

A NOVEL “CONTINUOUS-INTERRUPTED” METHOD FOR MICROVASCULAR ANASTOMOSIS

Dear Editor,

The conventional method of microvascular anastomosis with interrupted sutures is well proven method, with high successful rate. However, this method is time consuming, especially when multiple anastomosis are required. Even though several techniques have been described to minimize the time of anastomosis, none of these have been widely accepted.^{1,2} Vessel anastomosis with a continuous suture has the advantage of being faster than the conventional method but due to the high risk of stricture at the anastomotic site is not recommended for microvascular anastomosis.³

Herein, we present a novel method of performing microvascular anastomosis, which combines the advantages of the continuous and interrupted sutures.

After proper setup of the vessels, the anastomosis begins with the application of two 10-0 sutures at 0° and 180° angle (Fig. 1A). Then a loose running suture is applied at the anterior wall of the vessel. Depending on the size of the vessel, usually 3 to 4 passes of the suture are required, creating 2 or 3 loops, respectively. (Figs. 1B and 1C) Then the end of the first suture is tied with the corresponding suture of the opposite site and the knot is cut leaving one suture-loop less (Figs 1D and 1E). The same procedure is repeated for the rest sutures as well as at the posterior vessel wall (Figs. 1F and 1G).

We performed this technique in 30 venous and 15 arterial anastomoses during free tissue transfer. In 15 free flaps, both the arterial and venous anastomoses were performed with the described method, meanwhile in other 15 free flaps, the arterial anastomoses were performed with the conventional method and the venous anastomosis with the “continuous-interrupted” technique. In both of the groups, no complications were noted performing this technique as all the flaps survived well. Furthermore, the same surgeon in anterolateral thigh flap (ALT) flaps performed 20 venous anastomoses, 10 with the conventional technique, and 10 with the proposed method in order to compare the time difference between the two methods in vessels with the same size. Statistically significant less time was required ($P < 0.05$) for the venous anastomosis with the “continuous-interrupted” method.

The described method for microvascular anastomosis has several advantages. First of all, the application of the sutures can be very precise as the loosely running suture leaves spaces between the vessels, allowing the lumen to be visible without extensive manipulation of the vessel. This is very useful especially when the last suture of the anterior and posterior wall is applied, which with the conventional method there is limited space between the two edges of vessels. Similarly, during the anastomosis, the posterior vessel wall is always visible, avoiding inadvertent two-wall sewing. Additionally, even though the suture is applied continuously, finally tied as the interrupted fashion, hence there is no risk of stenosis at the anastomotic site. Finally, the anastomosis is performed faster than the conventional method, as the surgeon saves time applying the sutures with a running manner.

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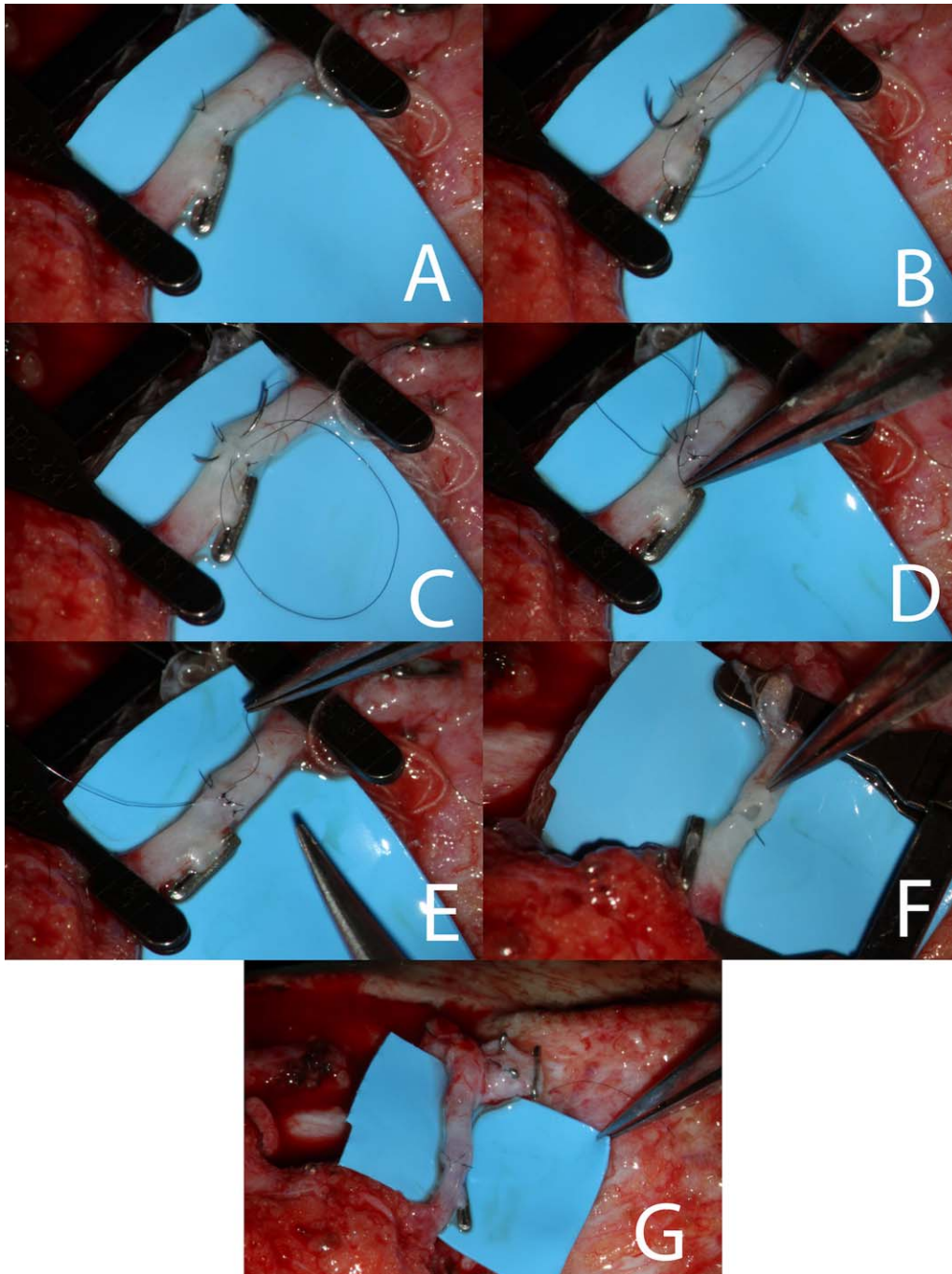


Figure 1. **A:** Anastomosis of the anterior vessel wall. Two interrupted sutures are applied at 0° and 180° angle. **B:** Second pass of the running suture creating the first loop. **C:** Third pass of the running suture creating the second loop. **D:** The first running suture has already been tied as interrupted. At this picture the second suture is being tied, leaving the last loop. **E:** The knot of the second suture has been cut and the last suture of the anterior wall is ready to be tied. **F:** View of the posterior wall. The vessel lumen is open. **G:** Successful completion of the anastomosis with no bleeding from the anastomotic site. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

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