



UNIVERSITY of  
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MEDICAL CENTER

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DEPARTMENT OF IMAGING SCIENCES

## Imaging Sciences Interesting Cases

### CASE 36

Scott Cassar, MD

**CLINICAL PRESENTATION:** Patient is a 53-year-old male with a clinical diagnosis of left trigeminal neuralgia.

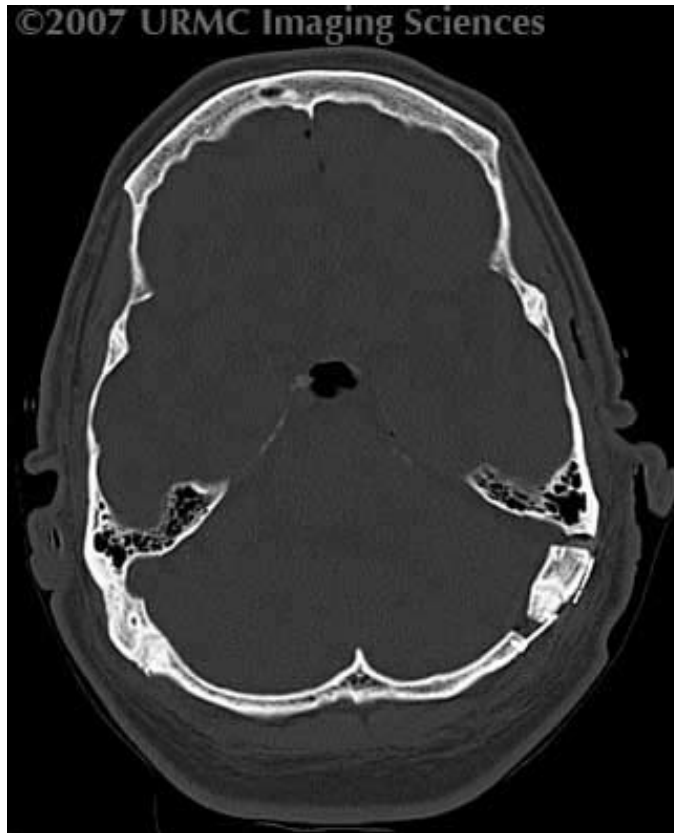
**IMAGING FINDINGS:** The left anterior inferior cerebellar artery stretches an atrophic left trigeminal nerve.



**Figure 1.** T2-weighted FIESTA sequence; Left anterior inferior cerebellar artery stretches an atrophic left trigeminal nerve.



**Figure 2.** T2-weighted FIESTA sequence: Normal appearing right trigeminal nerve.



**Figure 3.** Axial CT head bone windows: Status post microvascular decompression.

**DIAGNOSIS: Trigeminal Neuralgia with an atrophic left trigeminal nerve**

**DISCUSSION:** Trigeminal neuralgia has classically been described as a paroxysmal, knifelike pain in the anatomic distribution of the fifth cranial nerve. It is nearly always unilateral, right greater than left, with one, two, or all three branches of the trigeminal nerve involved. The disease affects women more than men (2:1) and typically presents in the sixth decade of life. Classic criteria include:

1. No sensory loss of the nerve,
2. Pain confined to the distribution of the nerve,
3. Paroxysmal pain with complete remission between spasms, and
4. Pain being provoked by sensory stimulation such as touch or temperature.

Trigeminal neuralgia is believed to be caused by abnormal contacts between nerve fibers as a result of axonal loss and demyelination. This nerve atrophy is presumed to be due to neurovascular compression as the nerve passes over the petrous portion of the temporal bone or to compression of the nerve root by an aberrant vessel.

Many treatment options are available. Medical therapy includes anticonvulsants such as carbamazepine, phenytoin, or gabapentin. Several surgical options exist. In microvascular decompression (MVD), access is gained through a small osteotomy posterior to the ear and the offending aberrant blood vessel is separated from the trigeminal nerve by a small pad. Stereotactic radiosurgery uses a gamma knife to damage the nerve and impede the pain signal. Percutaneous approaches also attempt to damage the nerve by either using a balloon to compress, glycerol injections to corrode, or radiofrequency rhizotomy to heat the nerve.

The patient described above had an atrophic left trigeminal nerve likely secondary to an aberrant anterior inferior cerebellar artery. He subsequently underwent microvascular decompression with good result.

**REFERENCES:**

1. Bayer DB, Stenger TG. Trigeminal neuralgia: an overview. *Oral Surg Oral Med Oral Pathol.* 1979 Nov;48(5):393-9. [PubMed]
2. Erbay SH, Bhadelia RA, O'Callaghan M, Gupta P, Riesenburger R, Krackov W, Polak JF. Nerve atrophy in severe trigeminal neuralgia: noninvasive confirmation at MR imaging--initial experience. *Radiology.* 2006 Feb;238(2):689-92. [PubMed]