

A PRACTICAL MICROSURGICAL ANASTOMOSIS KNOT-TYING TECHNIQUE IN THE MOIST SURGICAL FIELD

Dear Editor,

When performing microvascular anastomosis under operating microscope, the thin and soft microsuture is easy to be stuck to surrounding wet soft tissue, which may disturb knot tying, prolong operation time, and even lower quality of vessel anastomosis.^{1,2} From 2004, we have applied a microsurgical knot-tying technique in our clinical practice. By doing so, the above described problem can be well prevented.

After the suture is placed through both vessel walls, by looping the leading end around tip of the forceps from above (see Fig. 1) and underneath (see Fig. 2), respectively, two different overhand knots/two methods in opposite direction are formed. These two knots make up a square knot. The same process can be repeated.

Key action of the technique presented here is “sticking”. Through this step, the trailing end is controlled by microinstrument steadily, so it is kept from slipping off or being stuck to surrounding wet tissue and is easy to be regrasped, which can guarantee this technique more coherent and smooth than traditional methods.

It is surface tension of liquid that causes trailing end of the microsuture easy to be stuck to surrounding wet tissue. It is also surface tension here that is trickily utilized by us as mechanism of the key “sticking” step in

this technique, which causes the trailing end to be stuck to wet instrument. This method is more suitable to be used in the moist surgical field. It is performed well espe-

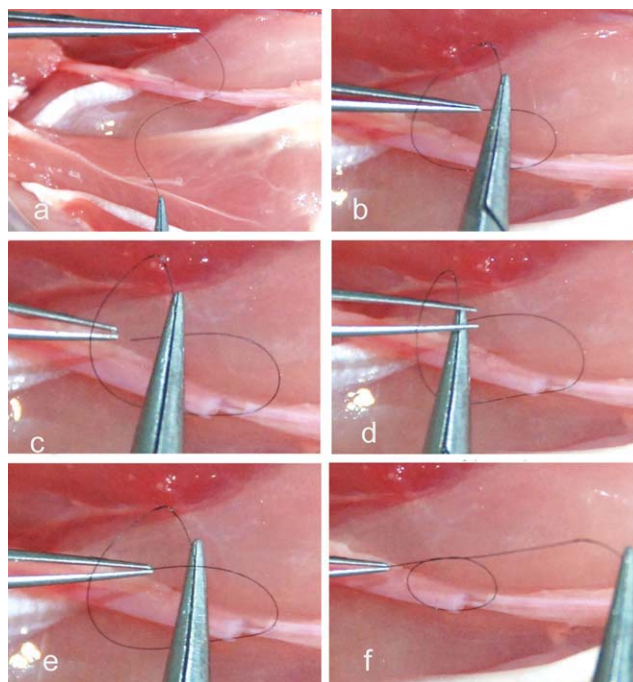


Figure 1. First method. (a) Begin with the leading end being held by a micro-needle holder, and the trailing end being held by a micro forceps. (b) Loop the leading end around tip of the forceps from above, and at the same time ‘stick’ the trailing end to the needle holder from underneath. (c) Release the trailing end and at the same time let it ‘be stuck’ to needle-holder from underneath. (d) Draw the forceps from underneath of the needle-holder to above and then regrasp the trailing end. (e, f) Pull both ends in opposite directions, and an overhand knot is completed.

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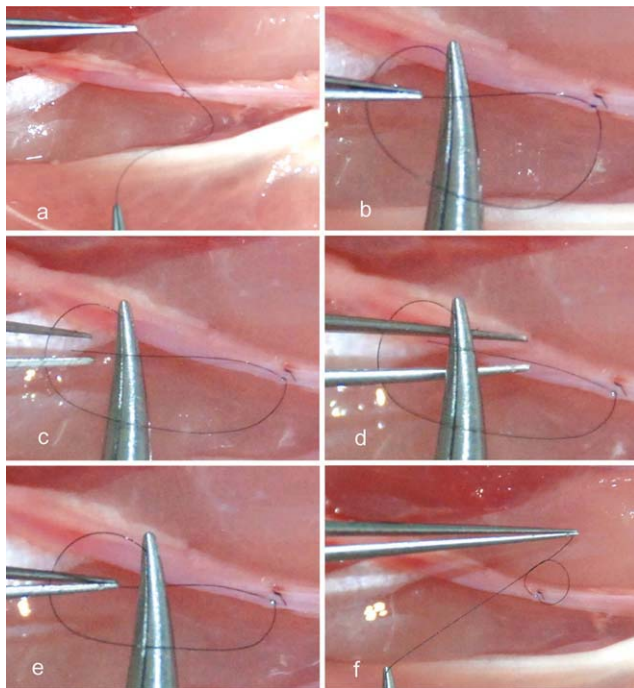


Figure 2. Second method. (a) Similar to Figure 1(a). (b) Loop the leading end around tip of the forceps from underneath, and 'stick' the trailing end onto the needle holder. (c) Release the trailing end and let it 'be stuck' to needle-holder from above. (d) Draw the forceps from above of the needle-holder to underneath and then regrasp the trailing end. (e, f) Pull both ends in opposite directions, and the second overhand knot is completed.

cially in condition where high magnification and thin microsuture are required. The thinner (10-0 or more thinner diameter) the microsuture is, the easier the trailing end is to be stuck to wet tissue and wet instrument, and the more valuable this technique is. Our technique can be applied in any circumstance that conventional knot-tying technique is suitable. And it is easy to handle even for a novice.

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REFERENCES

1. Chen HC, Mardini S, Tsai FC. "Airborne" suture tying technique for the microvascular anastomosis. *Plast Reconstr Surg* 2004;113:1225-1228.
2. Karri V, Chang LR, Liu YT, Chen HC. 'Through-the-loop' tie for microsurgical suturing. *J Plast Reconstr Aesthet Surg* 2010;63:1087-1090.