

Side-to-Side Anastomosis without Vessel Clamp : A Practical Method for Arterio-Venous Fistula



Önder Tan¹, Bekir Atik²

¹Ataturk University Medical Faculty,
Department of Plastic and Reconstructive
Surgery, Erzurum, Turkey

²Yuzuncu Yil University Medical Faculty,
Department of Plastic and Reconstructive
Surgery, Van, Turkey

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ABSTRACT

The radial artery to cephalic vein fistula (radial AVF, Brescia-Cimino, radiocephalic) is the basic technique in arteriovenous fistula construction before hemodialysis and the side to side anastomosis is commonly used between these vessels. The vessel clamps in bulldog and approximator types are special and crucial devices for anastomosis. When any vascular clamp is not available, we perform side to side anastomosis with a needleholder or an ordinary forceps in arteriovenous fistula operation. This method is easy, practical, and inexpensive, and may successfully be used in this operation.

Key words: Arterio-venous fistula, hemodialysis, renal failure, side-to-side anastomosis

Damar Klempsiz Yan-Yana Anastomoz:

Arterio-Venöz Fistül İçin Pratik Bir Yöntem

Hemodiyaliz öncesi arteriovenöz fistül açılmasında radial arter-sefalik ven fistülü (Brescia-Cimino, radiosefalik fistülü) temel tekniktir ve bu damarlar arasında yan-yan anastomoz sıklıkla kullanılmaktadır. Anastomoz için buldog yada yaklaşıtııcı tipindeki damar klemleri özel ve vazgeçilmez cihazlardır. Herhangibir damar klempinin mevcut olmaması durumunda, biz arteriovenöz fistül operasyonunda yan-yan anastomozu bir portegü yada sıradan bir forseps ile yapıyoruz. Bu yöntem kolay, pratik ve ucuz olup bu ameliyatda başarıyla kullanılabilir.

Anahtar kelimeler: Arterio-venöz fistül, böbrek yetmezliği, hemodiyaliz, yan-yan anastomoz

Correspondence: Doc. Dr. Önder Tan
Atatürk Üniversitesi Tıp Fakültesi
Yakutiye Araştırma Hastanesi
Plastik Rekonstruktif Ve Estetik Cerrahi AD
25240, Erzurum/Turkey
Tel: 904422317020, Fax: 904422361301
E-mail : drondertan@yahoo.com

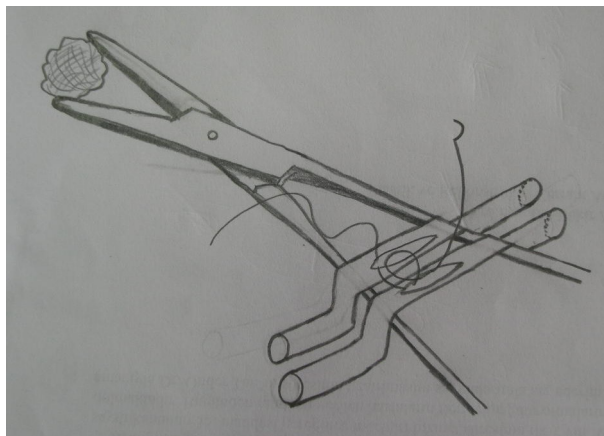


Figure 1. Schematic drawing of the technique.



Figure 2. An a-v fistula in the wrist. The radial artery and cephalic vein are elevated and stretched with a needleholder until they occlude.

There is an increase in the population of end-stage renal disease patients who eventually need chronic hemodialysis for renal failure. Chronic hemodialysis treatment requires patent, adequate-flow vascular access to be effective. The National Kidney Foundation (NKF) guidelines recommend a native arteriovenous (a-v) fistula as the first choice for permanent vascular access, due to its longer lifetime and lower incidence of complications (1). Thus, a-v fistula construction before hemodialysis is vital for patients with end stage renal failure.

The side to side anastomosis is commonly used technique in this operation because of some superiorities to the others. A-V fistula construction by side-to-side anastomosis is less time-consuming, has less bleeding requiring re-exploration and low failure rate as compared to end-to-side technique (2). The NFK guidelines recommend the following order of preference for placement of A-V fistula: 1) wrist (radial-cephalic), and 2) elbow (brachial-cephalic) (1). Of these, a radial artery to cephalic vein fistula (radial AVF, Brescia-Cimino, radiocephalic) is the basic technique (3). The vessel clamps in bulldog type and approximators are spacial and crucial devices for anastomosis. When any vascular clamp is not available in hand, we perform side to side anastomosis with a needleholder or an ordinary forceps in a-v fistula operation. We place the instrument under both the artery and vein so that the vessels are suspended and brought together. We then unlock the instrument and place a small gauze-pack into the mouth of device (Figure 1). Thus, the vessels are

stretched until they occlude (Figure 2) and we perform the anastomosis with surgical loupe in bloodless environment. In our opinion this maneuver is sufficiently delicate not to damage the vessels, and anastomosis can safely be completed. We think endothelial regeneration isn't affected by this technique in postoperative period. We believe that, in the situation of lack of vessel clamp, this easy, practical, and inexpensive method may be used for side-to-side anastomosis of the vessels in sufficient calibre. However this technique can not be applied on end-to-side and end-to-end anastomoses, and very small vessels as well. It should also be noticed that the stretching force obtained in our new technique can not be enough to occlude the vessels in the cubital area and a bleeding may appear during the anastomosis because these vessels have higher pressure.

REFERENCES

1. National Kidney Foundation, Dialysis Outcomes Quality Initiative. Clinical practice guidelines for vascular access, 2000. *Am J Kidney Dis [Suppl]* 2001;37:137-81.
2. Zarin M, Ahmad I, Waheed D, Zeb A, Anwar N, Aslam V, Ayub T, Haider Z. Arteriovenous fistula construction in chronic haemodialysis patients: comparison of end-to-side and side-to-side techniques. *J Coll Physicians Surg Pak* 2004;14:619-21.
3. Bagolan P, Spagnoli A, Ciprandi G, Picca S, Leozappa G, Nahom A, Trucchi A, Rizzoni G, Fabbrini G. A ten-year experience of Brescia-Cimino arteriovenous fistula in children: technical evolution and refinements. *J Vasc Surg* 1998;27:640-4.