Exposure of the posterior wall during end-to-side vascular anastomosis

Technical note

AFRASSIAB GUITY, M.D., PAUL H. YOUNG, M.D., AND KENNETH R. SMITH, JR., M.D.
Section of Neurosurgery, St. Louis University School of Medicine, St. Louis, Missouri

 الخميس An atraumatic technique for exposing the posterior wall during an end-to-side anastomosis is described.

KEY WORDS • vascular anastomosis • blood vessel suture • posterior wall • silicone tube

During completion of an end-to-side anastomosis, the surgeon may occasionally encounter moderate tension at the anastomotic site. In this situation, exposure of the posterior anastomotic wall subsequent to suturing the anterior wall can be difficult. There are several traditional techniques for suturing the posterior wall, but in this circumstance these techniques may not be particularly helpful. A new technique, described below, has been developed which is practical and easy to learn.

Technique

The anastomosis is completed along the anterior wall. Then a Dow silicone tube, with a diameter of 0.7 mm and a length of 30 mm, is selected and bent into an inverted U shape (Fig. 1A). One end of the tube is passed behind the distal and the other end behind the proximal end of the recipient artery (Fig. 1B). The “dome” of the inverted U-shaped tube will now be lying anterior to the donor vessel (Fig. 1C). The end of the tube lying behind the proximal part of the recipient vessel (Fig. 1D) is pulled up and away (Fig. 1E). This maneuver will flip the donor vessel and slightly rotate the recipient vessel, thus exposing the posterior wall (Fig. 1F). The end of the tubing can then be gently secured behind the proximal clamp on the recipient vessel. The posterior side of the anastomosis can now be sutured easily without exerting tension on the parent or recipient vessel.

Comment

The technique described above has been used in more than 300 left-to-right carotid artery end-to-side anastomoses in rats during the period between June, 1983, and June, 1984, in our microvascular laboratory. This technique has been applied to clinical and other experimental settings as well (Fig. 2).

This technique is useful not only for the exposure of the posterior wall during primary suturing, but also for hemostasis if brisk bleeding is encountered from the posterior wall after unclamping. In this circumstance, the posterior wall can be reexposed without reclamping the vessels (Fig. 1G). Adequate reduction of blood flow through the involved vessels is produced by this retraction technique to permit further suturing without the need for reclamping.

References


Manuscript received January 25, 1984. Accepted in final form July 6, 1984. Address reprint requests to: Afrassiab Guity, M.D., 1711 Black Birch Drive #1, Chesterfield, Missouri 63017.
Technique of vascular anastomosis

Fig. 1. Drawings showing exposure of the posterior wall during end-to-side vascular anastomosis. For description see text.

Fig. 2. Extracranial-intracranial end-to-side anastomosis (superficial temporal artery (STA)-infrasylvian cortical branch of the middle cerebral artery (MCA)) in a cadaver. Upper Left: Positioning the silicone tube in relation to the donor and recipient vessels. Upper Right: The proximal end of the tube is pulled up and away. Lower: The posterior wall is exposed and sutured.