

Microvascular anastomosis using fibrin glue and venous cuff in rat carotid artery.

Authors: Sacak B, Tosun U, Egemen O, Sakiz D, Ugurlu K

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Abstract:

Conventional anastomosis with interrupted sutures can be time-consuming, can cause vessel narrowing, and can lead to thrombosis at the site of repair. The amount of suture material inside the lumen can impair the endothelium of the vessel, triggering thrombosis. In microsurgery, fibrin sealants have the potential beneficial effects of reducing anastomosis time and promoting accurate haemostasis at the anastomotic site. However, there has been a general reluctance to use fibrin glue for microvascular anastomoses because the fibrin polymer is highly thrombogenic and may not provide adequate strength. To overcome these problems, a novel technique was defined for microvascular anastomosis with fibrin glue and a venous cuff. Sixty-four rats in two groups are included in the study. In the experimental group (n = 32), end-to-end arterial anastomosis was performed with two stay sutures, fibrin glue, and a venous cuff. In the control group (n = 32), conventional end-to-end arterial anastomosis was performed. Fibrin glue assisted anastomosis with a venous cuff took less time, caused less bleeding at the anastomotic site, and achieved a patency rate comparable to that provided by the conventional technique. Fibrin sealant assisted microvascular anastomosis with venous cuff is a rapid, easy, and reliable technique compared to the end-to-end arterial anastomosis.