A METHOD OF PREPARATION OF NERVE ENDS FOR SUTURING

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The repair of divided nerves continues to be one of the most difficult problems in extremity surgery. The time and method of fixing them are a source of controversy, and a final solution has yet to be achieved. There is little disagreement that the meticulous preparation of the nerve ends prior to coaptation is of prime importance. To ensure the proper enclosure of all fibers within the neural sheath at the time of repair, the ends to be approximated must be cut precisely at right angles to the neuraxons.

The methods in frequent use for preparing the nerve endings are these: to trim the nerve with a sharp pair of scissors, to section it with a razor edge against a tongue blade or gloved finger, or to use a mitre box for holding the stump while sufficient divisions are made. Several types of neurotomes have also been introduced to achieve an accurate preparation. We are presenting here a technique which we have used with gratifying results. The instruments are easily available and consist of a small curved Crile or angulated mosquito clamp; (to improve our method a light right angle mosquito clamp has been designed) an unused razor blade, and a piece of light paper which can usually be obtained in the operating room. Paper too porous or heavy should not be used. The paper is cut into a short strip approximately 2 inches in length and \( \frac{3}{8} \) inch in width depending somewhat on the caliber of the nerve. The nerve ends are carefully dissected free from their surrounding tissue, and orientation markers are placed on the sheath for proper subsequent alignment. The paper strip is then carefully wrapped about the stump in the area selected for division. By simple palpation an approximate level of normal nerve tissue with scar can be determined. The paper ends are held while the clamp is gently but firmly maneuvered over the leaves, and its jaws are clasped as close as possible against the sheath. This encloses the nerve within a paper cylinder. The instrument is then carefully cradled in the hand, and the razor is used to cut through the paper and the nerve. Several sections can be made, and if necessary reapplication of a paper strip can be used. There is a small portion of the neural sheath against the clamp that is occasionally not cut by this technique but is easily divided with scissors.

In special instances in which tension is necessary to bring the two prepared bundles together, it is possible to have sufficient relaxation at the suture line by holding the respective trunks with two right angle clamps and paper. The two clamps are then easily joined, back to back, with a small C type clamp or held by an assistant until the suturing is completed.

This manner of nerve end preparation allows the axons to be held in a cylindrical form without being crushed or rolled under the pressure of the razor blade. It also alleviates the awkwardness in handling the bulbous ends and

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Fig. 1. A. The application of a paper strip with a right angle mosquito clamp. The clamp is then advanced to make a snug fit.

Fig. 1. B. The clamp and paper in place, and a section being made.

Fig. 1. C. The section completed.

Fig. 1. D. The method used to maintain relaxation of the suture line during coaptation. A Foley catheter clamp is pictured here holding the two units together.
allows the surgeon to prepare as near as possible a satisfactory nerve terminus for suturing.

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REFERENCES

CORRECTION
An error has been noticed in the article by James W. Smith, M.D., entitled "Microsurgery of Peripheral Nerves," published in Plastic and Reconstructive Surgery, Volume 33, page 317, April 1964. The following passage should be substituted for lines 14 to 17 on page 318: "If a nerve degenerates distal to the site of an injury but its connective tissue framework remains intact, greater numbers of regenerating axones grow down their proper pathways and recovery is more rapid and complete. When, however, this framework is disrupted or distorted, recovery is slower and far less satisfactory because the continuity of some axones is never restored."