

Facial nerve repair with epineural suture and anastomosis using fibrin adhesive: an experimental study in the rabbit.

Authors: Junior ED, Valmaseda-Castellon E, Gay-Escoda C

Publication Date: 2004

Abstract:

PURPOSE: An experimental model in rabbits was used to compare epineural suturing and fibrin adhesive anastomosis for facial nerve repair.

MATERIALS AND METHODS: Thirty-four facial nerves from 17 rabbits were isolated, transected, and anastomosed, with an evaluation of their electrophysiologic and histologic parameters. The rabbits were divided into 2 groups of 5 and 12 animals, respectively: a 10-mm defect was made in the right facial nerve in the first group, with transection and epineural suturing of the left nerve, followed by death after 120 days. This was the control-versus-epineural suture group. In the second group, the right facial nerve was transected and subjected to epineural suturing, while the left nerve was transected and anastomosed using fibrin adhesive. The rabbits were killed 15, 30, 60, and 120 days after the microsurgical procedure. This was the epineural suture-versus-fibrin adhesive group.

RESULTS: From day 30, the number of regenerated axons increased with time in the epineural suture and fibrin adhesive anastomotic specimens. Epineural suture showed more regenerated axons and a faster linear rate of regeneration than anastomosis with fibrin adhesive. The reduction in conduction velocity decreased significantly with time with the same linear pattern for both suture techniques.

CONCLUSIONS: Epineural suturing offered superior performance versus anastomosis with fibrin

adhesive in terms of axon count but not in decrease in conduction velocity.