

The Experimental Study of the End-to-side Microarterial Anastomosis with the Longitudinal Slit and the Triangular Flap

Jun Mo Lee, M.D., Gang Wook Lee, M.D. and Dong Geun Lee, M.D.*

Department of Orthopedic Surgery and Pathology, Chonbuk National University Hospital, Chonju, Korea

Problems of composite tissue transfer commonly arise when a single indispensable recipient vessel receives the graft vessel, and the graft vessel must be sutured in end-to-side fashion so as not to disturb the vascularity of the recipient vessel.

The triangular flap in the recipient vessel wall gives an intact endothelial surface when the flow of blood stream is presented and may reduce the chance of anastomosis.

We selected mature Wistar rats weighing over 450 grams to compare the conventional longitudinal slit from the triangular flap in the recipient carotid artery over blood pressure and blood flow when the donor carotid artery was anastomosed in end-to-side fashion.

In 30 minutes after anastomosis, maximum blood pressure measured in the donor carotid arterial side when the recipient arterial wall fashioned with the longitudinal slit was recorded 114mmHg and with the triangular flap 100mmHg. Minimum blood pressure with the longitudinal slit was 98mmHg and with the triangular flap 88mmHg. The amount of blood collected for 30 seconds in the conventional longitudinal slit was 1.18mg and in the triangular flap 0.78mg.

Histology study in 30 minutes, the conventional longitudinal slit demonstrated the more hemorrhagic features around the suture material compared to that of the triangular flap and in the 7th day, the conventional longitudinal slit demonstrated the more prominent granulomatous reactions and vascular proliferations around the suture material compared to that of the triangular flap.