

Large Vestibular Schwannoma Causing Obstructive Hydrocephalus, Progressive Hearing Loss and Weakness: A Case Report

Sarah Warner, PA-C, OMS-1; Lake Erie College of Osteopathic Medicine- Seton Hill
Adnan Solaiman, MD; Northern Light Eastern Maine Medical Center



Introduction

Vestibular schwannoma (VS) is the most common cerebellopontine angle lesion. The most common chief complaint leading to diagnosis of vestibular schwannoma is hearing loss. Average time from onset of symptoms to presentation is 4 months.

We present the case of a male with a large vestibular schwannoma, which progressed to communicating hydrocephalus prior to surgical resection.

Case Report

- A 67-year-old male with no significant medical history presented to the emergency department with gait instability. He reported progressive weakness and gait instability, along with hearing loss that had progressed significantly over the last 3 years

- An MRI showed an enhancing mass at the right cerebellopontine angle, measuring 3 x 3 x 3 cm, extending from the internal auditory canal. Communicating hydrocephalus was noted with extension up to the foramen of Luschka

- Neurosurgery diagnosed vestibular schwannoma and recommended outpatient follow-up to discuss surgical management

Case Report (continued)

- Unfortunately, the patient had multiple falls at home with progressive weakness, decreased memory and executive function. He underwent scheduled retro-sigmoid craniotomy with resection of the vestibular schwannoma and ventricular drain placement.
- Postoperative MRI brain showed new AICA infarct, with some residual tumor. He also had facial nerve paralysis, along with expected hearing loss on the affected side. He was admitted to an acute inpatient rehabilitation facility for a multidisciplinary rehabilitation program.

Discussion

- Vestibular schwannomas represent approximately 8% of intracranial tumors, and often present with hearing loss and tinnitus. The average length of time between development of symptoms and diagnosis is 4 months.
- This case is unique as the patient developed progressive hearing loss, memory loss and weakness before presenting to the emergency department. Most vestibular schwannomas are smaller when diagnosed, especially in developed medical systems, such as the United States.

Discussion (continued)

- Vestibular schwannomas can cause weakness and gait instability when tumor size causes hydrocephalus and brain stem compression. They do not always present with just hearing loss and/or tinnitus.
- Intraoperative complications, including facial nerve damage and cerebral infarctions can complicate recovery, necessitating ongoing rehabilitation.
- Patients may present with more advanced tumors in areas with decreased access to healthcare, such as rural New England.

Sources

Carlson ML, Glasgow AE, Grossardt BR, Habermann EB, Link MJ. Does where you live influence how your vestibular schwannoma is managed? Examining geographical differences in vestibular schwannoma treatment across the United States. *Journal of Neuro-Oncology*. 2016;129:269-279. doi:10.1007/s11060-016-2170-5

Peris-Celda M, Graffeo CS, Perry A, et al. Main Symptom that Led to Medical Evaluation and Diagnosis of Vestibular Schwannoma and Patient-Reported Tumor Size: Cross-sectional Study in 1,304 Patients. *Journal of Neurological Surgery- Part B*. 80:316-322. doi:https://doi.org/10.1055/s-0038-1675175.

Prabhuraj AR, Sadashiva N, Kumar S, et al. Hydrocephalus Associated with Large Vestibular Schwannoma: Management Options and Factors Predicting Requirement of Cerebrospinal Fluid Diversion after Primary Surgery. *Journal of Neurosciences in Rural Practice*. 2017;8(Suppl 1):S27-S32. doi:10.4103/jnpr.jnpr_264_17

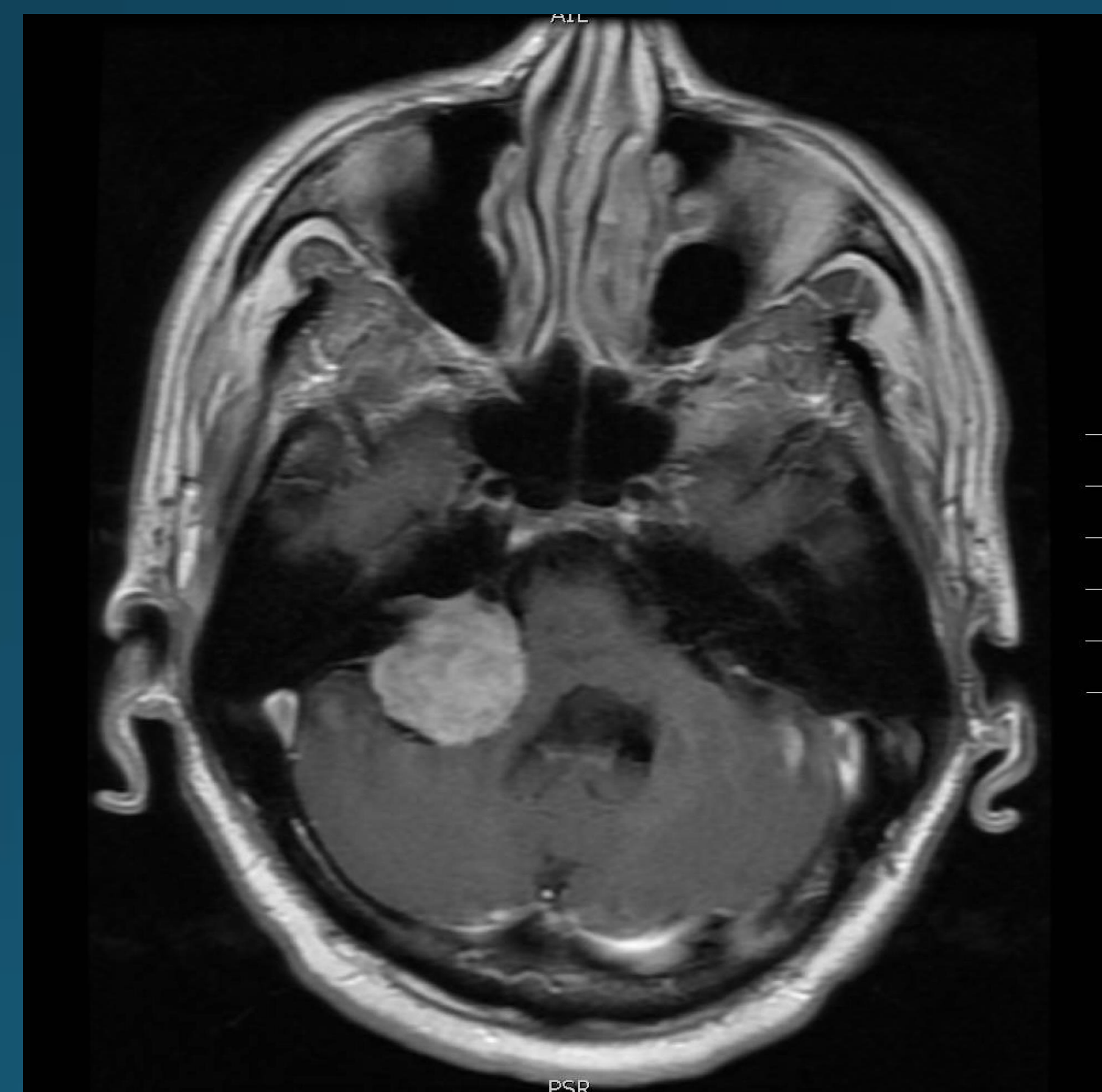


Figure 1
Pre-operative MRI shows large vestibular schwannoma



Figure 2
Post-op MRI shows edema, ventriculomegaly and small residual tumor

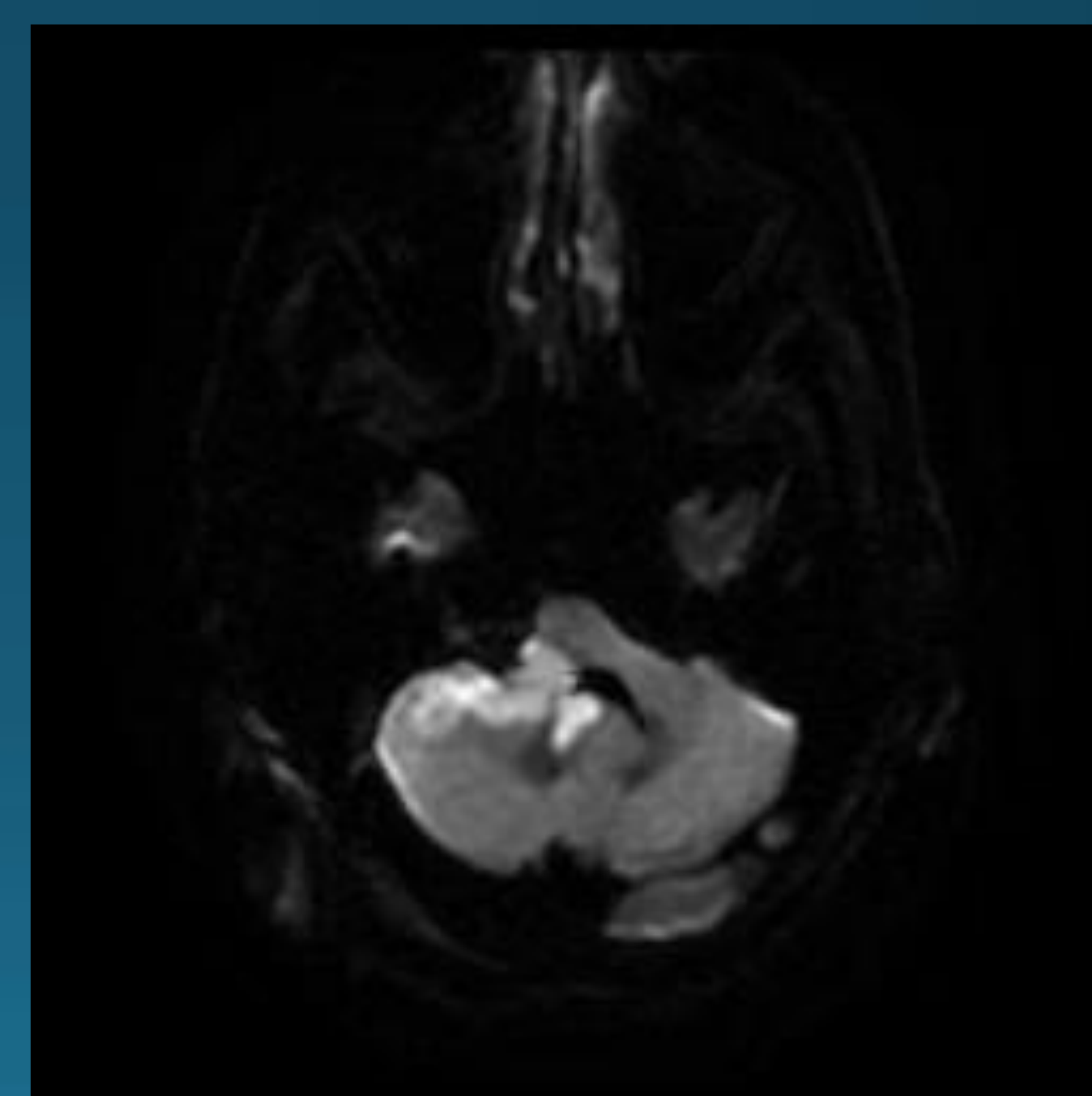


Figure 3
DWI sequence MRI showing AICA infarction on post-op imaging