“GANGLIOLYSIS” FOR THE SURGICAL TREATMENT
OF TRIGEMINAL NEURALGIA

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In 1952 Taarnhøj\(^1\) described a method of decompression of the trigeminal nerve for the treatment of tic douloureux. In this procedure the dural sheath enclosing the trigeminal nerve is divided without sectioning the nerve. The dural incision is made over the most posterior part of the ganglion, and follows the course of the trigeminal root until the superior margin of the petrous bone has been reached and the superior petrosal sinus has been divided. It is then usually extended to the tentorium. The operation leaves no sensory deficit.

In Taarnhøj’s opinion neuralgia is caused by narrowing of the porus trigemini and chronic pressure, especially in older people. All of his 10 patients were free from attacks from 1 to 8 months after operation. His findings were confirmed by Kautzky\(^2\) who had similar results in 16 cases. A purely mechanical explanation of the results of Taarnhøj’s operation, however, would seem unsatisfactory. There is no reason to assume that anatomical narrowing takes place in the trigeminal canal or in other foramina through which cranial nerves pass. Furthermore, trigeminal neuralgia occurs in attacks while a compression would be more likely to lead to continuous pain rather than to paroxysms which can be precipitated by a great variety of external factors, such as variations in temperature as well as by eating, shaving, talking, or brushing of the teeth.

In an unpublished case at Foerster’s clinic in Breslau, a Frazier operation for tic douloureux was started but could not be finished because of severe hemorrhage necessitating tamponade and closure before the root could be sectioned. This patient recovered and was surprisingly free of attacks of pain for several years without sensory deficit. With this case in mind an attempt was made to modify Taarnhøj’s method by simply exposing the gasserian ganglion without splitting the dura mater or sectioning the nerve.

TECHNIC

The procedure is started, as in Frazier’s operation, by an extradural approach after occluding the middle meningeal artery in the foramen spinosum and by blunt dissection of the dura mater from the 3rd branch. After the ganglion has been visualized the 2nd branch is similarly exposed until finally the root itself can be seen (Fig. 1). At this stage the coverings of the cavum Meckeli still overlie the ganglion. This tenuous membrane is occasionally torn by manipulation of the dura mater but usually it is necessary to remove it after an incision with a small hook knife. In re-
moving the dura mater one should be extremely careful, as traumatization of the ganglion as well as of the pars triangularis of the root may lead to a sensory deficit.

**Fig. 1.** Exposure of the gasserian ganglion.

**CLINICAL MATERIAL AND RESULTS**

The gasserian ganglion was exposed in 18 cases during the past 13 months, and in most instances the cavum Meckelii was opened. Of the 18 patients, 16 had typical tic douloureux, 1 sustained trigeminal pain following an inflammatory process in the maxillary sinus, and 1 presented a mixture of continuous pain with additional paroxysmal attacks of pain superimposed. In all cases of uncomplicated tic douloureux, pain was abolished for up to 13 months. In 1 of the earlier cases in which the cavum Meckelii had not been opened, some paresthesias occasionally recurred in the distribution of the 2nd and 3rd branches. A relapse of pain occurred in the patient in whom tic douloureux was complicated by continuous pain, and in this case also the cavum Meckelii had not been opened. Therefore in subsequent cases the opening of the cavum was considered to be the most important part of the procedure. In 2 additional cases there was moderate hypesthesia postoperatively in the distribution of the 2nd and 3rd branches, probably as the result of traumatization of the ganglion.

**DISCUSSION**

An attempt should be made to discuss the etiology of the paroxysmal attacks of pain in tic douloureux. Several older authors believed that the attacks were caused by a vasomotor disorder, especially angiospasms (Quincke, Kulenkampff, Haertel, Hughes). Others like Olivecrona, and Dandy were inclined to explain them on a mechanical basis, such as irritation of the root by vascular malformations in the posterior fossa. In some cases of verified cerebellopontine-angle tumors tic douloureux is a symptom. Lewey regarded trigeminal neuralgia as a partial thalamic syndrome. Schaltenbrand