

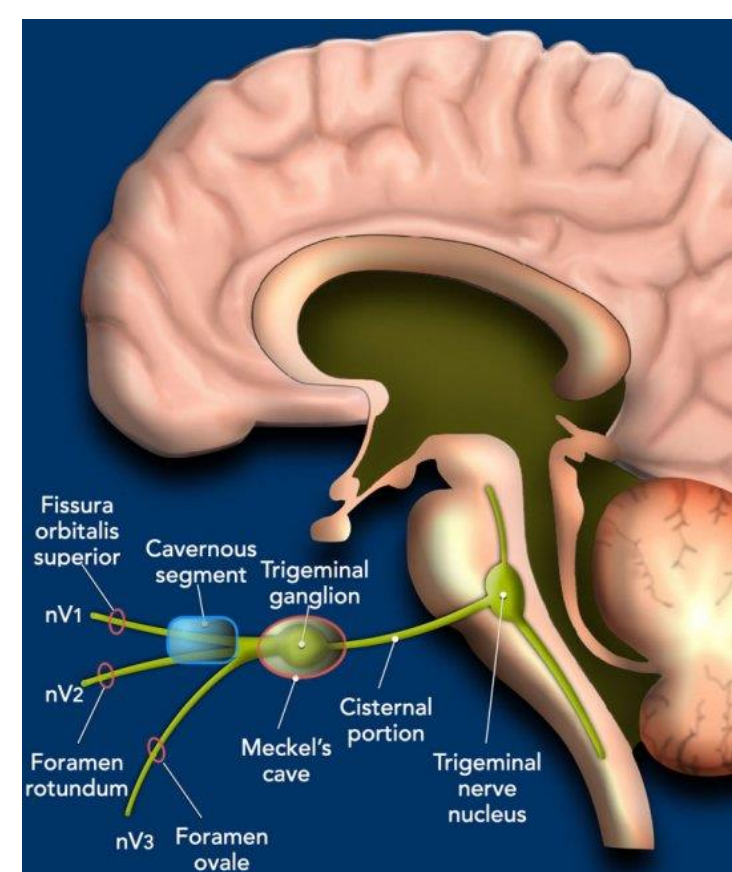
It's all in your head: a case of trigeminal neuralgia due to vascular compression

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INTRODUCTION

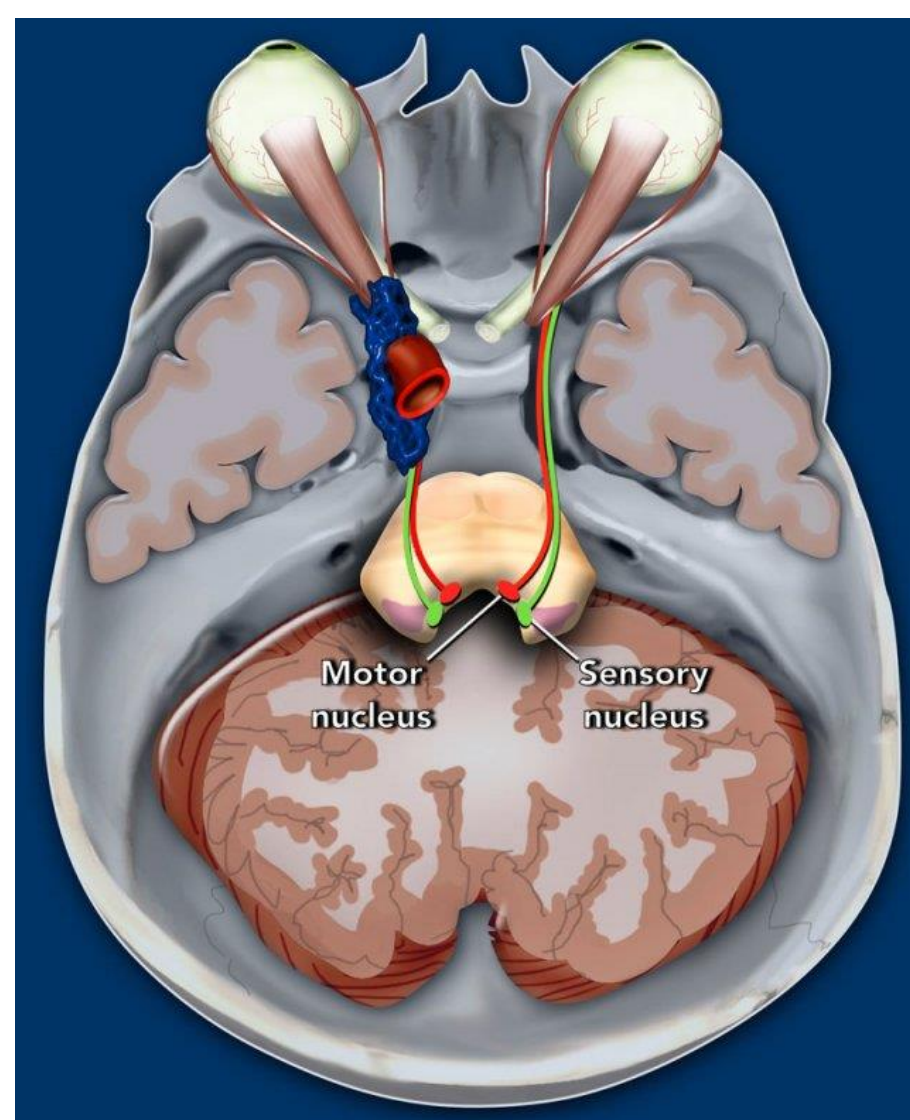
- Trigeminal neuralgia is a disorder characterized by brief, unilateral electric shock-like pains, abrupt in onset and termination, limited to the distribution of one or more divisions of the trigeminal nerve.
- Understanding the anatomy of the trigeminal nerve is critical, as pathology leading to trigeminal neuralgia can vary depending on its location in the brain



<https://radiologyassistant.nl/head-neck/trigeminal/trigeminal-neuralgia-and-neuropathy>

Figure 1: Pathology of the trigeminal nerve is related to location

Brainstem: demyelination
Cistern: neurovascular compression
Meckel's cave: neoplasm



RESULTS/CASE REPORT

Chief Complaint and HPI

A 72-year-old male presents with 12 years of facial pain causing depressed mood and poor quality of life. His pain presents as attacks of a sharp stabbing sensation located in the right side of his face and include his scalp, upper lip, and mandible. The attacks initially occurred a few times per week, then gradually began to occur multiple times per day. They are rated 10/10 at their worst, render him unable to speak, and last seconds to minutes. Triggers include light touch and cold air.

He denies lacrimation or injection of his eyes, changes in vision, or arm or leg numbness. He has not had any neurosurgical or dental procedures.

He has attempted conservative management with lamotrigine, oxcarbazepine and gabapentin without significant relief.

Objective/Physical Exam

On exam, he is seated comfortably, his head is atraumatic, he has no cranial nerve deficits, no conjunctival injection. The rest of his neurologic exam, including extremity strength and sensation, is normal.

Diagnosis

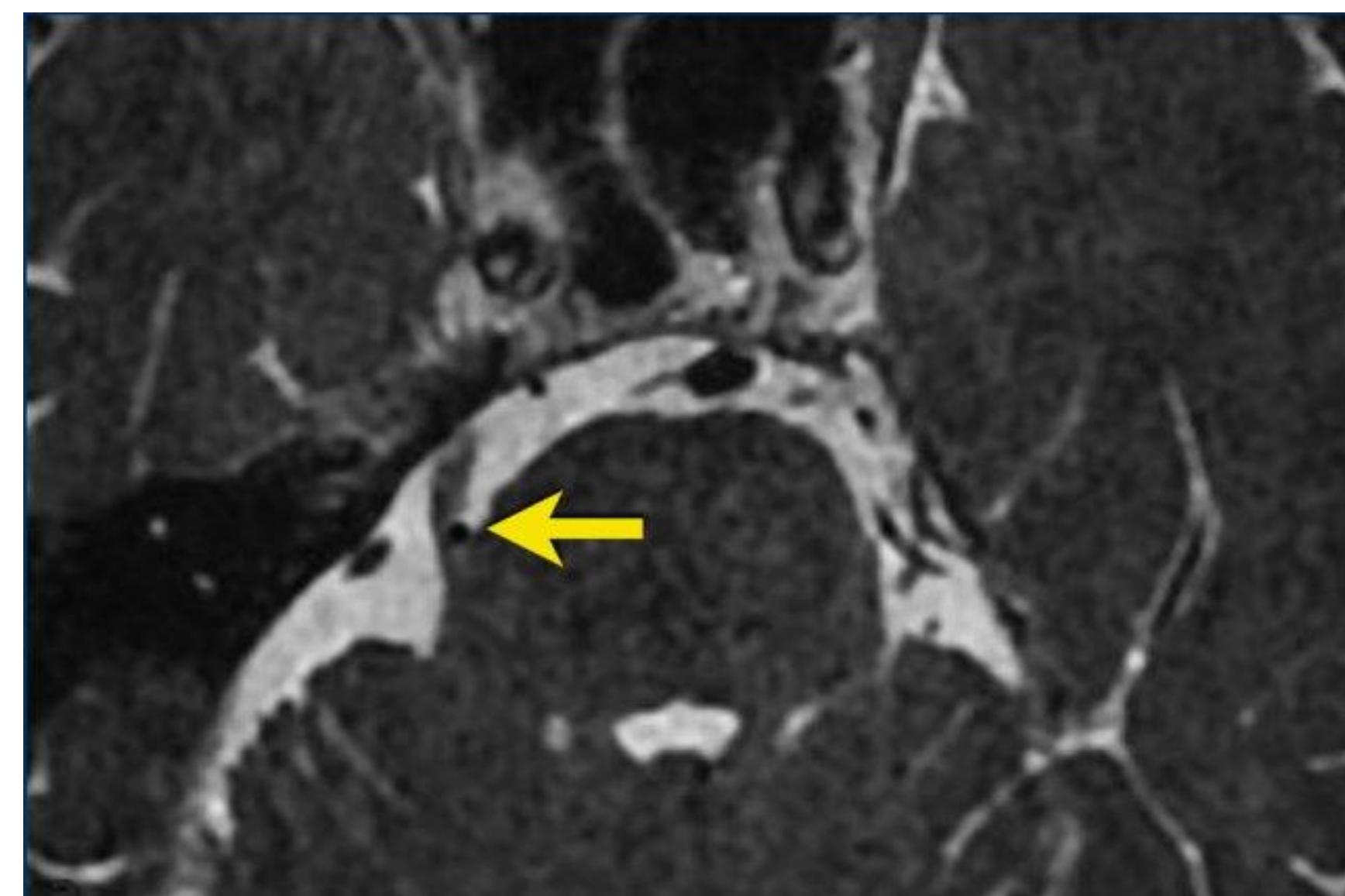
We suspected his facial pain was due to trigeminal neuralgia. The patient had not had an MRI, and to uncover an etiology for his worsening symptoms, we ordered a head/face MRI. On review of his imaging, we noted displacement and compression of the right trigeminal nerve by the superior cerebellar artery (**figure 2**).

Treatment

The patient underwent microvascular decompression surgery with our neurosurgery colleagues (**figure 3**).

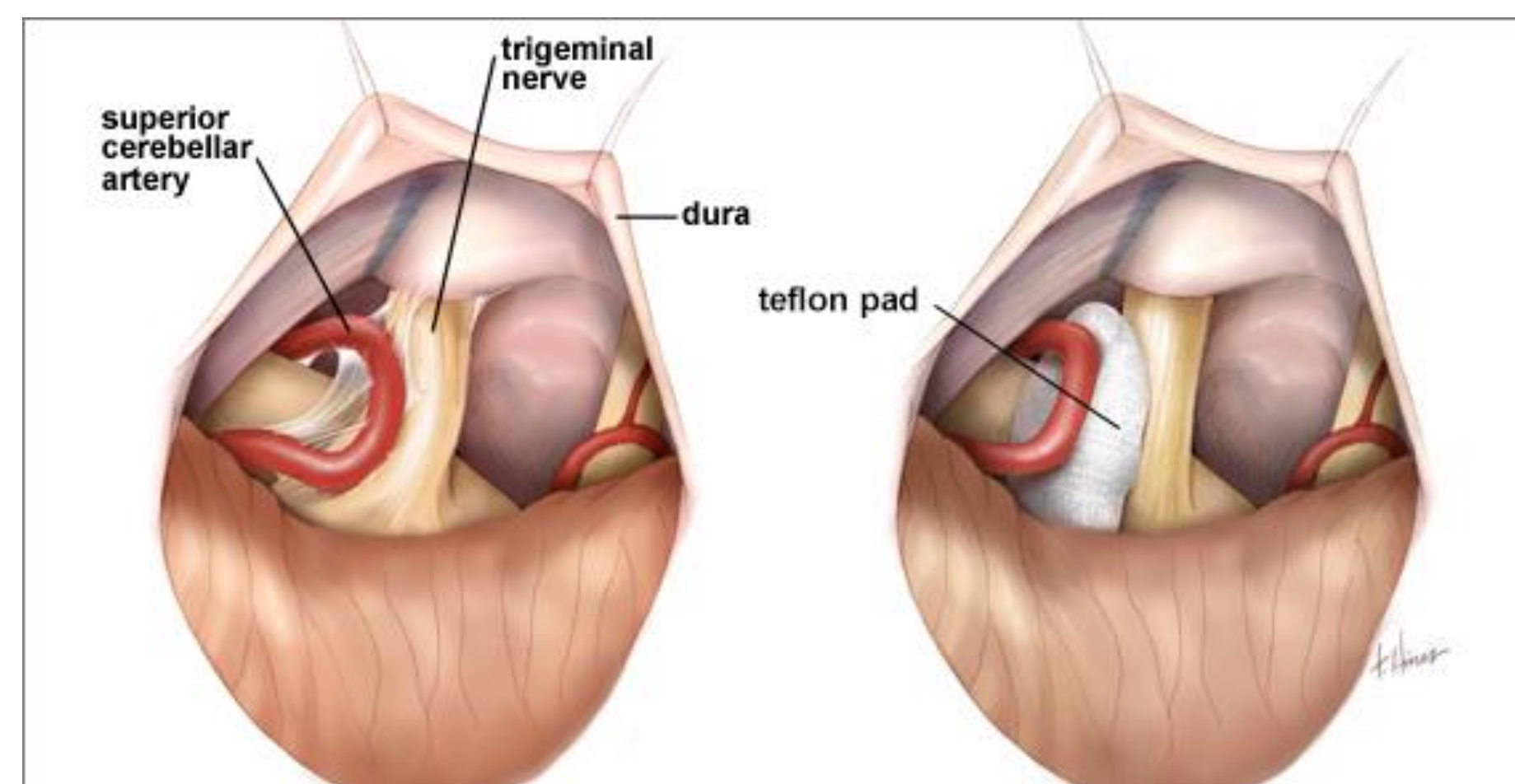
Result

The patient was seen as a follow-up in our clinic 3 months after his surgery. He endorsed complete resolution of his symptoms and had stopped taking his prior pain medications (gabapentin, oxcarbazepine).



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Figure 2: Neurovascular compression seen on MRI. The axial 3D FIESTA image shows a close relationship between the right trigeminal nerve and superior cerebellar artery. The nerve is displaced laterally. These findings fill the criteria for neurovascular compression.



<https://www.pacificneuroscienceinstitute.org/facial-pain/treatment/microvascular-decompression-mvd/>

Figure 3: Microvascular decompression. Endoscopic view revealing compression of the trigeminal nerve by the SCA (left). The vessel is dissociated and a felt pad is placed to decompress the nerve.

DISCUSSION

- Pain practitioners with a thorough understanding of the anatomical abnormalities that can cause trigeminal neuralgia are best able to guide patient management. Acquiring MR imaging for patients who have refractory or worsening symptoms may uncover underlying etiology, such as that found in our patient, that can then be intervened upon.
- Surgical interventions, such as microvascular decompression (MVD), are often reserved for the candidate with incapacitating symptoms despite a trial of at least 3 medications, or where medications caused unacceptable adverse effects.
- MVD offers the highest success rate, especially in those with image confirmed vascular compression on the trigeminal nerve. More than 80% are still pain free after one year, and 75% at 5 years after the procedure.

REFERENCES

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- Trigeminal neuralgia. International classification of headache disorders. February 6, 2018. <https://ichd-3.org/13-painful-cranial-neuropathies-and-other-facial-pains/13-1-trigeminal-neuralgia/13-1-1-classical-trigeminal-neuralgia/13-1-1-1-classical-trigeminal-neuralgia-purely-paroxysmal/>

MATERIALS AND METHODS

- Verbal Health Insurance Portability and Accountability Act (HIPAA) authorization was obtained for this case report. The report is devoid of patient identifiable information, it is exempt from IRB review requirements per Columbia University policy