Facial nerve repair: Fibrin Adhesive Coaptation versus Epineurial Suture Repair in a Rodent Model.

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Abstract:

Objectives/Hypothesis Repair of the transected facial nerve has traditionally been accomplished with microsurgical neurorrhaphy; however, fibrin adhesive coaptation (FAC) of peripheral nerves has become increasingly popular over the past decade. We compared functional recovery following suture neurorrhaphy to FAC in a rodent facial nerve model. Study Design Prospective, randomized animal study. Methods Sixteen rats underwent transection and repair of the facial nerve proximal to the pes anserinus. Eight animals underwent epineurial suture (ES) neurorrhaphy, and eight underwent repair with fibrin adhesive (FA). Surgical times were documented for all procedures. Whisking function was analyzed on a weekly basis for both groups across 15 weeks of recovery. Results Rats experienced whisking recovery consistent in time course and degree with prior studies of rodent facial nerve transection and repair. There were no significant differences in whisking amplitude, velocity, or acceleration between suture and FA groups. However, the neurorrhaphy time with FA was 70% shorter than for ES ($P < 0.05$). Conclusion Although we found no difference in whisking recovery between suture and FA repair of the main trunk of the rat facial nerve, the significantly shorter operative time for FA repair makes this technique an attractive option. The relative advantages of both techniques are discussed. Level of Evidence N/A