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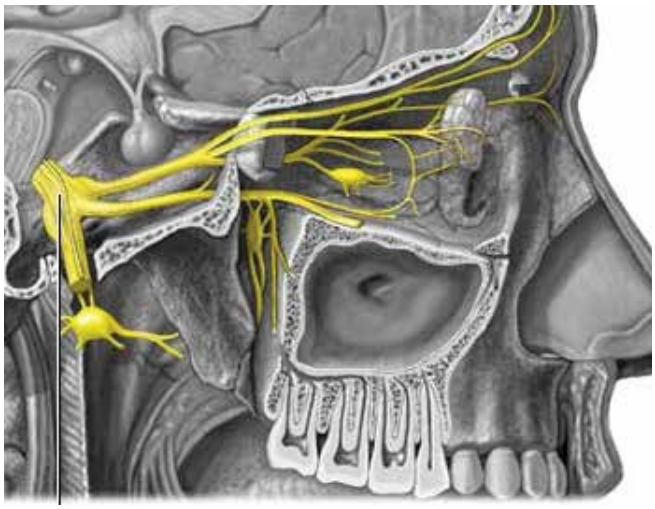
TIC TALK: A TRIGEMINAL NEURALGIA | FACIAL PAIN NEWSLETTER | SUMMER 2020 (VOL. 1, NO. 2)

IS MVD FOR ME ?

MVD, or Microvascular decompression, can be an effective treatment for Trigeminal Neuralgia. In this newsletter, I discuss in which cases I think MVD is a good option, and when it is not the preferred approach.

WHAT IS TRIGEMINAL NEURALGIA?

Trigeminal neuralgia (TN) is a specific type of facial pain. Patients with TN get intermittent, sudden, brief, severe, sharp pains on one side of the face, that can often be triggered by light touch of the face, and will usually improve with certain seizure medicines like tegretol or neurontin. The most common cause of TN is a blood vessel compressing the trigeminal nerve – the nerve that supplies sensation to the face – inside the brain. TN can also be caused by multiple sclerosis (MS) or rarely, by a tumor that compresses the trigeminal nerve.



Trigeminal nerve

WHAT IS THE MICROVASCULAR DECOMPRESSION (MVD)?

MVD is the operation for trigeminal neuralgia in which the blood vessel that is compressing the trigeminal nerve inside the brain is moved away from the nerve, under the microscope.

Details of the MVD: The MVD is brain surgery. It requires general anesthesia. A small incision is made behind the ear, about an inch and a half long. A small piece of bone is removed with a drill, about the size of a nickel. The covering layer of the brain, the "dura" is opened. The operating microscope is then brought in. Any blood vessel that is compressing the trigeminal nerve is moved off the nerve. The usual problem is a loop of an artery called the "superior cerebellar artery." If a vein is compressing the nerve, it may be cauterized and cut. The blood vessels will usually be permanently kept off the nerve by interposing between the blood vessel and the nerve a small piece of permanent material called "teflon felt." The Teflon can itself sometimes cause some brain irritation for 2-3 weeks that can cause some headaches, and can be treated with postoperative steroids. The bone defect is repaired with a small titanium metal plate, and the skin layers are closed. The operation takes about an hour and a half to perform. Patients are usually discharged from the hospital two days after surgery, but will sometimes go home the following day. Success of the surgery is generally in the range of about 90-95%. About 25% of people who initially have pain relief may experience some relapse of pain in the next 10 years. The operation has about a 0.3% risk of a serious complication.

Michael H. Brisman, M.D., F.A.C.S.
Neurosurgeon

How MVD compares with the other procedures: The other procedures for trigeminal neuralgia include "percutaneous trigeminal rhizotomy" and "stereotactic radiosurgery" (most commonly performed with a machine called a "Gamma Knife"). These procedures can relieve the pain of trigeminal neuralgia by injuring the trigeminal nerve a little bit. In the "rhizotomy," a needle is inserted into the nerve through the cheek under sedation. The needle is then used to either heat the nerve, or to deposit

alcohol onto the nerve, or to compress the nerve with a balloon. In "radiosurgery," superfocused radiation beams are aimed briefly at the nerve. Rhizotomy and Radiosurgery are less invasive than the MVD, are performed as an outpatient, and have less risk of a serious complication. These procedures are more likely to have recurrences of pain because the nerve can regrow. Also, these procedures are more likely to cause some facial numbness or abnormal feelings in the face due to over-injury of the nerve. In rare cases, the abnormal feelings can be very bothersome, though they will often improve over time.

WHO IS A GOOD CANDIDATE FOR THE MVD?

A good candidate for the MVD generally has the following features:

- The patient has trigeminal neuralgia
- The pain is not adequately relieved with medicines, or the medicines are causing bothersome side effects
- The patient is healthy
- The patient is willing to undergo a more invasive procedure to potentially cure the trigeminal neuralgia
- The patient does not have multiple sclerosis

I often look to an age cut off of about 65 for the MVD. That is, generally, for patients over 65, I will recommend the rhizotomy or radiosurgery options, but this is not absolute. It may be more instructive to look at circumstances in which I would not recommend MVD.

1) MVD IN PATIENTS WITH FACIAL PAIN WHO DO NOT HAVE TRIGEMINAL NEURALGIA

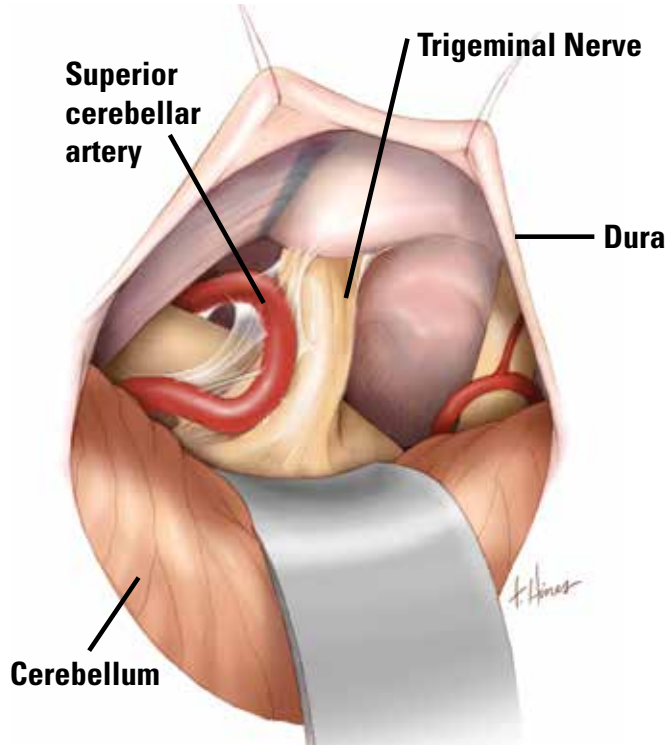
MVD can be an excellent operation for patients with facial pain due to trigeminal neuralgia. However, MVD is unlikely to benefit patients with facial pain that is not due to trigeminal neuralgia. As such, it is best avoided in these cases.

2) THE PROPHYLACTIC MVD

There are some doctors who believe that with time most patients with trigeminal neuralgia will come to requiring surgery, and that the sooner the surgery is performed, the better the results. This is not the general sentiment, and is not my opinion. If a patient has good control of their pain on medicines with minimal or no side effects, I suggest patients hold off on having any surgery.

3) MVD IN PATIENTS WITH MS

In patients with MS, the cause of the TN is assumed to be from the MS, and not from a blood vessel. This is the assumption, even if a blood vessel happens to be seen contacting the nerve on MRI, which is not an uncommon finding. Some doctors feel it may still be



Blood vessel contacting trigeminal nerve.
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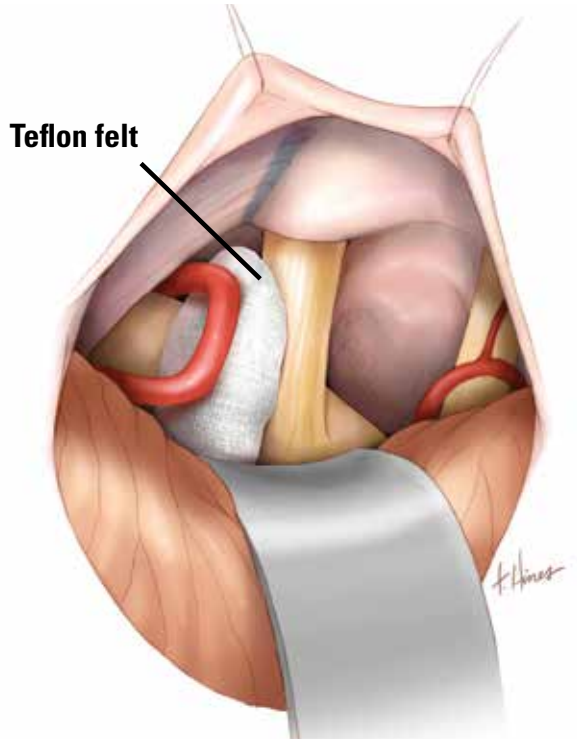

Teflon felt placed between blood vessel and trigeminal nerve.
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worth either exploring the nerve for a blood vessel or injuring the nerve under direct observation as part of an MVD operation. This is again not the general sentiment and I do not recommend MVD surgery for patients with MS. I do not believe a blood vessel is the cause of the problem in these cases, and if a nerve injuring procedure is planned, I believe these are better done through less invasive means (that is, with rhizotomy, or radiosurgery).

4) MVD IN PATIENTS WITH TUMORS

If a patient has trigeminal neuralgia and has a tumor contacting the trigeminal nerve root, it is generally assumed that the TN is caused by the tumor. Some have argued that perhaps there is still a blood vessel to blame, but I think this is much less likely. As such, if there is clearly a tumor or other mass against the trigeminal nerve root, I will not perform MVD to look for a blood vessel. In some cases, surgery to remove the mass through the same approach as an MVD can be considered. However, I have found that most tumors that cause trigeminal neuralgia (usually acoustic neuromas or meningiomas) are better treated with radiosurgery, with any remaining TN pain being treated with medicines, rhizotomy, or radiosurgery targeting the nerve itself.

5) MVD IN PATIENTS WITH A VERY LARGE BLOOD VESSEL

Most of the time, TN pain is caused by a small blood vessel, usually the superior cerebellar artery. In rare cases, it can be caused by a large blood vessel, specifically, the basilar artery. In these cases, the MVD surgery is much more complicated. As such, I generally try to avoid the MVD in these cases, and prefer the rhizotomy or radiosurgery options.

6) MVD IN PATIENTS WITH A LARGE PETROUS ENDOSTOSIS

In rare cases, patients will, coincidentally, have a large bony overhang , an extension of the petrous bone (a “petrous endostosis”) right over the trigeminal nerve root. This makes the MVD surgery much more complicated, and the bone may need to be drilled out at surgery. As such, I think if there is a large bony overhang over the trigeminal nerve root, the other procedures would be preferred.

7) MVD IN PATIENTS WITH POOR HEARING IN THE OPPOSITE EAR

MVD surgery has a very small risk of causing hearing problems in the ear on the side of the surgery. As such, if the patient has poor or absent hearing in the opposite ear, this would be a reason to consider one of the other procedures.

8) MVD IN PATIENTS WITH SERIOUS MEDICAL PROBLEMS

While MVD surgery is not that long, it is a brain operation and does require general anesthesia. As such, if a patient has serious medical problems, the less invasive procedures are preferred.

9) MVD IN ELDERLY PATIENTS

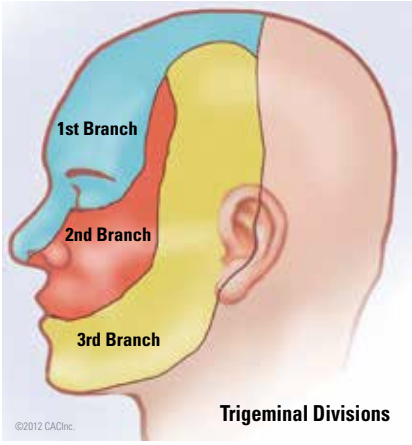
Older age is not in itself a contraindication to MVD surgery. However, as people get older, they have more medical problems and are likely to have more complications with surgery. Around age 65 is when I start to think of doing the less invasive procedures instead of the MVD, though a healthy patient who is older than 65 can still consider the MVD as an option.

10) REDO MVD

In my opinion, the MVD operation is best done only one time. The second time around, it is a much more complicated operation due to scarring and prior surgery. While there can be relief of symptoms from a repeat MVD, it is often due to nerve manipulation which could have been achieved with less risk with the rhizotomy or radiosurgery options. As such , I generally do not offer repeat MVD’s except in unusual circumstances.

SUMMARY

MVD can be an excellent choice for healthy patients with trigeminal neuralgia who have failed medical management, particularly for patients under 65 years old. MVD should not be done for patients with multiple sclerosis.



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After receiving his undergraduate degree with high honors in Biology from Harvard University, Dr. Brisman obtained his medical degree from Columbia College of Physicians and Surgeons. He then completed a General Surgery internship and Neurological Surgery Residency at The Mount Sinai Medical Center in New York City. Dr. Brisman was appointed Chief Resident in his final year of residency.

Board certified by the American Board of Neurological Surgeons and a Fellow of the American College of Surgeons, Dr. Brisman specializes in the treatment of Trigeminal Neuralgia and Brain Tumors. He serves as the Co-Medical Director of the Long Island Gamma Knife® Center at Mount Sinai South Nassau and he has served as the Chief of Neurosurgery and Co-Director of the Neuroscience Institute at NYU Winthrop Hospital. In addition, Dr. Brisman has formerly served as President of both the Nassau County Medical Society and the New York State Neurosurgical Society.

DR. BRISMAN TREATS:

- Trigeminal Neuralgia
- Brain Tumors
- Pituitary Tumors
- Acoustic Neuromas
- Meningiomas
- Brain Metastases
- Gliomas
- Hemifacial Spasm
- Glossopharyngeal Neuralgia
- Skull Tumors
- Brain AVM's

Dr. Brisman is proficient in the use of minimally invasive neurosurgical procedures including:

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- Gamma Knife®
- CyberKnife®
- Novalis Tx®
- Microvascular Decompression
- Neuro-endoscopy
- Transsphenoidal Endoscopic Surgery
- Stereotactic-guided Craniotomy
- Percutaneous Trigeminal Rhizotomy