THE SURGICAL TREATMENT OF HEMIFACIAL SPASM*

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HEMIFACIAL spasm, or organic spasmodic facial tic, produces paroxysmal contraction of the facial muscles on one side of the face, most noticeable around the eye, which accounts for the term "blepharospasm" being applied to the less severe syndromes. Except for the fact that a motor nerve is involved, many of the features of the affliction suggest that it is related to trigeminal neuralgia. The average age of the patients is about 45 years, and the paroxysms seem to be precipitated by eating, talking, voluntary facial movements, psychic tension, and by strong sunlight. The twitching consists of rapid multiple contractions of varying numbers of muscle fibres without any constant distribution and is most noticeable in the closure of the eye. The rest of the face, and even the platysma, is involved to some extent in most cases. The rapidity and location of the spasm suggest fibrillation rather than any coordinated or purposeful movement. It occurs during sleep.

Although psychic factors seem to increase or precipitate the paroxysms at times, there should be no difficulty in differentiating the condition from functional tic, which can be voluntarily imitated. "Paraspasm faciale," or median facial spasm, produces a slower, bilaterally symmetrical contraction and the tongue and pharynx are also involved. This condition is obviously supranuclear in origin and may be a postencephalitic or post-traumatic sequela. Great disability is produced, since the patient may close his eyes while driving a car or be placed in a similarly dangerous or embarrassing position. The methods of treatment to be outlined for hemifacial spasm are almost equally effective in this condition.

The cause of hemifacial spasm is unknown, but the history of direct trauma to the facial nerve was obtained in several cases. The condition has been observed following Bell's palsy. The lesion, according to the best evidence, lies in the nucleus of the seventh nerve. Of 663 patients examined at the Mayo Clinic for abnormal facial movements, 106 had hemifacial spasm.²

Because there is no pain, there has been a tendency to minimize the suffering of these people. Women, particularly, become conscious of their appearance and dread the paroxysms precipitated by psychic factors; some have complained that the spasm is often interpreted as a wink. The interference with reading, driving a car, and types of work that require accurate eyesight is a more practical disadvantage caused by the affliction.

Psychiatric and medical treatment are ineffective, although many methods have been recommended. The number alone is sufficient to indicate

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that none was successful. Ehni and Woltman$^2$ reported that only 5 patients appeared to be cured without surgery and 3 of these had probably only remissions. They felt that spinofacial anastomosis produced a satisfactory result in 3 cases. Coleman$^1$ divided and resutured the upper major division of the facial nerve just anterior to the ear. He also reported the results of hypoglossofacial anastomosis. With one exception, all methods of surgery relieved spasm only at the price of paralysis, loss of facial expression, or inevitable recurrence. Anastomosis sacrifices facial expression. German$^3$ re-

![Fig. 1 (left). Surface anatomy of the facial nerve.](image1)

![Fig. 2 (right). Technique of alcohol block of divisions of facial nerve to obtain weakening rather than paralysis.](image2)

ported the treatment in 5 cases by partial section of the several divisions of the facial nerve anterior to the parotid gland. Alcohol injection has never been very successful because injection at the stylomastoid foramen caused a complete, though not permanent, paralysis and injections of smaller divisions were too inaccurate to produce any uniform success. Injection cannot result in permanent relief.

The persistence of these people in their search for help and their gratitude when even minor improvements occurred led to an improvement in alcohol injection. Their willingness to submit to repeated injections made us search for a surgical technique that has fewer disadvantages than previous methods. A modification of German's method was used for surgery on the nerve. The key to both methods is the ability to locate the nerve and nerve branches by electrical current and to gauge the amount of weakness produced in the various muscle groups so that no noticeable paralysis is produced. In both methods the orbicularis oculi is usually left with sufficient strength to close the eye, yet so weak that twitchings are absent or not noticeable and the