

there had been a neurectomy of the superior maxillary division of the fifth nerve, about six weeks previous to the removal of the ganglion.

The chief changes found in the ganglion are the "ascending degeneration changes" found in cells of a ganglion after division of a sensory nerve. On division of a nerve there is a peripheral or Wallerian degeneration of nerve fibres, but there are also ascending degenerative changes. This degeneration affects chiefly the cells of origin of the fibres of the nerve. It has been found that while the cells of origin of a motor nerve suffer changes, they ultimately recover, but the cells of origin of a sensory nerve ultimately degenerate. This has been observed by all who have experimented on animals—Nissl, Tugare, Van Gehuchten, Fleming.

In this Gasserian ganglion there are very few cells remaining, but instead, the capsular cells are greatly increased. The ganglion cells present have a somewhat swollen appearance, and in only a very few can a distinct nucleus be observed. There is, in the cytoplasm, very little of the chromatophile substance (Nissl granules) which is so characteristic of normal nerve cells.

Beyond these changes the only one observed was an increase of thickness in the walls of the blood vessels. Owing to lack of time, the nerves themselves have not yet been examined.

Yours truly,

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Dr. Keen strongly advises the performance of a peripheral neurectomy before removal of the Gasserian ganglion, on account of the mortality of the latter operation, even though the former only gives a temporary relief. He has even performed a second peripheral operation after a few years, and found that the nerve had been reproduced. Sensation is not always lost after resection of a branch of the fifth nerve. Many investigators believe that the facial nerve contains sensory fibres. It is curious that the right tri-facial nerve is more commonly attacked than the left. In 135 cases collected by Dr. Spiller, the affected side is given in 72. In 58 the right nerve was diseased, and in 14 the left.

Dr. Cushing states that in all true cases of tic douloureux, in which all three divisions of the trigeminal nerve are affected, surgical measures alone can with any degree of certainty be depended on to afford relief, and that the removal of the Gasserian ganglion must ultimately be contemplated, and he regrets that this is looked upon as so hazardous as to be generally not recommended.

He thinks that two factors may be held responsible for the