



ORIGINAL RESEARCH PAPER

Nephrology

BASILIC VEIN ARTERIOVENOUS FISTULA-AN ALTERNATIVE AUTOGENOUS VASCULAR ACCESS

KEY WORDS: Radiobasilic , Brachioasilic, Autogenous fistula

Jayachander K*

Associate Professor of Vascular Surgery, Kilpauk Medical College, Chennai, India. *Corresponding Author

Balaraman V

Professor of Nephrology , Kilpauk Medical College, Chennai, India.

ABSTRACT

Objective: To study the outcome of basilic vein arteriovenous fistula for hemodialysis access . **Methods:** It's a retrospective study, of the end stage renal disease patients, who underwent autogenous arteriovenous fistula surgeries for hemodialysis using basilic vein ,during the period 2016 to 2017 at Government Kilpauk Medical College Hospital, Chennai,India. Total of 228 patients ,Male 163 (71.50 %) and Female 65 (28.50 %) were enrolled in this study. Arteriovenous graft and permanent cuffed catheter procedures were excluded .The age group were between 14 years to 70 years.The fistula maturation was assessed by clinical examination of quality of thrill and color doppler correlation. **Results:** Out of the total 228 arteriovenous fistula, radiocephalic fistula 109 (47.80 %), brachiocephalic fistula 99 (43.42 %) and basilic vein fistula consisting both radiobasilic and brachioasilic fistula 20 (8.77%). Basilic vein fistula primary patency rate is 80% at one year. **Conclusion:** Basilic vein arteriovenous fistula matures quickly with good primary patency rate ,and should be considered as a third option for autogenous arteriovenous fistula ,if radiocephalic and brachiocephalic fistula is not feasible or exhausted.

INTRODUCTION

Autogenous vascular access such as radiocephalic fistula and brachiocephalic fistula is commonly created for end stage renal disease patients to undergo hemodialysis.The advantage of autogenous arteriovenous fistula is less infection and economic.When cephalic vein is not suitable or radiocephalic and brachiocephalic fistula fails, then the alternative choice for autogenous arteriovenous is using basilica vein.The advantage of basilica vein is that it is less likely damaged by repeated venepuncture .But the anatomic difficulty is , it runs deep to deep fascia from mid arm medially ,and hence it needs to be superficialised or transposed anterolaterally ,so as to facilitate cannulation and to avoid accidental brachial artery injury in arm .The basilic vein fistula can be done either in a single stage or two stage.The two stage procedure ,allows the basilic vein to become arterialised and as such more resistant to kinking and will be easier to mobilise in the second procedure as it gets transformed into bigger and thick walled fistula ,which improves patency. Literature says primary patency of basilic vein fistula as 60 to 70 % at one year .

MATERIALS AND METHODS

- Study Design :Retrospective Study
- Study Centre: Govt. Kilpauk Medical College Hospital, Chennai, India.
- Study Duration : 2016 to 2017
- Study Procedure: 228 patients who underwent autogenous arteriovenous fistula for end stage renal disease ,were enrolled and their medical records were analysed

RESULTS

Total of 228 Autogenous arteriovenous fistula .

TABLE 1

Nature of fistula	Total Number = 228	%
Radiocephalic fistula	109	47.80 %
Brachiocephalic fistula	99	43.42%
Radiobasilic transposition fistula	3	1.31%
Brachioasilic fistula (Single stage)	2	1%
Brachioasilic fistula (Two stage)	15	6.57%

TABLE 2

Outcomes of basilic arteriovenous fistula	Number = 20	%
Primary patency rate in one year	16	80%
Primary failure of fistula (Radiobasilic 1,Single stage brachioasilic 1,Two stage brachioasilic 2 before superficialisation / transposition	4	20%
Seroma	2	10%
Pseudoaneurysm of fistula (brachioasilic)	1	5%



Figure 1. Right brachio-basilic arteriovenous fistula transposition (stage 2)



Figure 2. Left brachio-basilic arteriovenous fistula superficialisation (stage 2)

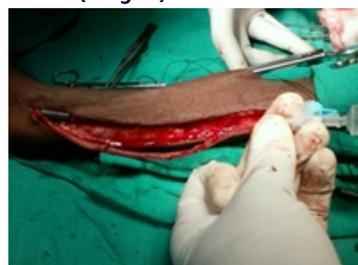


Figure 3. Left radio-basilic arteriovenous fistula transposition (single stage procedure)



Figure 4. Left radio-basilic arteriovenous fistula transposition completed (single stage)

DISCUSSION

Dagher was first to describe the use of basilic vein to create arteriovenous fistula in arm between brachial artery and basilic vein. Can be done in single stage or two stage. In two stage procedure, the first stage is comprised of distal basilic vein anastomosis to brachial artery without mobilization. In second stage the arterialised vein is brought to more superficial position, four weeks later. The second stage procedure can be done under general anesthesia or supraclavicular block. Whole arm is prepared till axilla. Incision begins at antecubital fossa in a vertical fashion just medial to brachial artery. Arterialised basilic vein traced proximally by incising deep fascia all the way to its junction with axillary vein. Medial cutaneous nerve usually cross superficial to basilic vein and it is encountered. The arterialized basilic vein is fully mobilized and all its branches are ligated and divided. The arterialized basilic vein positioned in subcutaneous pocket there by relocating in a more lateral and more superficial position or just superficialisation can be done by elevation technique. The deep fascia is closed with interrupted absorbable suture, keeping arterialized basilic vein superficial to deep fascia. Advantage of single stage procedure is shorter time to cannulate and avoiding another procedure. The disadvantage is wound related complications and chance of vein kinking and compression in tunnel and more injury to basilic vein while mobilizing and dividing all its tributaries. The proponents of two stage approach feel that delayed mobilization of arterialized basilic vein results in less damage to vessel wall and better chance of maturation. In our series we created twenty cases (n=20) of basilic vein arteriovenous fistula of which forearm radiobasilic three (n=3) brachio-basilic single stage two (n=2) and brachio-basilic two stage fifteen (n=15). The maturation rate of basilic vein fistula is quicker than cephalic fistula and the primary patency rate of basilic vein arteriovenous fistula in our series at one year is 80%.

CONCLUSION

Basilic vein should be the next choice after cephalic vein to create autogenous arteriovenous and in our institutional experience we favour two stage approach for brachio-basilic arteriovenous fistula for better results in spite of two surgical procedures. The advantage of basilic arteriovenous fistula is that by ligating all side tributaries, the flow diversion to side veins is limited and forward venous flow is augmented thus enhancing quick maturation and arterialisation.

Conflict of interest: Nil

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