IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 21, Issue 12 Ser.5 (December. 2022), PP 30-32
www.iosrjournals.org

Basilic Vein Transposition for Dialysis Access: a single centre experience

Mukut Debnath[1], Amar Kumar[2], Pankaj Mittal[3]
[1]*Department of General Surgery, Agartala Government Medical College, Tripura, India*
[2]*Department of Urology, Vibhuti Super Speciality Hospital, Dehradun, India*
[3]*Department of Urology, Ashirwad Multi Speciality Hospital, Sirsa, Haryana, India*

Abstract
Background*: Autologous arterio-venous access is the key to long-term success for hemodialysis. Basilic vein transposition (BVT) fulfills the need for a durable conduit with high patency and maturation rates. This retrospective review showed a single centre experience with this procedure.*
Materials and methods: *All patients undergoing BVT between January 2010 and December 2016 in Christian Medical College, Vellore, Tamilnadu, India for hemodialysis with available follow-up data were reviewed retrospectively. Functional patency was used as the end point for this procedure.*
Results: *Twenty nine patients underwent BVT between January 2010 and December 2016 in department of Urology of Christian Medical College, Vellore, Tamilnadu. There were 18 male (62%) and 11 female (38%) patients. Mean age was 52.5 (21-78 years) for males and 38.81 (18-72) years for females. The common etiology included diabetic nephropathy, chronic glomerulonephritis and IgA nephropathy. BVT was performed as the first access in 18 patients (62 %). The mean follow up was 16.16 months (2-51 months). Five patients (17%) underwent secondary interventions to maintain BVT patency. Functional patency was achieved in 75 % at 1 year and 36 % at 2 years and 10 % in 3 years.*
Conclusion: *BVT is a useful autologous procedure for hemodialysis in patients without an adequate cephalic vein and those with multiple arterio-venous fistulae (AVF) interventions.*
Key words: *Basilic vein transposition (BVT), arterio-venous fistula (AVF), patency*

Date of Submission: 04-12-2022 Date of Acceptance: 16-12-2022

I. Introduction:

Autologous arteriovenous access is the key to long-term success for hemodialysis. Basilic vein transposition (BVT) fulfills the need for a durable conduit with high patency and maturation rates. This retrospective review showed a single centre's experience with this procedure.

Aims and objectives:
To study the functional patency of BVT retrospectively.

II. Materials And Methods:

- All patients undergoing BVT for hemodialysis with available follow-up data were reviewed retrospectively
- Twenty nine patients underwent BVT between January 2010 and December 2016 in Christian Medical College, Department of Urology , Vellore, Tamil Nadu
- Patients were followed up according to OPD visits or with available contact
- The procedure was performed in single stage. After dissection of the brachial artery and basilic vein with ligation of all tributaries vein was resected. A superficial subcutaneous tunnel was created and end-to-side anastomosis of ~5–6 mm was created between the spatulated basilic vein and brachial artery with polyprolylene 6-0 suture. Hemodialysis access was allowed after maturation of the fistula.

III. Results:

There were 18 males (62%) and 11 females (38%) with a mean age of 52.5 (21-78) years and 38.81 (18-72) years respectively. The etiology of end stage renal disease and number of patients are listed (Table 1)

Table 1: The etiology of native kidney disease and number of patients

Native kidney Disease	Number of patients (percentage)
Diabetic nephropathy	10 (34.5%)
Chronic glomerulonephritis	5 (17%)
Unknown	4 (14%)
IgA nephropathy	3 (10%)
Mesangio proliferative glomerulo nephritis	2 (7%)
Chronic interstitial nephritis	1 (3.5%)
Hypertensive glomerulosclerosis	1 (3.5%)
Lupus nephritis	1 (3.5%)
Autosomal dominant polycystic kidney disease	1 (3.5%)
Amyloidosis	1 (3.5%)

Mean follow up was 16.16 months (2-51). BVT was performed as the first access in 18 patients (62 %). The rest (11 patients) had prior fistulae interventions and seven failed primarily and four with secondary failure.

Five of 29 patients (17%) had secondary interventions to maintain BVT patency. Of them one had re do anastomosis, two had wound hematoma evacuation and remaining two had basilic vein superficialization. Functional patency was achieved in 75 % at 1 year and 36 % at 2 years and 10 % in 3 years (Figure 1). For those who had BVT as the first access, mean cephalic vein and basilic vein size were 1.4 mm and 3.24 mm respectively.

Five of the ten patients with diabetic nephropathy had prior vascular complications. Out of 29 patients six (20.68 %) had surgical complications. Two (6.89%) required wound haematoma evacuation and two (6.89%) developed wound infections requiring regular dressings. There were two patients (6.89%) with lymphedema that subsided with hand elevation and exercise. Thombosis, stenosis, steal syndrome and pseudoaneurysm were not seen.

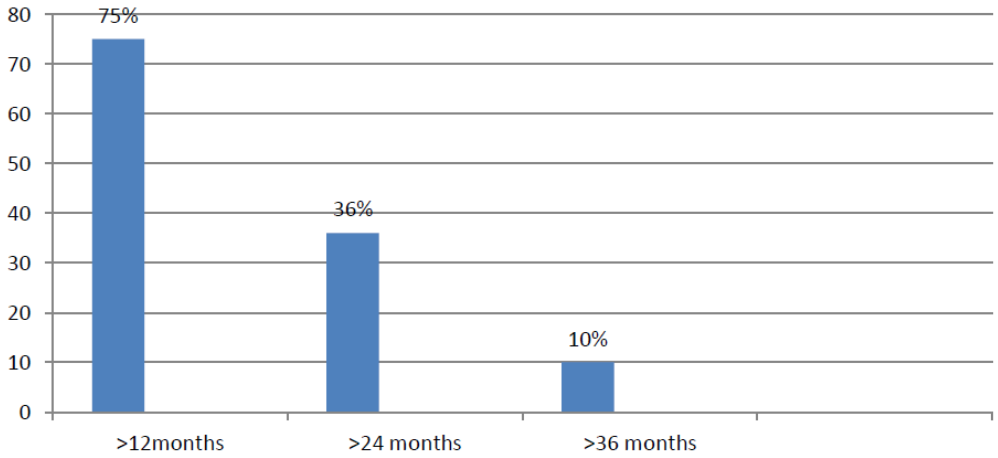

Figure 1: Patency rate of BVT

IV. Discussion:

Basilic vein transposition was first performed in 1976 by Dagher et al who reported 70% patency rate after 8 years[1]. It has several advantages over arterio-venous fistula which includes prevention of infection, avoidance of a prosthetic graft, and the possibility of reoperation using prosthetic grafts if there is AVF failure[2]. Doppler USG mapping should be used in the selection of vein before proceeding for intervention[2]. For patients with a history of central catheterization in the subclavian vein or internal jugular vein, it is imperative to rule out central vein stenosis[3]. Primary failure rate has been reported in the range of 0% and 38%[4,5]. The Kidney Disease Outcomes Quality Initiative guidelines recommended a goal of cumulative patency of BVT of 70% in 1 year,

60% in 2 years, and 50% in 3 years[6]. All the procedures were performed in single stage though in the literature two staged procedures are also mentioned[7,8]. Five patients underwent secondary interventions in the form of complications. The complication rate was 20.68 % in our study as compared to the others that reported between 47% and 71%[9]. Two developed wound hematoma and required evacuation. The overall patency rate was 75% in 1 year that was similar to others[5, 6]. However the long term patency could not be evaluated due to short follow up.

V. Conclusion:

Basilic vein transposition is a useful procedure for hemodialysis and the preferred access alternative in the patients without adequate cephalic vein and those who had multiple prior interventions. The overall patency rate was 75 % at the end of one year.

Limitation of study:

It was a retrospective study based on electronic records and with small sample size with short follow up.

References:

[1]. Dagher F, Gelber R, Ramos E, Sadler J. The use of basilic vein and brachial artery as an A-V fistula for long term hemodialysis. J Surg Res. 1976; 20: 373–376.
[2]. Yunhee Lee, Dan Song, Myung Jin Kim, and Sang Chul Yun. Upper Arm Basilic Vein Transposition for Hemodialysis: A Single Center Study for 300 Cases. Vasc Spec Int 2016;32(2):51-56.
[3]. Hakaim AG, Nalbandian M, Scott T. Superior maturation and patency of primary brachiocephalic and transposed basilic vein arteriovenous fistulae in patients with diabetes. J Vasc Surg. 1998; 27:154–157.
[4]. Tsai YT, Lin SH, Lee GC, Huen GG, Lin YF, Tsai CS. Arteriovenous fistula using transposed basilic vein in chronic hypotensive hemodialysis patients. Clin Nephrol. 2002; 57: 376–380.
[5]. Rao RK, Azin GD, Hood DB, Rowe VL, Kohl RD, Katz SG, et al. Basilic vein transposition fistula: a good option for maintaining hemodialysis access site options? J Vasc Surg. 2004; 39:1043–1047.
[6]. National Kidney Foundation NKF-K/DOQI clinical practice guidelines for hemodialysis adequacy: update 2000. Am J Kidney Dis. 2001; 37 (Suppl 1):S7–S64.
[7]. Agarwal A, Mantell M, Cohen R, Yan Y, Trerotola S, Clark TW. Outcomes of single-stage compared to two-stage basilic vein transposition fistulae. Semin Dial. 2014; 27:298–302
[8]. Kakkos SK, Haddad GK, Weaver MR, Haddad RK, Scully MM. Basilic vein transposition: what is the optimal technique? Eur J Vasc Endovasc Surg. 2010; 39: 612–619
[9]. Taghizadeh A, Dasgupta P, Khan MS, Taylor J, Koffman G. Long-term outcomes of brachiobasilic transposition fistula for haemodialysis. Eur J Vasc Endovasc Surg 2003; 26:670-2.

Mukut Debnath, et. al. "Basilic Vein Transposition for Dialysis Access: a single centre experience." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 21(12), 2022, pp. 30-32.