tumor is surgically removed. The patient suffers no negative effects post surgery and a follow-up MRI shows a full resolution of the tumor. The patient is doing well two years after surgery. His wife states that he has slight problems with his memory, but other than that he is back to his normal state.

Discussion: This patient's case seems to be a clear problem and solution, but it does raise some questions. The fact that the patient undergoes craniotomy raises the question if any other treatments were used in an adjunctive manner. For example, preoperative meningioma embolization is another treatment which has benefits including decreased operative duration and reduced operative blood loss. Both reduce the technical difficulty of the surgery. Radiotherapy is a treatment that may be used in addition to surgery as it helps kill malignant cells. But, it does use ionizing radiation, so they might not have used radiotherapy on the patient. The case also raises the question if a biopsy was done. Since meningiomas can be benign or harmful, a biopsy would help show the type, grade, and how severe the tumor is. Benign tumors can be monitored only and do not need to be removed immediately. Although a biopsy is an extra procedure, it might have helped understand the severity of the tumor. It is also unclear how the neurologist was able to determine the grade of the tumor with just an MRI. Most patients who have high grade meningiomas may be suggested treatment options other than surgery, like radiation therapy.

Conclusion: Meningiomas are brain tumors that are more common in women than men in a 3:2 ratio. However, men can develop the tumor and may show symptoms of headaches, personality changes, seizures, memory loss, and sensory changes. The patient's symptoms physical examination revealed his sensory examination was within normal limits. His blood pressure was high (140/70), but a HEENT examination showed he was well developed. The patient presented with a headache. His wife stated that the patient displayed some personality changes and he did not seem to care about the things he used to. A CT scan of the head revealed a 4*6 cm mass at the frontal region of the head. An MRI scan revealed the same mass which was diagnosed as a meningiomas. The patient was referred to a neurosurgeon who was able to remove the tumor in its entirety. Two year post-excision, the patient is doing well and he has returned to his normal state.

References

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