The Role of the Nervus Intermedius in Facial Neuralgia*

Report of Four Cases with Observations on the Pathways for Taste, Lacrimation, and Pain in the Face

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There is a kind of facial pain that is not tic douloureux which frequently confounds and discourages the physician. Usually this pain is unilateral, comes on at night within an hour or so after sleep, affects mostly males, lasts from a half hour to several hours, and may be associated with ipsilateral lacrimation and nasal engorgement, as first described by Harris in 1926. Such a characteristic clinical picture may represent a separate syndrome, or simply “a particular variety of headache.” Many of these patients are relieved by ergotamine drugs given prophylactically as described by Symonds and others are helped by methysergide. Sometimes the attacks are so frequent and refractory to all medical treatment that surgical treatment is justified.

The many authors who have discussed this subject have given various names to the syndrome. These include atypical facial neuralgia (an all-inclusive term), ciliary or periodic migrainous neuralgia, Sluder’s neuralgia, sphenopalatine neuralgia, Horton’s erythromelalgia of the head or histaminic cephalgia, cluster headaches, or greater superficial petrosal neuralgia. This varied nomenclature surely indicates the confusion and ignorance regarding the cause of this condition.

Our report concerns four patients, two of whom have been followed for more than 10 years after sectioning of the nervus intermedius. These have been the only cases we have subjected to this operation and appear to represent a syndrome of neuralgia of the nervus intermedius that was relieved by sectioning this much neglected nerve. The predominantly parasympathetic nature of the attacks probably accounts for the variation in symptoms from patient to patient, the diffuse-ness of the pain as compared to true trigeminal neuralgia, the difficulty of diagnosis, and the tendency to classify these patients as neurotic.

Case Reports

Case 1. This 43-year-old woman was first seen in 1951 because of right-sided face and head pain of 7 years’ duration. She was emotionally unstable and had suffered from headaches for years. She obtained no relief from ergot derivatives and became addicted to narcotics, having taken as much as 1200 mg of Demerol a day. The pain was not like tic douloureux. It started in the right maxillary area, spread to the entire right face and ear, with unilateral lacrimation and nasal discharge. It lasted from a few hours to as long as 24 hours and occurred during the day or night. She was free from pain for a month or so, and then had “clusters” of severe attacks, each lasting 4 to 8 hours. She had numerous hospital admissions for these attacks, but attempts to relieve her pain and drug addiction were unsuccessful. In 1952, the right facial pain had become associated with a severe lancinating pain in the right ear.

Neurological examination and x-rays of the skull were normal.

Operation. In 1952, postulating that the ear and facial pain might be due to a tic douloureux-like phenomenon in the nervus intermedius, we explored the 7th, 8th, and 9th cranial nerves and nervus intermedius under local anesthesia. All of these nerves appeared normal. They were separately stimulated by touching with a forceps. Stimulation of the nervus intermedius reproduced the pain in the ear and right face; it was therefore sectioned. During this maneuver, as the 7th nerve was being retracted while cutting the nervus intermedius, the patient inadvertently moved because of pain and, to our dismay, the 7th

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nerve was torn. In the course of ascertaining that the hemostasis was complete, when the remaining 8th cranial nerve was touched, she again had ear and face pain. We were so surprised by this finding that the maneuver was repeated a number of times to make sure that she was not perceiving pain by some other means, such as the stretching of blood vessels, dural stimulation, or retraction, but she insisted that it was only touching the 8th nerve which caused the pain. After much thought and discussion with the patient, and with her understanding, this nerve also was sectioned, giving her a permanent unilateral deafness. After this, the pain could not be produced.

A facial-hypoglossal anastomosis was successfully done 1 week later with good recovery of facial motion in 6 months. Her sense of taste was lost on the anterior two-thirds of the tongue on the right.

Postoperative course. Since operation 15 years ago, there has been no pain in the ear or face. Drug withdrawal, which had not been possible before, was accomplished.

Case 2. This 56-year-old man was admitted to the neurosurgical service in 1952 because of attacks of severe left-sided facial pain once or twice each night for 16 years. Histamine, administered during the course of a study for gastrointestinal complaints in 1948, had produced a typical attack. The attacks usually occurred at night, awakened him soon after falling asleep, and lasted 1/2 to 4 hours. The pain was localized to the left cheek and was associated with ipsilateral lacrimation and nasal congestion and a tic-like stabbing pain on the left side of the forehead. There were occasional remissions for a few weeks or months. He had been treated by means of stellate blocks, sphenopalatine blocks, ergotamine drugs, and psychotherapy, to no avail.

A left supraorbital neurectomy eliminated the tic-like pain but the patient still had the parasympathetic attacks of pain involving the left maxillary area as well as the anesthetic area in the forehead. In June, 1952, a left greater superficial petrosal neurectomy was carried out; the pain did not disappear immediately, but there was complete relief after several weeks. When the pain returned in 3 years (1955), the left greater superficial petrosal neurectomy was repeated, at his insistence. Again after some delay, the pain disappeared. He then remained pain-free for 2 years, when the attacks of lacrimation and pain recurred.

Operation. This time (1957), in an effort to obtain more permanent relief and a more proximal section of the parasympathetic fibers entering the greater superficial petrosal nerve, we sectioned a normal-looking left nervus intermedius in the posterior fossa.

Postoperative course. The attacks again disappeared, and did not recur. It was most curious that the patient did not have the expected loss of taste or loss of steady secretion of tears by the Schirmer test. The 7th nerve was normal, but there was a permanent unilateral nerve deafness, apparently due to retraction of the 8th nerve in the course of exposing the nervus intermedius. He also had an unaccountable postoperative total loss of sense of smell. Lacrimation remains normal, and at age 75, the patient is delighted with his freedom from pain for the past 10 years, after the preceding 16 years of misery.

Case 3. For 2 1/2 years, this 65-year-old man had experienced attacks of deep aching pain in the left side of his face and upper and lower gums aggravated by cold drinks. Each attack lasted 3/4 to 2 hours. He had several attacks each week, sometimes several a day, and had never been more than 5 weeks without pain. He was bothered by an upper denture which he had worn for 30 years. The pain, which built up and subsided gradually, radiated to the mastoid and temporal area, the eye, and the angle of the jaw. There was no associated lacrimation, nasal congestion, or pain in the ear. There was no trigger area or tic-like quality. One Cafergot each night at bedtime gave some relief, but the attacks really were resistant to all forms of therapy.

Neurological examination was negative except for a mild, left, conductive type of hearing loss of long duration. Skull films including Stenvers views were negative. The temporomandibular joints both showed some degenerative disease.

Operation. Nervus intermedius section was advised but with some reservation because this was not a true case of "cluster" headache. On July 7, 1966, the left nervus intermedius was sectioned under general anesthesia.

Postoperative course. The patient was immediately relieved of his pain and went home on the fourth postoperative day. Postoperatively, taste was normal. A quantitative