Cerebrovascular anastomosis

The ideal suturing technique for cerebrovascular anastomosis remains a point of debate. Although simple interrupted stitch sutures are considered to achieve higher patency, they require longer anastomosis time compared with running sutures. Matsuo et al. described a novel techniques named single loop interrupted suture to place interrupted sutures for cerebrovascular anastomosis. The single loop interrupted suture technique consists of repeatedly placing, tying and cutting a single loop between anchor stitches. A single loose loop was placed next to the anchor stitch, tied and cut, and then another loop was placed next to the knot. The loops resulted in efficiently placed interrupted sutures. This technique is employed for a range of end-to-side cerebrovascular anastomosis procedures, and is feasible in placing interrupted suture [1].

The running-to-interrupted microsuture technique, a modification of the previously published spiral anastomosis, is described wherein loosely thrown running sutures are placed between 2 opposed anchor stitches. The loops are then serially cut and tied, resulting in efficiently placed interrupted stitches. This process is repeated on the opposite side to complete the anastomosis. The running-to-interrupted microsuture technique is quickly learned, limits unnecessary microsurgical movements, and is employed by the senior author for a multitude of cerebral arterial bypass procedures. This technical improvement can be adapted by any neurovascular surgeon to optimize microsurgical efficiency and limit anastomosis-related brain ischemia times [2].

1)
Matsuo S, Amano T, Nakamizo A. Single loop interrupted suture technique for cerebrovascular anastomosis: Technical note. J Clin Neurosci. 2020 Feb;72:434-437. doi: 10.1016/j.jocn.2019.08.107. Epub 2019 Sep 4. PMID: 31493997.
2)
Rennert RC, Strickland BA, Radwanski RE, Ravina K, Chien M, Russin JJ. Running-to-Interrupted Microsuture Technique for Vascular Bypass. Oper Neurosurg (Hagerstown). 2018 Oct 1;15(4):412-417. doi: 10.1093/ons/opx263. PMID: 29309665.