Surgical treatment of chronic migrainous neuralgia

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Cluster headache seems to be the preferred term at present for a particular type of vascular headache which has also been known as ciliary neuralgia, periodic migrainous neuralgia, histamine cephalgia, Horton's headache, and petrosal neuralgia. This characteristic pain syndrome was first described by Harris,[1] in 1926, redefined and named histamine cephalgia by Horton et al.[2]

This headache syndrome occurs mainly in men. The symptoms are severe, unilateral pain, usually in the retroorbital region, and parasympathetic discharge with lacrimation, injection of the eye, and nasal stuffiness with rhinorrhea. The pain usually lasts less than 2 hours, sometimes less than 1 hour, and rarely more than 4 hours. Cluster headache, the term used by Kunkle et al,[3] may occur daily for a few weeks to 3 months or more. Symptoms then disappear only to return after a pain free interval of months to years.

Although most persons suffering from cluster headaches have periodic remissions of a few months to a few years, a certain number have chronic, typical headaches for years. Ekbom,[4] in 1947, noted that both chronic and periodic attacks could occur in the same patient. In 1962, Rooke et al[5] reported that Horton's headache occurs in both typical cluster form and chronic form. Ekbom and Olivarius,[6] in 1971, reported on 17 cases of chronic migrainous neuralgia, about 10% of the total of 167 patients with cluster headache seen in two neurological clinics in

Sweden. Ekbom used the criteria of at least two headaches a week for 1 year or more to qualify as "chronic migrainous neuralgia." The patients in the chronic group were classified into primary and secondary types, the latter group having had a typical cluster pattern before the onset of the chronic pattern.

In the series of Rooke et al,[5] 25 patients had chronic headaches and 49 had cluster headaches. There is no indication of the criteria for the chronic group, and no mention of how long the chronic group had headaches without remission. Probably the number who had had headaches for a year or longer would be much less than the 33% that they found.

In a series of 185 patients with cluster headache seen by one of the authors (RSK) in the past 6 years, 31 patients had no remissions in the previous year. Twenty-five (13%) of these patients had at least one headache a week for at least 1 year. Six others had no true remissions, but had no headaches for periods of more than 1 week during the previous year. The duration of headaches without remission ranged from 1 to 15 years; most patients had headaches for 4 to 6 years. Twelve of the 31 patients had previous remissions.

The treatment of cluster headache is essentially medical. Methysergide, ergotamine, and steroids, singly or in combination, generally control the headache. Histamine desensitization, once frequently used, may induce a remission. Spontaneous remission may occur any time, making evaluation of medical treatment uncertain. Our patients with chronic headaches received such medications as histamine, steroids, methysergide, ergotamine, tranquilizers, antidepressants, propranolol, and other analgesic preparations, without remission being induced.

Surgical treatment of the cluster or chronic headache has been reserved for those patients who do not respond to medical treatment. Surgery has been based on knowledge of demonstrated pain sensitive structures in and about the cranial cavity.[7] Perhaps the simplest method has been to resect the branches of the external carotid artery, namely the superficial temporal and the middle meningeal arteries. In isolated cases this procedure may give surprisingly long periods of remission.

Operative procedures on the trigeminal nerve, ganglion, or root have been utilized in the past for the chronic type of headache. The procedures included alcohol injections, peripheral section, partial rhizotomy and, more recently, radiofrequency lesions of the sensory root. One of us (DFD) had the opportunity as a house officer to look after a patient with chronic migrainous neuralgia on whom Taarnhoj performed a trigeminal decompression with good initial results.

Gardner et al,[8] in 1947, reported the results of resection of the greater superficial petrosal nerve in patients with unilateral headache, including a group with so-called petrosal neuralgia. Subsequently, Gardner became somewhat discouraged with the results and then used the procedure only rarely.

Sachs[9] directed his surgical attack more centrally when he divided the nervus intermedius in two patients who suffered from intractable head pain of the so-called cluster variety. Although we have used this approach

on one patient, we do not advocate it, because the operation seems to involve considerably more risk of complications, such as deafness, facial palsy, and loss of taste.

One patient's condition led us to the concept of combining a neurolysis of the trigeminal nerve with section of the sixth spinal nerve. This patient had a combination of symptoms which made it almost impossible, even for the experienced observer, to determine whether he was suffering from trigeminal neuralgia or cluster headache or both. The pain, present for 15 years since age 44, had failed to respond to a variety of treatments, except for temporary relief following the use of Carbamazepine. We therefore elected to perform a temporal craniotomy to section the greater superficial petrosal nerve, as Gardner et al[8] had advocated. In addition, a neurolysis of the trigeminal sensory root was done for the symptoms of trigeminal neuralgia. The patient has remained free of tic pain and has had only mild vascular headaches without typical migrainous neuralgia attacks since this operation.

Since 1970 we have performed a similar "combined procedure," i.e., section of the greater superficial petrosal nerve and neurolysis of the sensory root of the trigeminal nerve in 12 patients. All of these patients were men; 11 were white and 1 was black. The mean age of onset was 31 years. The location of the pain was about evenly divided between the right and left side. One patient had bilateral procedures done 6 months apart because similar symptoms developed on the opposite side 3 months after the first operation.

Seven of the patients were heavy smokers. Only one patient noted precipitation of the attack after drinking alcoholic beverages. Half of the patients usually experienced the headaches at night and usually were awakened. The other patients had the attacks at random. Eight patients were tense, anxious individuals. One patient had the onset of headaches when on active Army duty in Vietnam. Another underwent unsuccessful psychiatric treatment in an attempt to get relief. Three patients had diastolic blood pressures about 100 mm Hg. However, as a group the 12 patients were otherwise healthy, middle-aged men.

There was no surgical mortality. Four patients experienced postoperative facial weakness that cleared completely. There was one wound infection which responded well to treatment. All of the patients except three had immediate relief from the headaches. These three had no improvement postoperatively and continued to have similar headaches, although without manifestation of parasympathetic discharge. Three other patients were initially free of headaches and then later had recurrence, again without lacrimation, conjunctival injection or other symptoms of similar headaches. The remaining six patients have continued to be free of headaches and satisfied with the result.

Summary

Chronic migrainous neuralgia is a variant of Horton's headache in which there is little or no periodicity. This type occurs in about 10% to 13% of all patients with the condition and is often resistant to medical treatment. Seven of 12 patients who had section

of the greater superficial petrosal nerve and neurolysis of the trigeminal sensory root were relieved of the headache.

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