

ill-repute in which the ganglion operation at present stands. In the first place the considerable attendant mortality, ordinarily placed at 20 per cent., and secondly, the impression which is prevalent regarding the recurrence of the neuralgia, an impression which has been occasioned by the reports of cases in which incomplete operations have been performed with a subsequent return of pain.

One of the great difficulties of the operation is the severity of the hemorrhage, which obscures the field of operation. The objective point of the operation is necessarily located at the bottom of a close-walled operative well whose depth varies from 5 to 8 centimetres, and blood staining, even in slight amount, will obscure the ganglion, and be incompatible with its complete removal.

On account of the troublesome hemorrhage, Dr. Cushing proposes a new method of removing the ganglion, which differs in detail only from the Hartley-Krause method. The trephine opening through the temporary fossa is made so low that the manipulations may be conducted underneath the middle meningeal vessel.

As far as medical treatment is concerned, the greatest amount of success seems to have been obtained by the administration of strychnia in heroic doses, as suggested by Dr. Dana, of New York. Keen also reports the recovery of a few cases after the administration of large doses of strychnia. He gives 1/20 gr. three times a day, and gradually increases this until the patient is taking 7/20 gr. in a day, and this treatment is kept up for a month or even longer.

As to the pathogenesis of tic douloureux, Dr. Dana looks upon it as a degenerative neuralgia, occurring at, or after the middle period of life, and due to a degenerative change, amounting to a neuritis, in the nerve and its ganglion, and probably in the blood vessels which supply it.

Dr. Lewellys F. Barker, after the study of a number of cases, says:—

1. If a ganglion be entirely removed, there need be no fear of return of pain from irritation of the stump of the trigeminal nerve, left behind, for all the axones of this stump will degenerate to their terminations in the pons and medulla, down as far as the cervical cord. The end of a nerve in an amputation stump is not analogous.

2. Complete removal of the Gasserian ganglion utterly abolishes the possibility of calling forth sensations in consciousness by applying stimuli to the domain of peripheral distribution of the nerves connected with the ganglion of the corresponding side.

3. If pain persists after the complete removal of the ganglion, a lesion of the central neurons of the trigeminal afferent path is indicated.