# Trigeminal neuralgia and neuropathy

**January 14, 2020: Christine Glastonbury, San Francisco/US**

## Dr. Christine Glastonbury

Christine M. Glastonbury, MBBS, is a Professor of Radiology, Otolaryngology-Head & Neck Surgery, and Radiation Oncology at the University of California, San Francisco. Dr. Glastonbury is a Neuroradiologist with a particular academic and clinical interest Head & Neck (HN) Imaging, and specifically HN cancer. She works closely with the Radiation Oncologists and Head and Neck surgeons on a weekly basis to optimize the care of HN cancer patients at UCSF. She has written and published multiple books, more than 100 articles and received multiple awards for scientific and education exhibits at scientific meetings.

At UCSF Dr Glastonbury is the Vice-Chair for Academic Affairs and the interim Chief of Neuroradiology. She is a member of the Radiology Diversity Committee, the director of Mentoring in Radiology and a co-founder and strong advocate for UCSF Women in Radiology. Dr Glastonbury serves on the Executive Council of the American Roentgen Ray Society and on the Executive Committee for the American Society of Head and Neck Radiology as the Chair of the Education Committee.

## Learning Objectives

1. To understand the distinction between trigeminal neuropathy and trigeminal neuralgia and how this may affect how we protocol and interpret MR scans.
2. To recognize the critical radiologic anatomy landmarks of the trigeminal nerve from the brainstem nuclei to the main facial branches.
3. To review the red flag clinical features or findings that should make us more concerned for sinister pathologic causes of trigeminal symptoms.
4. To review a number of cases of H&N disease that may manifest with trigeminal symptomatology.

## Abstract

There are several key points radiologists should understand when reading scans with a history of trigeminal symptomatology. Most importantly, radiologists should understand the difference between neuropathy and neuralgia so that scans are appropriately performed and reviewed. Secondly it is critical to understand the anatomical landmarks of the trigeminal nerve in order to search for pathology on MR scans.

Trigeminal neuropathy (TN) is a specific neurological syndrome of recurrent episodic intense facial pain that occurs after stimulation of a facial trigger zone. It tends to increase in frequency over time. Atypical TN, or TN2 is a constant aching burning pain that is less intense than TN1.

Classic TN is when these symptoms are due to neurovascular compression which is most often due to a branch of the superior cerebellar artery at the root entry zone of the cisternal trigeminal nerve. Symptomatic TN is when the same symptoms are found to be due to a pathological process involving the trigeminal nerve from brainstem to its peripheral branches.

In contrast to TN, trigeminal neuropathy is any dysfunction of trigeminal motor or sensation; be that dysesthesias, tingling, numbness or evident denervation changes. Trigeminal neuropathy can be due to any pathology from the brainstem to the peripheral nerve branches.

## Teaser

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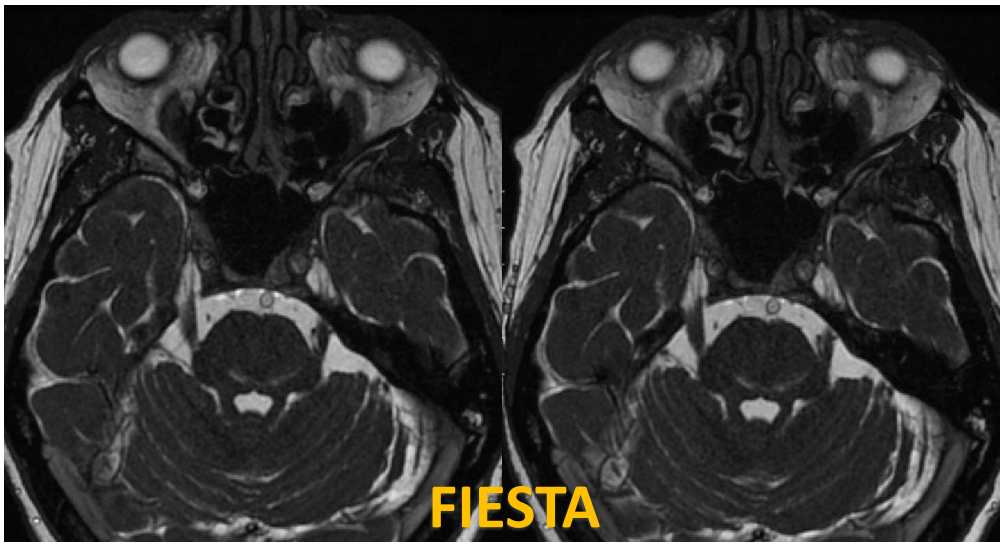
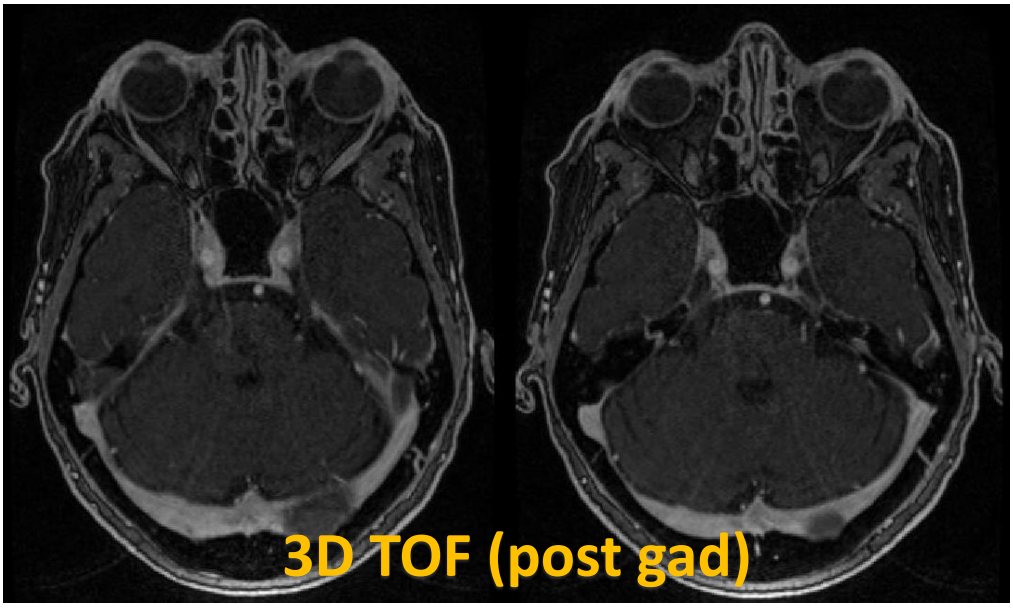
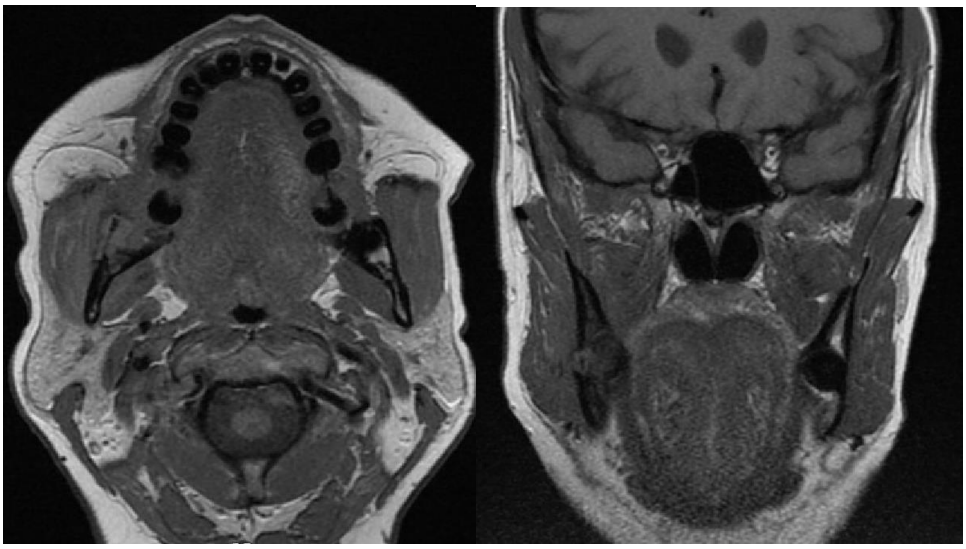
Req: TRIGEMINAL NEURALGIA



DO WE NEED TO DO ANYTHING ELSE?...



## Test Your Knowledge

1. What is the expected disease course over time of trigeminal neuralgia?
   a. Tends to spontaneously resolve
   b. Tends to become less frequent
   c. Tends to develop fewer trigger sites
   d. Tends to become more frequent

2. The three branches of the trigeminal nerve are known as the:
   a. Orbital, nasal and mandibular nerves
   b. Frontal, maxillary and mandibular nerves
   c. Ophthalmic, maxillary and mandibular nerves
   d. Frontal, nasociliary and lacrimal nerves

3. The trigeminal nerve carries sensory information from much of the face including the external aspect of the tympanic membrane. For which meningeal location does it provide sensory innervation?
   a. Anterior and middle fossa meninges
   b. Posterior fossa meninges
   c. Upper cervical cord meninges
   d. Internal auditory canal meninges

4. The artery most commonly found to be at fault when there is true neurovascular compression of the trigeminal nerve is:
   a. The superior cerebellar artery
   b. The anterior inferior cerebellar artery
   c. The posterior inferior cerebellar artery
   d. The menial cerebellar artery

5. A patient with intermittent sharp, severe left facial pain is shown to have a large left cerebellopontine angle mass with restricted diffusion, compatible with an epidermoid. What is the best description of their pain?
   a. Symptomatic trigeminal neuralgia
   b. Asymptomatic trigeminal neuralgia
   c. Classic Trigeminal Neuralgia
   d. Trigeminal Neuropathy