Microvascular suture by application of so-called fibrin adhesive. [German]

Authors: Meyermann R., Ahyai A., Pini Ch.

Publication Date: 1982

Abstract:

Since the development of microvascular surgery by Jacobson and Suarez, adaptation of vessel ends of less than 1 mm diameter has been performed by means of 8-10 interrupted sutures. Even the finest suture material, however, produces a foreign body reaction. In addition, necrosis of the media can be seen after insertion of interrupted sutures. After the initial demonstration in 1940 that divided nerves could be successfully rejoined by means of factors from the blood coagulation system, this technique was introduced to microsurgery in 1977. The present investigation was carried out on 50 end-to-end anastomoses in rat common carotid arteries. Subsequently, the healing process was studied by light and electron microscopy. The adhesive used was fibrinogen cryoprecipitate (Fibrinkleber-Human-Immuno), which polymerises after simultaneous application of thrombin. Electron microscopy shows no basic difference between the healing after this technique and the healing process after trauma to the vessel wall. This method, however, prevents regional necrosis of the vessel wall and reduces intimal thickening. The condition of the intimal lining appears better than in sutured anastomoses. The question, whether this change is due only to the absence of sutures or due also to application of fibrinogen, cannot be answered, however.