Regarding "A randomized controlled trial of interrupted versus continuous suturing techniques for radiocephalic fistulas"

We read with great interest the article by Aitken et al demonstrating the superiority of a hybrid interrupted-continuous suturing technique over continuous suturing mode for radiocephalic fistulas. The immediate and primary patency rates at 6 weeks were higher in the interrupted-continuous suturing technique group (93% and 71%) compared with the continuous technique group (67% and 47%). The pearl of the study is the demonstration of the impact of a specific suturing technique on arteriovenous fistula (AVF) outcome.[1] However, the results are not superb and are similar to those previously reported. Based on data from a recent review, the primary failure rate for forearm AVF ranged from 11% to 39%, and primary patency at 12 months for forearm AVF ranged from 44% to 65%.[2] Such great differences in vascular access outcome reflect the complex interaction of factors that may affect the patency of an individual AVF.[3] After implementation of the Care Improvement by Multidisciplinary approach for Increase of Native vascular access Obtainment (CIMINO) program (intended to improve vascular access care and to increase the use of AVFs in the hemodialysis population of The Netherlands), primary failure rates varied considerably between participating centers, even after adjustment for the potential risk of clinical and surgery-related factors. The primary failure rate ranged from 8% to 50%. What is interesting is that the two centers with the lowest primary failure rates had a higher percentage of wrist AVF placement than the other nine centers. The authors considered that the combination of a low primary failure rate and a high percentage of wrist AVFs is more likely the result of superior technical skills and surgical decisions.[4] We agree with Konner et al that clinical and theoretical details of AVF creation are widely unknown in the literature. Most publications provide scarce descriptions of AVF, thus neglecting several determining factors: type and length of anastomosis, characteristics of arterial and venous wall, anastomosis angle, torsion, tension, spasm of vessels, and active venous dilation.[5]

For anastomosis, we use a variation of the side artery to end vein technique (Fig). Vessels are exposed, the vein is flushed with a solution of saline and heparin, and then a 4- to 10-mm longitudinal arteriotomy (depending on artery size and quality) is made. The appropriate wall of the vein is incised approximately 3 to 10 mm (depending on vein diameter). One running suture is used for anastomosis. The proximal suture is performed first, starting at the middle (or slightly distally) of the posterior wall of the arteriotomy, proceeding to the proximal angle and down to the middle (or two-thirds) of the anterior wall. The distal suture is then completed. This technique gives excellent vision of the arterial lumen.[6] According to our observations, about 95% of forearm AVFs are functioning after 24 hours.

Finally, it is still uncertain whether the hybrid interrupted-continuous technique would be superior to the above-mentioned modification of the continuous suture. Nevertheless, more well-designed studies focusing on details of anastomosis formation are needed to implement suturing techniques that minimize the risk of primary failure of AVF.

Krzysztof Letachowicz, MD, PhD
Mariusz Kusztal, MD, PhD
Tomasz Gołębiowski, MD, PhD

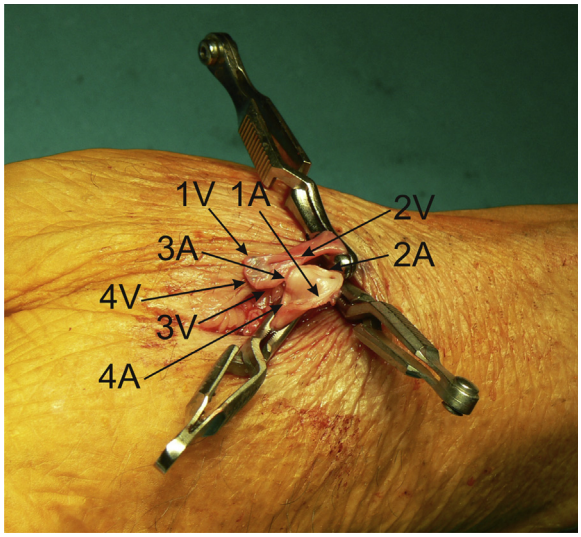

Fig. Arteriovenous fistula (AVF) created at left snuffbox. The suture starts in one third of the arteriotomy (points *1A* and *1V*) and runs through the heel (points *2A* and *2V*) around the anastomosis to the opposite site at the anterior wall (points *3A* and *3V*). The distal suture is then completed (from point *1A/1V* through *4A* and point *4V* to *3A/3V*) and tied down.

Waldemar Letachowicz, MD, PhD
Wacław Weyde, MD, PhD
Marian Klinger, MD, PhD

Department of Nephrology and Transplantation Medicine
Wroclaw Medical University
Wroclaw, Poland

REFERENCES

1. Aitken E, Jeans E, Aitken M, Kingsmore D. A randomized controlled trial of interrupted versus continuous suturing techniques for radiocephalic fistulas. J Vasc Surg 2015;62:1575-82.
2. Al-Jaishi AA, Oliver MJ, Thomas SM, Lok CE, Zhang JC, Garg AX, et al. Patency rates of the arteriovenous fistula for hemodialysis: a systematic review and meta-analysis. Am J Kidney Dis 2014;63:464-78.
3. Smith GE, Gohil R, Chetter IC. Factors affecting the patency of arteriovenous fistulas for dialysis access. J Vasc Surg 2012;55:849-55.
4. Huijbregts HJ, Bots ML, Moll FL, Blankestijn PJ; CIMINO members. Hospital specific aspects predominantly determine primary failure of hemodialysis arteriovenous fistulas. J Vasc Surg 2007;45:962-7.
5. Konner K, Lomonte C, Basile C. Placing a primary arteriovenous fistula that works—more or less known aspects, new ideas. Nephrol Dial Transplant 2013;28:781-4.
6. Bourquelot P. Vascular access in children: the importance of microsurgery for creation of autologous arteriovenous fistulae. Eur J Vasc Endovasc Surg 2006;32:696-700.

http://dx.doi.org/10.1016/j.jvs.2016.01.044