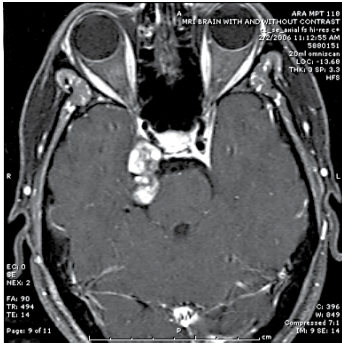
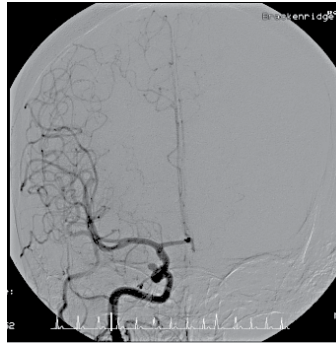


Skull-Based Tumor:

Multi-Modality Treatment of Vascular Skull Based Pathology



▲ IMAGE A: PRE-OP MRI



▲ IMAGE B: ANGIOGRAM



▲ IMAGE C: POST-OP MRI

PATIENT HISTORY:

The patient is a 53-year-old female that presented with a 12-month history of ear pain and occasional vertigo. Her symptoms had been slowly progressing when she presented to an ENT who performed audiometrics and found a significant unilateral sensorineural hearing loss.

An MRI of her head and internal auditory meatus was performed (shown in Image A).

An angiogram of her head was performed to assess the vascular component of the lesion and revealed two unruptured aneurysms (shown in Image B).

Upon further examination, the patient displayed mild hypesthesia in the right fifth nerve distribution, unsalvageable hearing on the right and slight facial asymmetry. She was offered observation of her lesion until follow-up MRI showed growth in the posterior fossa portion of her tumor. At this point, she was considered for surgery. She pursued several opinions from experts within the United States, including Sloan Kettering, the University of Arkansas and the NIH. After researching her options, the patient chose the Brain & Spine Center at Brackenridge Hospital.

The decision to treat her was reached by a team of physicians, including Neuropathology, Interventional Radiology, Neuro-Otology, Neurophysiology and skull-based Neurosurgery experts.

The aneurysms were believed to be asymptomatic but crucial to a successful outcome. The shifts in blood volume and blood pressure during the proposed surgery would threaten the integrity of the aneurysms possibly resulting in a catastrophic event. By collecting opinions from the treatment team we proposed a safe plan of attack for the patient's multiple pathologies.

TREATMENT COURSE:

Firstly, the aneurysms were treated by an interventional approach called coiling.

The second phase of the treatment was the surgical removal of the growing portion of the tumor. This required a combined Neurosurgery/Neuro-Otology approach to the cerebello-pontine angle, from a retromastoid procedure. This is very delicate surgery and requires the assistance of a Neurophysiologist who monitors the function of the brainstem and cranial nerves while the patient is under anesthesia.

The tumor was resected from the seventh, eighth, ninth, and tenth cranial nerves. It had invaded both the vestibular and auditory nerves on the right. At the completion of the surgery, it appeared that the patient had two separate tumors, the second of which extended through the base of the skull and came to sit next to the oculomotor and abducens nerves and the carotid artery.

OVER...

The pathology showed the tumor to be a benign schwannoma.

OUTCOME AND FOLLOW-UP:

The patient recovered to preoperative status in a short amount of time and was discharged to home on the fourth postoperative day. Her follow-up scans showed a gross total resection of the posterior portion of the mass and the residual supratentorial component (shown in Image C).

The third phase of her treatment occurred after 2 years of follow up. The patient's residual supratentorial component was felt a risk to her optic motor apparatus, and the carotid artery. Now that the size of the target had been drastically reduced by surgery and the pathology had been established, CyberKnife Stereotactic Radiosurgery was employed to remove the remaining pathological tissue. She now enjoys spending time with her husband and young daughter.

