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# Trigeminal Neuralgia

## The Symptoms

The condition you have is called trigeminal neuralgia. This causes attacks of severe, sharp, shooting pain on one side of the face, usually on the cheek or lower jaw, and less commonly in or above the eye. The pain is often produced by touching or washing the face, by cleaning the teeth, or by talking or eating. There may be 'trigger.zones' where light touch may provoke the pain.

The pain usually occurs for periods of several weeks or a few months, and then disappears and may not return for several months. Over the years the pain tends to increase in severity, and the attacks tend to last longer with shorter periods without pain.

The condition is commoner in women than in men, and tends to occur in the middle and later years of life, although it may sometimes start much earlier.

## The Trigeminal Nerve

The pain of trigeminal neuralgia comes from the trigeminal nerve, which carries feelings such as light touch, pain and temperature from the face and the inside of the mouth. The nerve also works the jaw muscles on each side. There is one trigeminal nerve for each side of the face. It runs in three main branches, the mandibular, maxillary, and ophthalmic branches, which pass backwards separately to join together into one large nerve before entering the brain. The movements of the facial muscles, used for smiling and talking are controlled by another nerve, the facial nerve. There is one facial nerve for each side, and these nerves are quite separate from the trigeminal nerve.

## The Cause

The cause of trigeminal neuralgia is usually stated in medical textbooks to be unknown. However we now know that in most patients there is an abnormality at the point where the nerve enters the brain. The abnormality is usually that one of the normal arteries or veins running to the brain compresses the nerve at that point. Very rarely there may be a benign tumour. Trigeminal neuralgia may also occur in patients with multiple sclerosis. When this is the case, multiple sclerosis has already been diagnosed and is usually obvious.

## Medical Treatment

The pain of trigeminal neuralgia does not respond to ordinary pain-killing drugs. Stronger drugs, such as Morphine and Pethidine, are more effective but the doses which have to be given and the need to continue treatment for long periods can lead to side-effects and addiction, and these drugs are therefore not an acceptable treatment.

In the early 1960's a new drug called Carbamazepine or Tegretol was introduced. This drug is not a pain-killer and how it works in trigeminal neuralgia is not known. The drug is usually started in small doses and gradually increased over a period until the pain is relieved. It is taken at regular intervals through the day and not just when there is pain. The dose is increased because the drug often causes side-effects vague, and very occasionally blood abnormalities may occur.

Carbamazepine is usually very effective in relieving trigeminal neuralgia, but the response is variable and while some patients may have relief of pain at doses of 600mg a day, others may need two or three times that amount. In general the higher the dose taken, the more likely it is that side-effects will occur, but some patients will develop side-effects at low dose before the pain is relieved.

When Carbamazepine falls to relieve pain or produces side-effects, other drugs such as Phenytoin, Neurontin, Lamotrigine or Baclofen may be tried. These are in general less effective than Carbamazepine, but may help some patients. None of these drugs actually cure the condition and many patients find that over the years they become less effective. However almost all patients will be given Carbamazepine as the first treatment, and surgery will only be advised when a drug treatment falls to relieve the pain or produces side-effects which the patient finds unacceptable.

#### Surgical treatment:

Until Carbamazepine was introduced, surgery was the main treatment for trigeminal neuralgia. In the past, nearly all surgical operations involved cutting the trigeminal nerve and a number of different methods were devised to do this. All these operations had disadvantages, and some which were used successfully for many years have been replaced by newer methods. While some surgeons may use some of the older cutting methods, the choice you have to make now is between two surgical procedures: Meckel's Cave Glycerol Injection (MCGI) and Posterior Fossa Microvascular Decompression (MVD). What is involved in these procedures and their advantages and disadvantages will now be explained.

#### Meckel's Cave Glycerol Injection (MCGI)

A needle is passed through the skin of the cheek into Meckel's Cave. This is a little pocket which lies just inside the skull and which encloses the trigeminal ganglion. The trigeminal ganglion is the main junction of the trigeminal nerve as it passes out through the skull into the face. Placing the needle is painful and therefore the procedure is performed under a very brief general anaesthetic. The position of the needle is checked with an x-ray and when it is in the right place, a small injection of a substance called glycerol is made into Meckel's Cave so that the trigeminal nerve is bathed in the glycerol. Glycerol probably works to relieve trigeminal neuralgia by producing very minor degrees of damage to the trigeminal nerve. It does this over a period of several hours and for this reason once the injection is made, the patient is sat up and has to remain sitting up for about four hours after the procedure. The anaesthetic is not continued during this time and the patient usually has a little discomfort. Usually no loss of feeling is produced on the face but occasionally this can occur and in a small minority of patients, really quite marked loss of feeling can be caused. This very occasionally may be followed by a feeling of stiffness in the face, tingling and sometimes a dull aching pain. Unfortunately if this does occur, there is no effective treatment and painkillers are not usually very helpful in relieving the dull ache. It should be stressed however, this is rare. Occasionally if loss of feeling is produced, it can also involve the eyeball and the eye may have to be protected or painless damage to the window part of the eye can result in the loss of vision but this is very rare.

About 30% of patients may get a recurrence of pain, usually appearing within six months. About half find that the pain is quite mild and intermittent or can be controlled on a much smaller dose of Tegretol than previously. For a small proportion of patients, a further procedure is necessary and these can have MCCI.

The disadvantages are that it is a major operation with a small risk of serious complications. There is also a 5% risk of producing some numbness on the face despite not cutting the nerve, or a 1% chance of causing deafness, which may be permanent, on the side of the operation. These risks are minimised by microsurgical techniques by experienced surgeons. In approximately 20% of patients, no compressing artery & vein is found in which event it is possible to divide the trigeminal nerve which would produce a permanent area of numbness in the side of the face (but no facial weakness) and has a high success rate of abolishing trigeminal neuralgia. You will be specifically asked prior to this operation for your consent for this procedure to be performed.

#### Summary:

If your trigeminal neuralgia is not responding to Tegretol or you are getting side-effects, you may need an operation. You have to choose between MCGI and MVD. MCGI is safe, and it only needs a brief general anaesthetic and brief admission to hospital. It only produces temporary relief but can certainly be repeated. Usually no loss of feeling occurs but this may happen. MVD is a major operation but can give permanent relief without sensory loss in 70% of patients. In general, if you are over 70 or unfit, or afraid of an operation, or not worried about the possibility of numbness and it's possible effects, you should choose MCGI. If you are younger and fit, and are worried about numbness and it's possible effects, you should choose MVD.

For more information please contact Nigel Mendoza at SOS Centres Weybridge on 01932 837733