GENICULATE NEURALGIA

REPORT OF A CASE RELIEVED BY INTRACRANIAL SECTION OF THE NERVE OF WRISBERG*  

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Our teacher and friend, whom we are gathered here today to honor, has long been distinguished for his interest in the studies of the motor division of the 7th cranial nerve. It seems, therefore, particularly appropriate that your speaker, as one of his former students, should present a case involving the sensory division of this nerve.

It is my belief that the patient in this case has been correctly diagnosed as having geniculate neuralgia and that she has been relieved of her pain through intracranial section of the pars intermedia of Wrisberg. According to medical writing, this is one of the rarest of neurosurgical procedures. Because of the complexity of the sensory supply to the region of the ear and the rarity of the syndrome here presented, it might be of interest to review briefly some of the high lights in the evolution and development of our present knowledge of the functions of the 7th nerve.

Its anatomy as we know it today was described by Eustacius early in the 17th century. Sir Charles Bell was the first to bring this nerve into clinical prominence by his studies on facial palsy.

For a long time the 7th nerve was regarded as purely motor in function. From time to time an occasional sensory symptom has attracted attention, but such sensory manifestations have been referred to as produced by one of the many neighboring systems that converge and anastomose in this region.

In 1876 Webber carefully described the pain phenomena observed in 6 cases of facial palsy. The pain was located in the ear and mastoid regions and in some cases, radiated to the face and occiput. He thought the pain was mediated through the trigeminal and the auricular branch of the vagus. Cushing observed a crude sort of sensation persisting in the anterior two-thirds of the tongue, after posterior root section of the gasserian ganglion, in spite of anesthesia to touch, pain and temperature; later in one of his cases a facial palsy supervened and this crude sensation then disappeared, indicating general sensory fibres in the chorda of facial origin.

Spiller observed that light touch, pain and temperature sensations were lost in the trigeminal area after gasserian ganglion extirpation, but that deep pressure sensations were retained.

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The investigations of His, Retzius, Sapolini and others have conclusively shown that the facial nerve has a sensory ganglion, the geniculate; a sensory root, the pars intermedia of Wrisberg; as well as sensory fibres coursing in the chorda tympani, the great superficial petrosal nerve and the trunk proper of the 7th.

Ramsey Hunt made his first report in 1907 on herpetic inflammations of the geniculate ganglion and for the next 30 years elaborated on the subject through numerous contributions, which are responsible for our present knowledge of this highly complex system. Much of this knowledge was acquired through his study of herpes of the geniculate ganglion and he was thus able to map out the cutaneous zone of innervation of the geniculate ganglion into what is known as the "zoster zone," which includes the concha, tragus, antitragus, lobule and anthelix, the external auditory canal and a portion of the tympanum.

The pain in this condition is localized chiefly in the depths of the ear and in certain areas of the external ear, within the zoster zone. The pain is often lancinating and very severe and extends into the mastoid and occipital regions and into the face. These observations led to the recognition of the geniculate ganglion syndrome and established the fact that the facial nerve has a definite sensory system. Like the other mixed cranial nerves, the geniculate ganglion is composed of unipolar cells, the central processes of which terminate in the fasciculus solitarius of the medulla, with the central processes of the 9th and 10th, and constitute its sensory root. Hunt then summarizes his views on the geniculate system as follows:

1. Sensory filaments to the internal ear and branches to the zoster zone of the auricle, which bring it into close relation with the auditory mechanism. These branches are responsible for the otalgia.

2. The sensory system of the great superficial petrosal nerve, which brings the geniculate ganglion into close relation with the orbital, nasal and palatal branches of the sphenopalatine ganglion and the maxillary division of the fifth nerve. These branches are responsible for the deep prosopalgia.

3. A viscerosensory system subserving deep sensibility of the face, which is the seat of painful pressure sensations in geniculate prosopalgia.

These various branches of the sensory facial system have numerous anastomotic connections with the trigeminal, glossopharyngeal and vagal systems, as well as with the branches of the cervical plexus.

Not only are there these superficial connections, but the central sensory nucleus of the facial nerve stands in close anatomic relationship with those of the other mixed cranial nerves.

The central and peripheral associations with neighboring sensory systems account for the wide diffusion of pain in severe geniculate neuralgia.

It should be added that the facial nerve is especially rich in sympathetic and parasympathetic fibers, which explains the associated vasomotor and secretory manifestations.

Neuralgia facialis vera is characterized by pain in the distribution of the various divisions of the geniculate system. It may manifest itself as earache and as deep facial neuralgia. Geniculate prosopalgia is characterized by deep-seated pain in