Arterial surgery

Its a type of migraine surgery.

The rationale for arterial surgery for the treatment of migraine is based upon the work done by Harold Wolff and his co-workers in the 1940s, although first described by Abu al-Qasim al-Zahrawi almost a thousand years ago. Wolff first subjected the condition of migraine to rigorous scientific experimentation, and showed convincingly that in some migraine sufferers the pain originates in the distended terminal branches of the external carotid artery.

Wolff’s theory has since been confirmed many times.

There have been attempts to debunk Wolff's vascular theory, and for years it has been out of favor. Recently however, there has been renewed interest in Wolff's vascular theory of migraine led by Dr Elliot Shevel, a South African headache specialist, who has published a number of articles providing compelling evidence that Wolff was in fact correct.

Minimally Invasive Arterial Surgery

There is compelling evidence to show that migraine pain often originates in the terminal branches of the external carotid artery.

In migraine sufferers with extracranial vascular pain, and in whom digital compression of the relevant artery reduces or abolishes the pain, surgical ligation or cauterization of the relevant vessel or vessels provides permanent relief from not only the pain of migraine, but also the associated symptoms such as the aura, light sensitivity (photophobia), sensitivity to sound (phonophobia), nausea, and vomiting.

The Shevel procedure is highly successful in migraine sufferers where a definite positive diagnosis has been made (See below - How do we diagnose who will benefit from arterial surgery?).

Ligation of temporal vessels was first described by Abu al-Qasim al-Zahrawi (936 – 1013 AD), a Moorish physician.

Historically, it has been reported that Ambroise Paré (1510–1590 AD), father of modern medicine, ligated his own temporal vessels for relief of his migraines. Since then the efficacy of arterial ablation for migraine treatment by ligation, cryotherapy, or cauterization of the relevant vessels has been confirmed repeatedly.

Indication

This treatment modality is of particular value in: 1) patients who have not responded to conventional drug therapy, 2) patients who are unable to use drug therapy because they experience unacceptable side effects, or 3) patients who would prefer not to be on permanent medication. Included in this category are those with Chronic Daily Headache (headache on more than 15 days per month) and patients with what is known as “refractory headache” - headache that has not benefited from any other form of treatment. A recent study has shown that patients with chronic migraine experienced a significant reduction in pain levels and significant improvement in their quality of life following the surgery.

The most common vessels involved in the pain of migraine are the terminal branches of the external carotid artery, and in particular, the superficial temporal artery and its frontal branch, and the occipital artery. These vessels are subcutaneous (just under the skin) and the small incisions required to access them mean that the surgery is minimally invasive and can be done in a day facility. As these vessels have no connection with the arterial supply to the brain, MIAS is exceedingly safe with no unpleasant side effects. The cosmetic effect is excellent as most of the incisions are within the hairline.

How do we diagnose who will benefit from arterial surgery?

There are a number of methods used to diagnose whether arterial surgery will be of benefit.

1) There are certain scalp arteries that most commonly cause the pain of migraine. These are compressed with the fingertip during an attack. If blocking the artery by pressure relieves the pain temporarily, and the pain returns when the finger pressure is removed, then arterial surgery is indicated.

2) Some migraine sufferers get relief from tying a tight band round the head just above the eyes and ears. This closes off the arteries that are causing the pain. If a tight band provides relief, then the surgery is indicated.

3) Certain medications provide relief from migraine pain by constricting or narrowing the scalp arteries. If these medications give relief, then the arterial surgery is indicated.

These medications include the:

a) Triptans, namely sumatriptan (Imitrex, Imigran, Cinie, Illument, Migriptan), zolmitriptan (Zomig), eletriptan (Relpax), rizatriptan (Maxalt), frovatriptan (Frova, Migard, Frovamig), naratriptan (Amerge, Naramig), avitriptan (BMS-180,048), and almotriptan (Axert, Almogran).

b) Ergots. Any medications that contain ergotamine or dihydroergotamine.

4) Caffeine is a vasoconstrictor. If the migraine is relieved by caffeine, then the surgery is indicated.