Comparison of fibrin glue, bioresorbable tubing and sutures in peripheral nerve repair.

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Abstract:

Regeneration of severed rat tibial nerves was functionally and morphologically compared with repair following the use of 3 anastomosis techniques: collagen guide tubes, fibrin glue and conventional microsurgical sutures. In addition, one tibial nerve was crushed in some rats. At ten weekly intervals, functional recovery, assessed by sciatic nerve stimulated evoked contraction of the flexor digitorum muscle, was quicker and more complete following nerve crush than following the anastomosis techniques which were not different from each other. Ten weeks following the surgery, the retrograde transport morphological technique indicated that the anastomosis techniques were not different from each other. The number of labeled tibial motoneurons (tube and suture groups) was significantly less than the crush group, but the glue group was intermediate. Thus, although having less extensive recovery following crush, the quicker and easier techniques of nerve repair, i.e., collagen tubes or fibrin glue, produced comparable anatomical and functional recovery as the more time-consuming, technically demanding microsurgical repair with fine sutures.