NERVE BLOCKING FOR LOCAL ANESTHESIA IN
TONSILLECTOMY.

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Anyone familiar with surgical work under local anesthesia knows that more complete relief from pain can be obtained by blocking the nerve than by attempting to inject its terminal filaments. The posterior and external palatine nerves, which supply feeling to the anterior surface of the tonsil, can be easily blocked at their point of emergence, immediately behind the posterior palatine foramen. This point is just internal to the third molar tooth. The glossopharyngeal nerve also sends branches to the tonsil. The relation of this nerve to the tonsil was not shown clearly enough in any book on anatomy with which we were familiar to give us a definite method of blocking it. Prof. Knower of the University of Cincinnati kindly offered his assistance in determining this relation. The mouth of the cadaver was opened and the tongue depressed until the tonsils were clearly seen. The mouth was packed to keep the parts in this position, and the body hardened. An anteroposterior section was then made at the level of the lower third of the tonsil.

This special section shows that just outside the constrictors of the pharynx is a space of loose connective tissue which is continuous from the pharyngeal wall, outward and backward, surrounding the carotid arteries, hypoglossus, superior sympathetic ganglion and plexus, vagus and glossopharyngeal nerves. In this loose areolar tissue is found a rich vascular plexus with some large veins.

We can infiltrate this connective tissue space and block the glossopharyngeal nerve by one injection made external to the anterior pillar of the fauces, at the junction of the upper and middle thirds of the tonsil. At this point there is only mucous membrane to be penetrated by the needle. A large amount of a one per cent procain solution with epinephrin added should

be injected. We have used four drams of the one per cent solution for anesthesia. Ten minims is injected on each side of the palate and two drams in the connective tissue for each tonsil. Injecting here, there is no danger of thrusting the needle through a deep tonsillar crypt, carrying infection into the neck tissues with production of a cervical abscess. A guarded needle with one-half inch bare can be used. A preliminary surface application of a twenty per cent cocain solution makes the injection in the palate and pharynx painless.

It will be noticed that the vagus nerve is also in this connective tissue space. A number of experiments were performed in the laboratory of the University of Cincinnati by Dr. Tucker to learn whether or not the blocking of this nerve would have any harmful effect. Direct infiltration of the nerve with the solution produced no change in the heart rate or in respiration. The effect of electrical stimulation above and below the point of local anesthesia was the same as stimulating the cut ends of the nerves. There are some large veins in this connective tissue space. The direct injection of the solution, if a vein should be penetrated by the needle, was shown to be without danger by a series of experiments on dogs. Six decigrams of procain injected intravenously did not kill the dogs.

I have used this method in approximately two hundred tonsillectomies.

One very important point noticed is the small loss of blood. The injection of a large amount of fluid containing epinephrin into the connective tissue space stretches and contracts the vessels supplying the tonsil. The tonsil will be almost white when anesthesia is complete. When the stretched vessel is cut there is an immediate contraction and blocking of the vessel. It is not unusual to do a double tonsillectomy without loss of more than a dram of blood. Some cases bleed, but the amount of hemorrhage is not one-tenth as great as that under ether anesthesia.

The completeness of the anesthesia secured by blocking the posterior palatine nerve in the palate and the glossopharyngeal before it reaches the tonsil is hard to determine accurately because of the different mental attitudes of patients toward the operation.

One patient operated on fainted when the cocain solution was brushed over the palate before the injection was given. When she was revived the procain was injected and the tonsil removed with the Beck snare. She said the operation was painless. Many patients have made similar statements. In most cases, though, there is some pain when the snare is used as the final step in the operation. In cases where the Beck snare cannot be used the dissection is painless, but the traction on the tonsil when the snare is applied is painful. As this part of the operation takes only a half minute for each tonsil, the amount of suffering is not great and certainly less than that endured after ether anesthesia.

The anesthesia is much better than that we have obtained by injecting the tonsillar plexus. In patients where we have obtained anesthesia of the tongue, tonsillectomy is painless. Sometimes the removal of one tonsil is painless, while pain is felt in removing the other, showing that our technic is not quite perfect.

RECAPITULATION.

Both nerves supplying sensation to the tonsil region can be blocked by injection of procain solution.

Complete anesthesia is possible by this method.

The amount of blood lost is much less than with general anesthesia or where injection of the pillars is used.

The method is as free from danger as any surgical procedure can possibly be.

Fig. 1. Showing anatomic relations of tonsils.

Fig. 2. Showing position of injections.