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Raymond Sekula Jr. leads department's efforts in cranial neuralgia surgery

The University of Pittsburgh Department of Neurological Surgery has a storied tradition of treating cranial nerve and other brainstem disorders, and the Center for Cranial Nerve and Brainstem Disorders continues to offer innovative care under the new leadership Raymond F. Sekula Jr., MD. In his first six months since joining the faculty, Dr. Sekula has performed over one hundred operations for patients with trigeminal neuralgia, geniculate neuralgia, glossopharyngeal neuralgia, hemifacial spasm, and tumors and other abnormalities involving the cranial nerves.

The center joins experts in a variety of medical disciplines including neurosurgery, neurology, neurophysiology, neuroradiology, neuroanesthesia, neuro-oncology, neuro-ophthalmology and neurotology with the intent of providing the most advanced care for a variety of brain disorders. The goal of the center is to provide the very best outcomes for patients in the most minimally invasive manner. The collective experience of this team is supported by two nurse care coordinators (Ann Wilkinson, RN, and Lois Burkhart, RN) with more than forty years of combined experience caring for patients with cranial neuralgias.

Of particular recent interest to the center has been the use of preoperative imaging to aide in the diagnosis and surgical planning for patients suffering the effects of neurovascular compression. Cranial neuralgias are nearly always caused by arterial compression of the centrally myelinated portion of the affected cranial nerve.

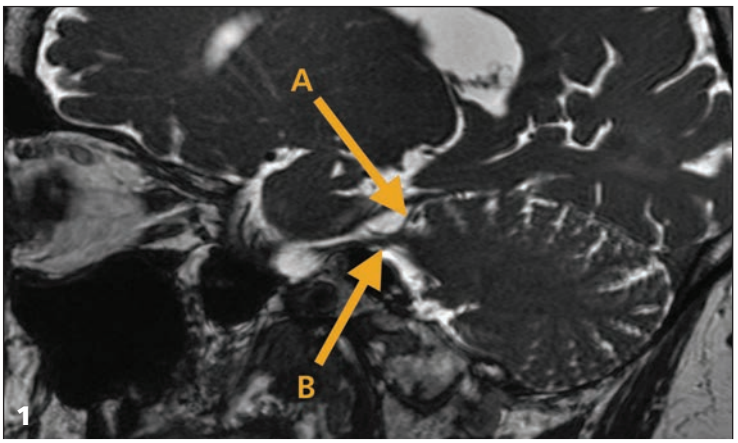
Although magnetic resonance imaging (MRI) was historically too low in resolution to provide information about vascular compression of the cranial nerves, recent technological advances have renewed clinicians' interest in the use of imaging for diagnosis and surgical planning. Dr. Sekula and his neuroradiology colleagues—including Barton F. Branstetter, MD, and Marion Alicia Hughes, MD—have recently completed two studies demonstrating the sensitivity and specificity of thin-slice T2-weighted MRI in the detection of neurovascular compression in patients with hemifacial spasm (HFS) and trigeminal neuralgia (TN).

Only a small subset of TN and HFS sufferers includes patients lacking a compressive vessel, and the prognosis for this cohort is less favorable. While a clinical diagnosis alone can suggest a high probability of a neurovascular conflict, this method is not definitive. The team's studies demonstrate that while MRI has moderate specificity for detecting neurovascular compression, the sensitivity is extremely high. This makes it ideal for identifying the small number of patients without a compressive blood vessel despite a classic clinical presentation and preventing them from undergoing a futile surgical exploration of the nerve.

An emphasis on preoperative and intraoperative electrophysiologic testing—overseen by Jeffrey Balzer, PhD, Donald Crammond, PhD, Miguel Habeych, PhD, and Partha Thirumala, PhD, from the Center for Clinical Neurophysiology—has resulted in improved outcomes and fewer complications. A measure of the utility of this clinical service can be seen in the preservation of hearing in 99% of patients undergoing microvascular decompression for all cranial neuralgias in the center.

For more information on the Center for Cranial Nerve and Brainstem Disorders, please call (412) 647-3920. •

Dr. Sekula in the operating room performing a microvascular decompression.



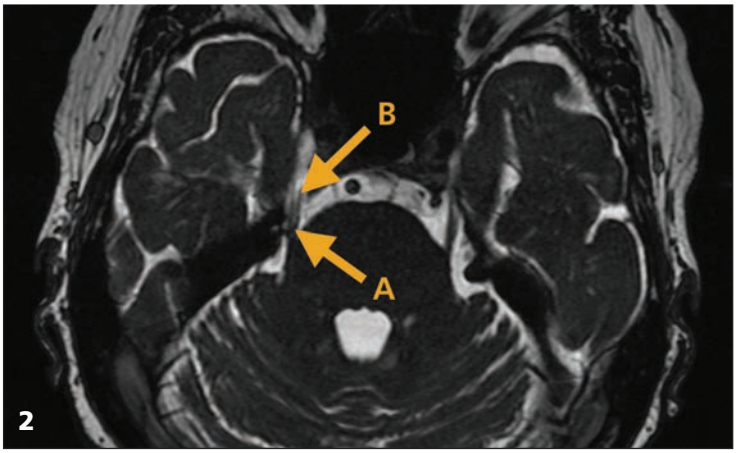


Fig. 1: Sagittal view of the superior cerebellar artery (A) impinging on the centrally myelinated portion of the trigeminal nerve (B). Microvascular decompression treats this pathology directly. Fig. 2: Axial view showing the source of this patient's facial pain: a loop of the superior cerebellar artery (A) compressing the centrally myelinated portion of the trigeminal nerve (B).