

Quelle place pour les FAV avec les veines brachiales

P. Bourquelot
Paris



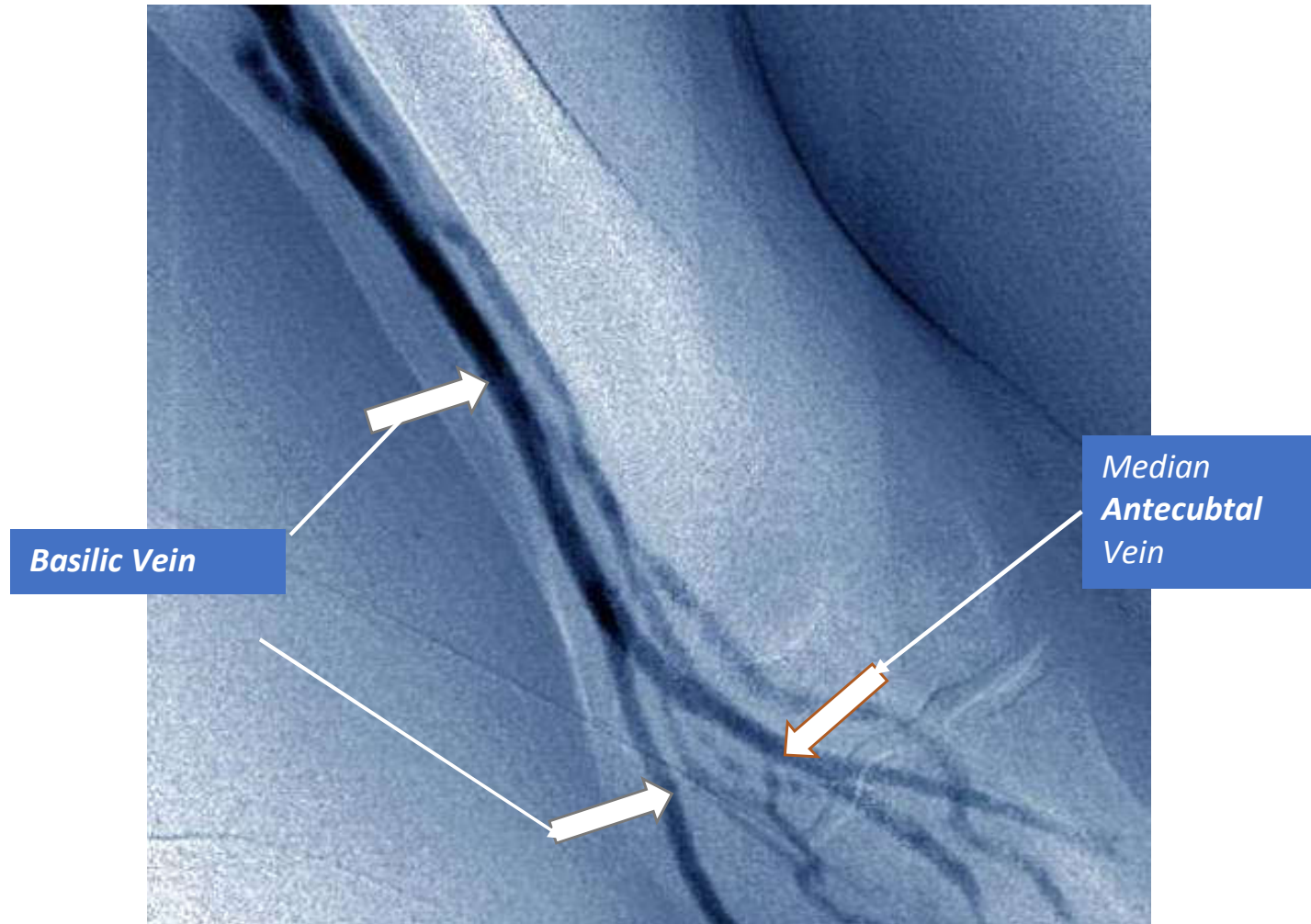
Brachial vein transposition is a promising ultimate upper limb autologous arteriovenous angioaccess despite its many pitfalls.

Lamisse Karam,^a Marek Rawa,^b Richard Shoenfeld,^c and Pierre Bourquelot,^d

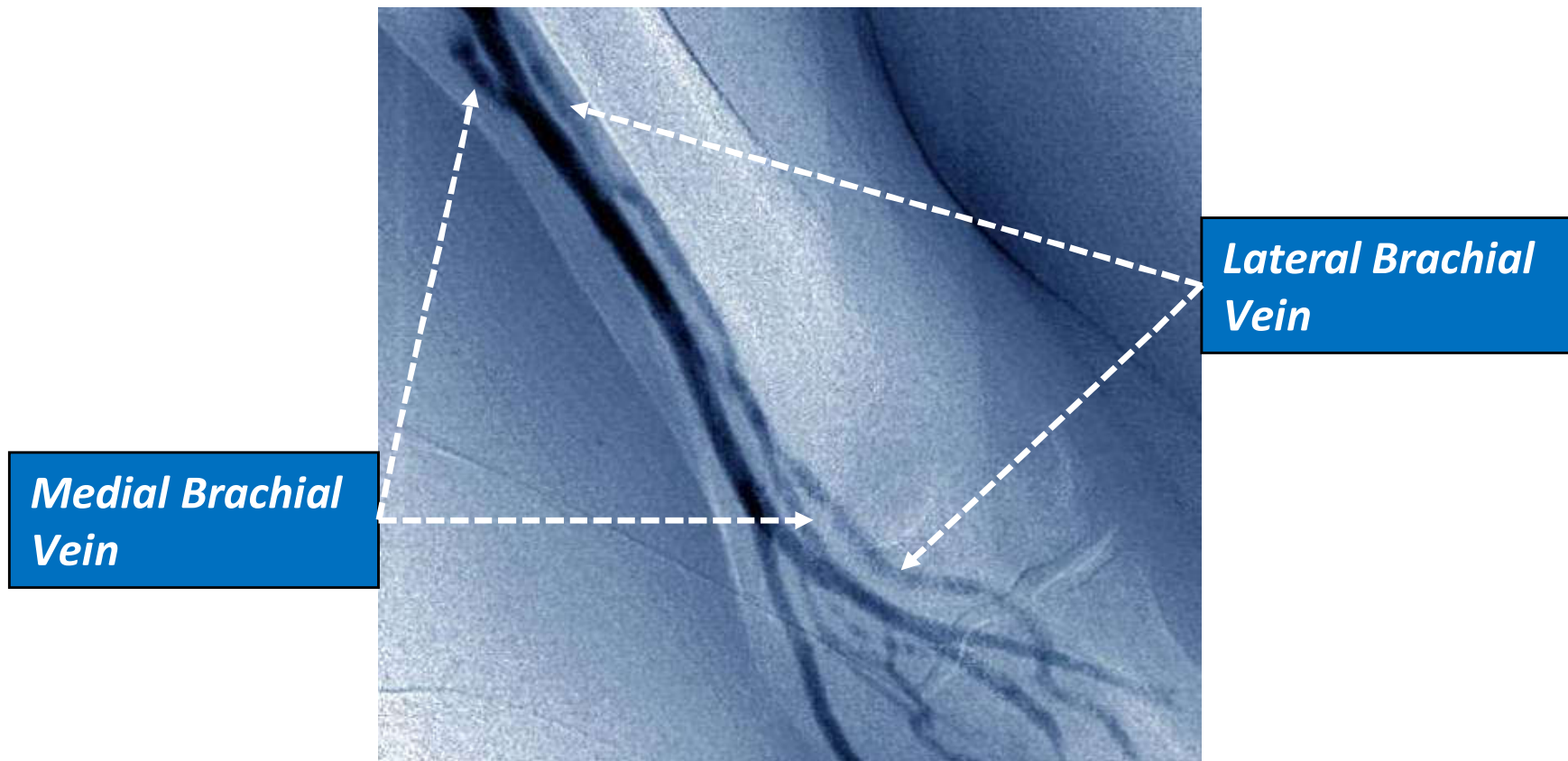
^a Byblos, Lebanon; ^b Meknes, Morocco; ^c West Orange, NJ; and ^d Paris

J Vasc Surg 2018;67:236-43

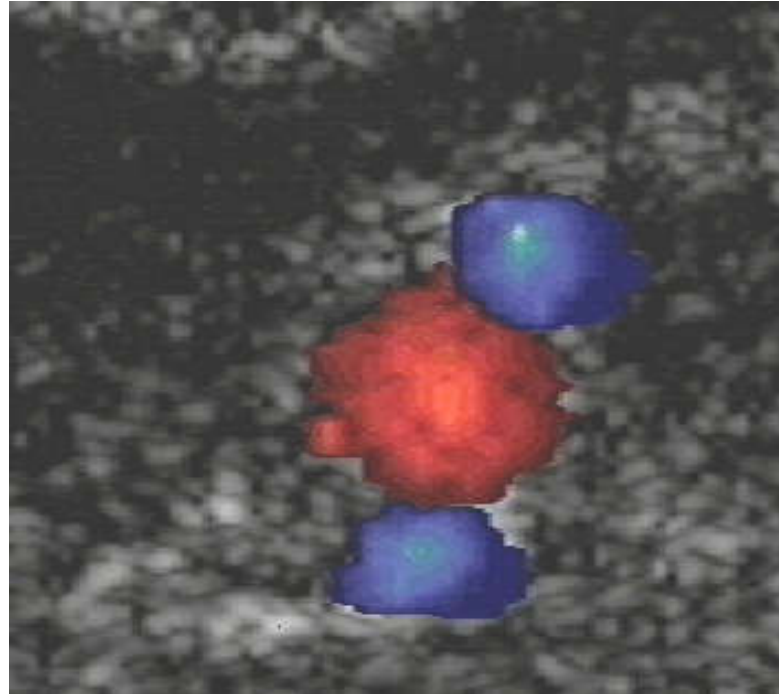
CO²: Basilic Vein



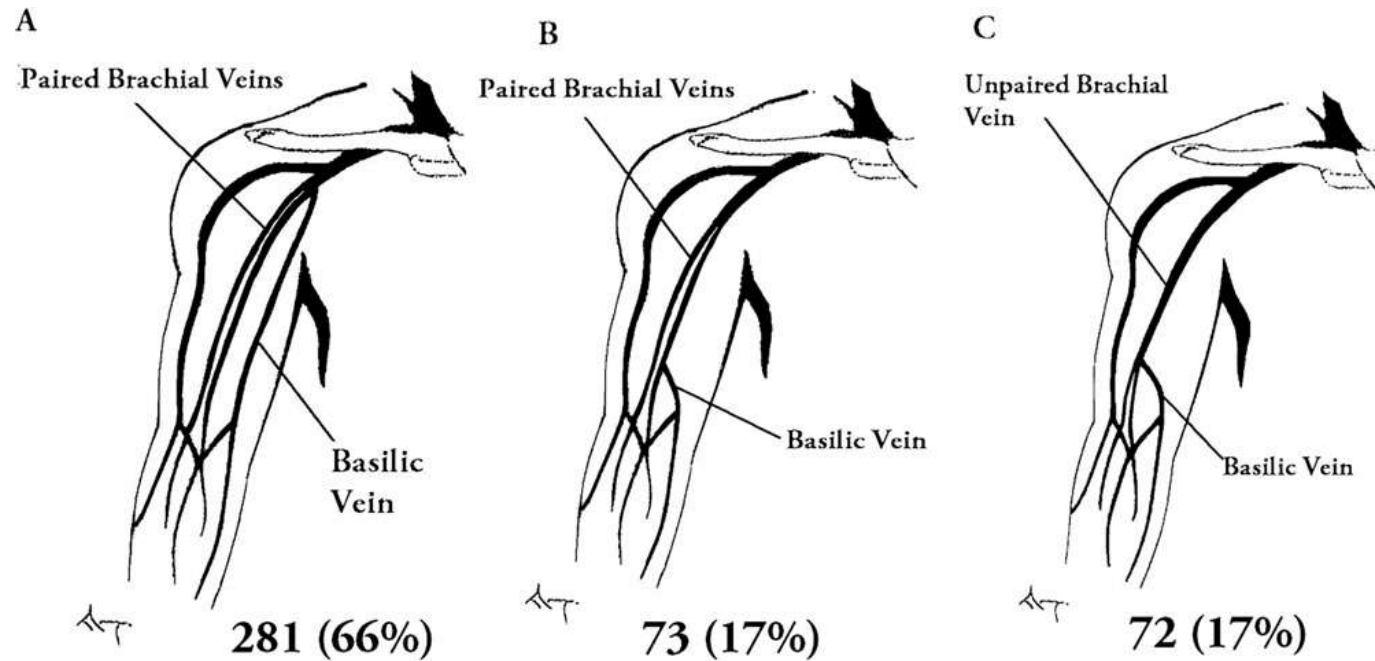
CO²: Brachial Veins



Preoperative Duplex

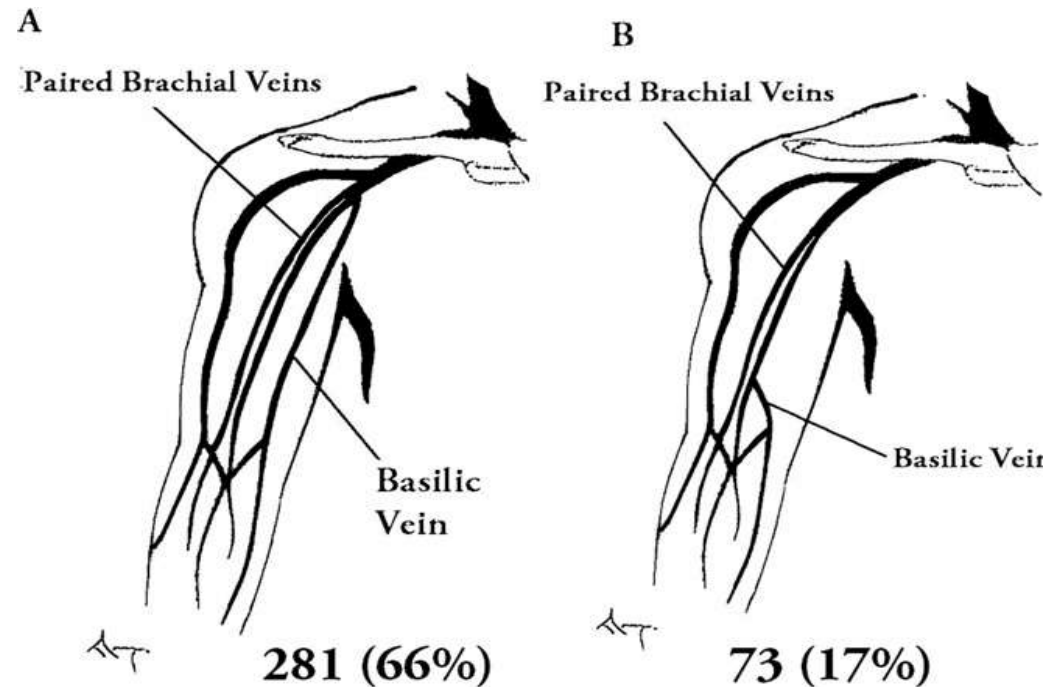


Anatomy (Ayala: 426 Duplex)

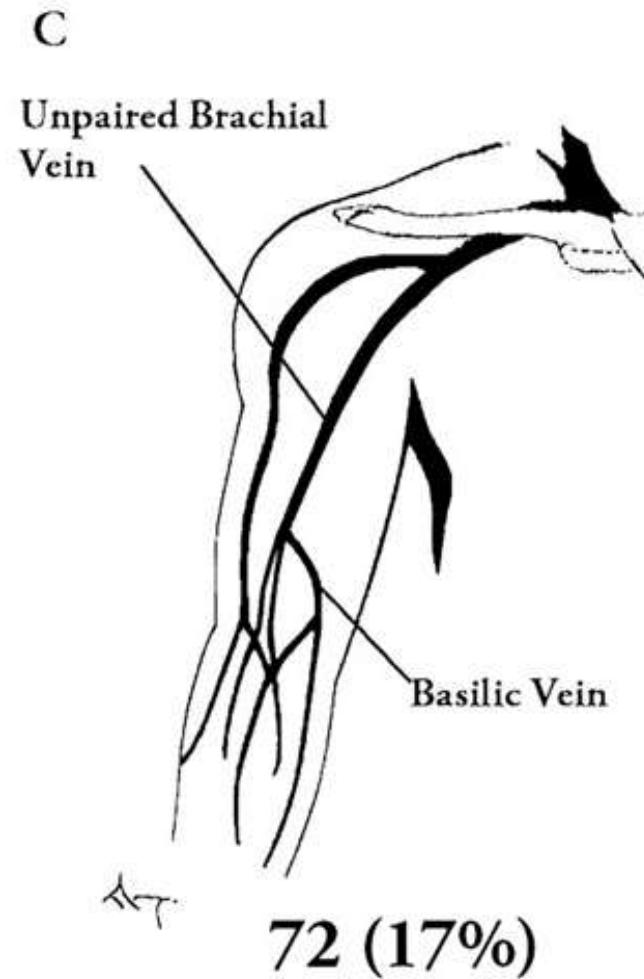


Deux veines brachiales 83%

- 2 veines brachiales se rejoignent pour former la veine axillaire qui reçoit la veine basilique dans 66% des cas,
- La médiale reçoit la basilique au 1/3 moyen dans 17% des cas, ou au 1/3 inférieur dans 17% des cas



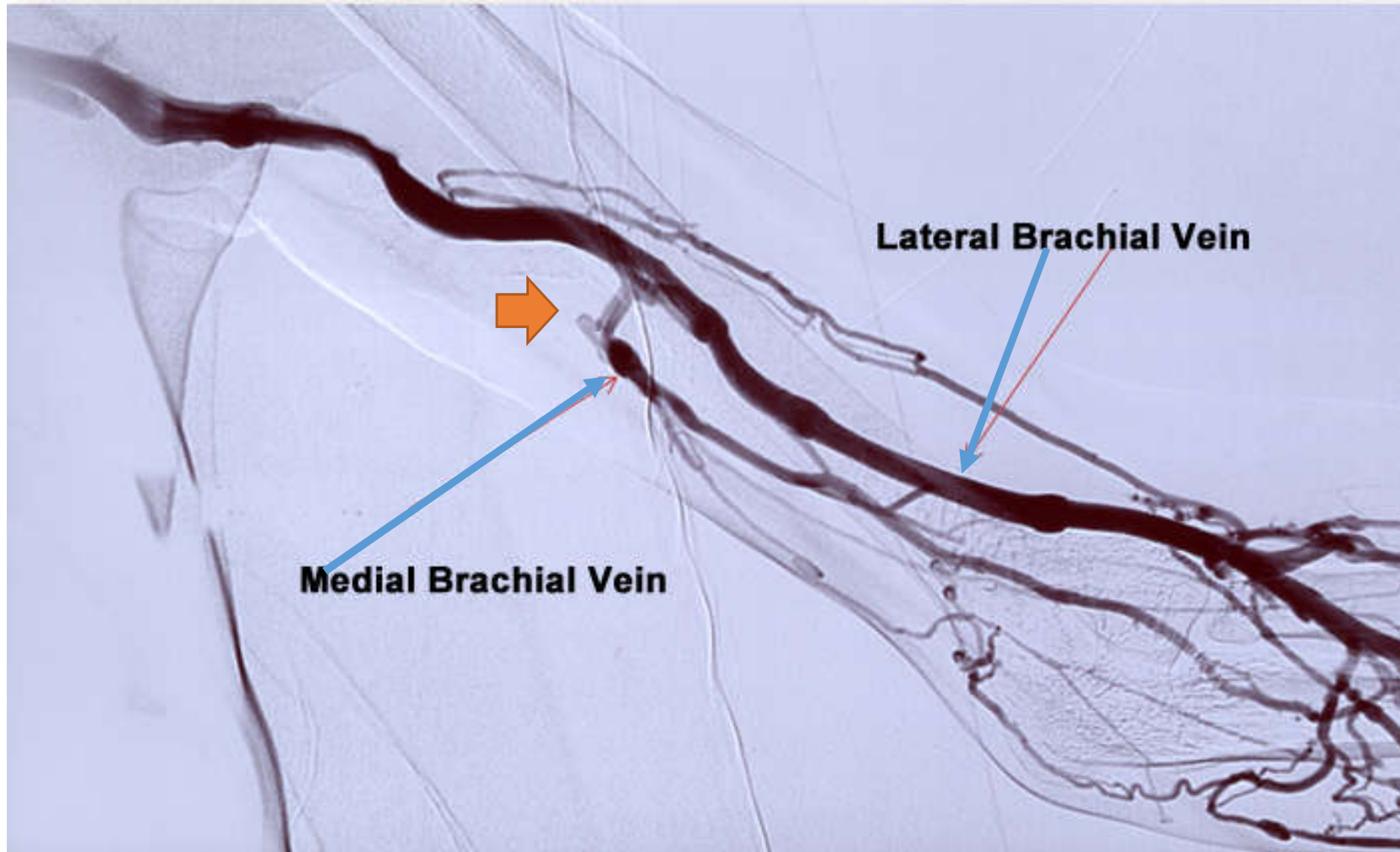
Une seule veine brachiale 17%



Iodine Venography after BaVt



Iodine Venography after PTFE



First stage surgery

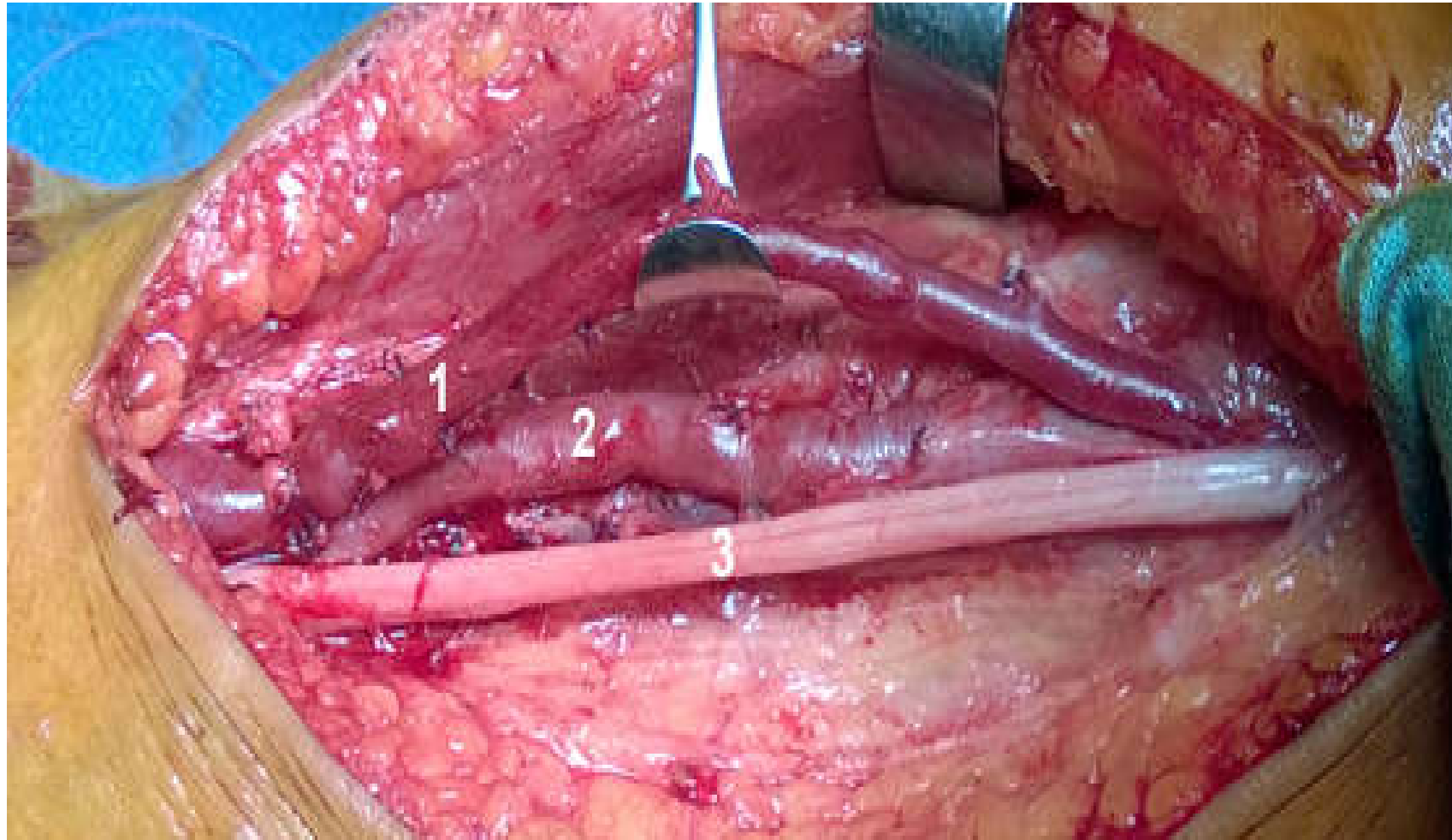
- A side-to-end anastomosis is performed between the brachial artery and one of the two brachial veins, preferably the brachial vein which is medial to the brachial artery and which may be difficult to localize at DUS
- Prophylactic hemostasis, surgical microscope and no-touch technique were used
- No minimal diameter of the vein

Second stage



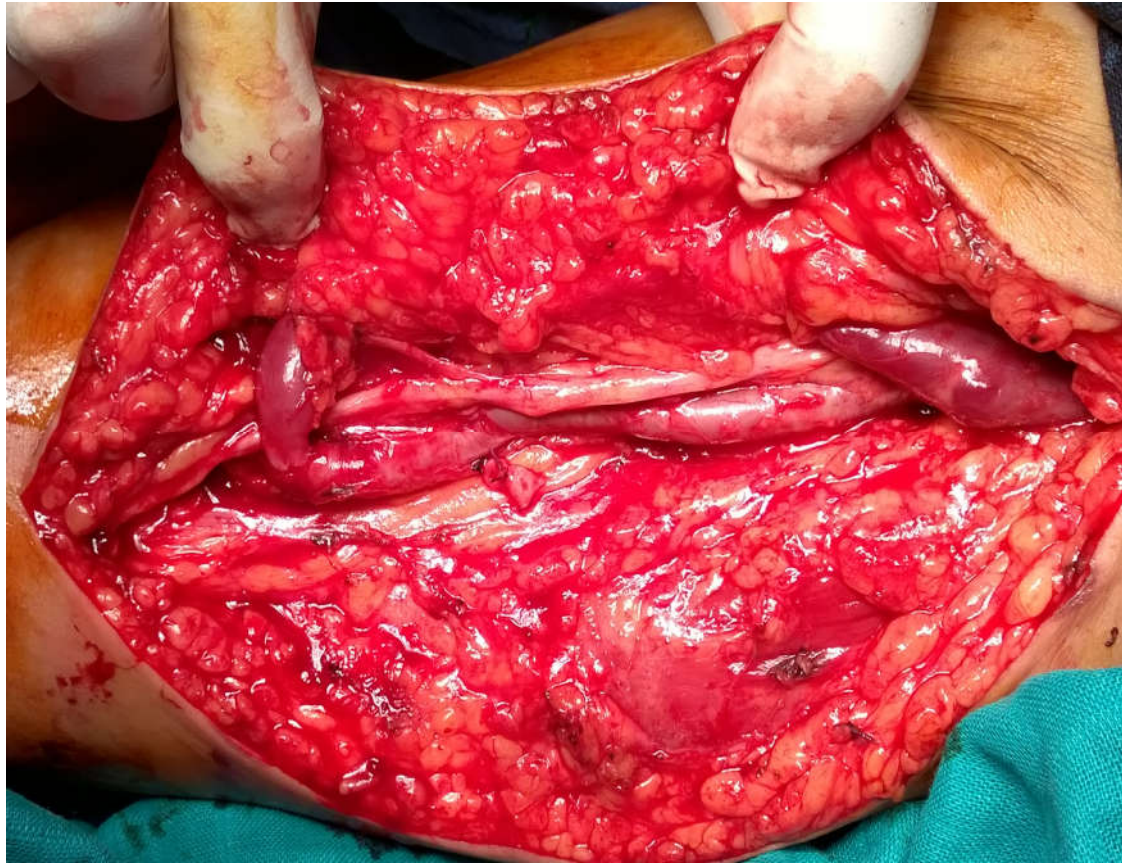
2nd Stage Medial & Lateral Brachial Veins or Anterior & Posterior ?

Second stage surgery



1 Medial Brachial Vein, 2 Brachial Artery, Median Nerve

Second stage surgery



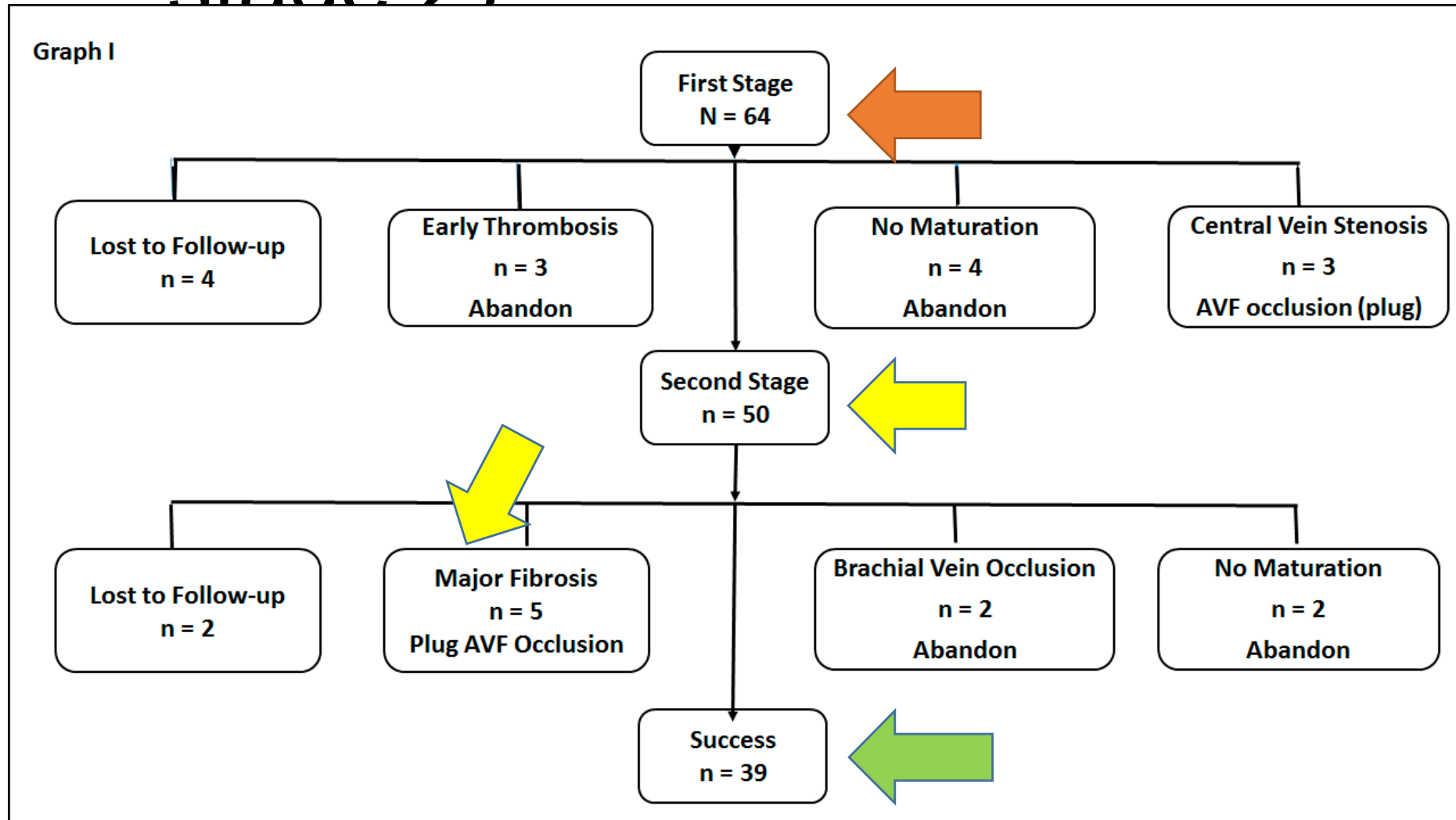
After 2 years



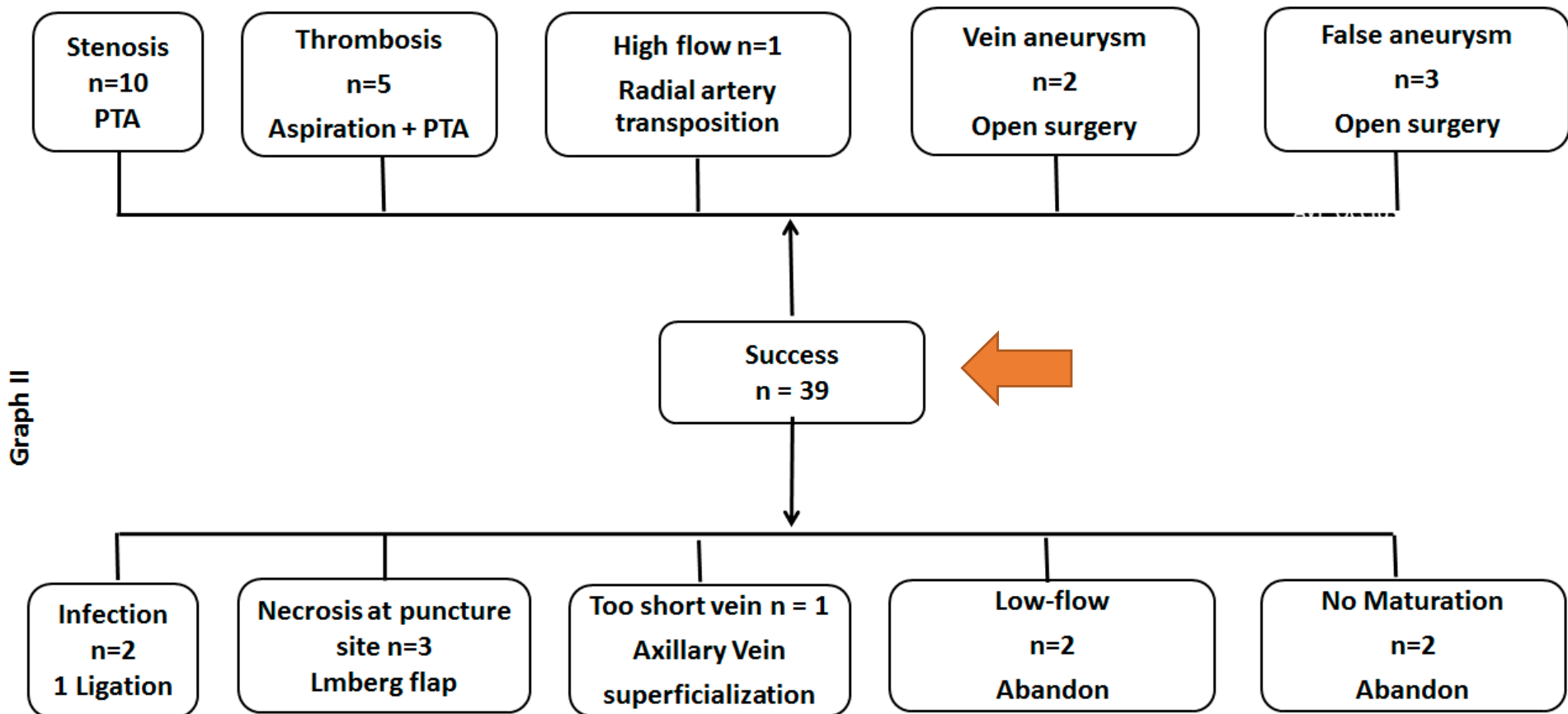
Patients

- Over the last 25 years, 64 Patients, without upper-arm cephalic or basilic vein, were considered for BrVT :
 - 54 hemodialyzed
 - 9 sickle cell anemia with long-term monthly red blood cell exchange
 - 1 short bowel syndrome

Early failures (stage 1 & stage 2)



Secondary Complications

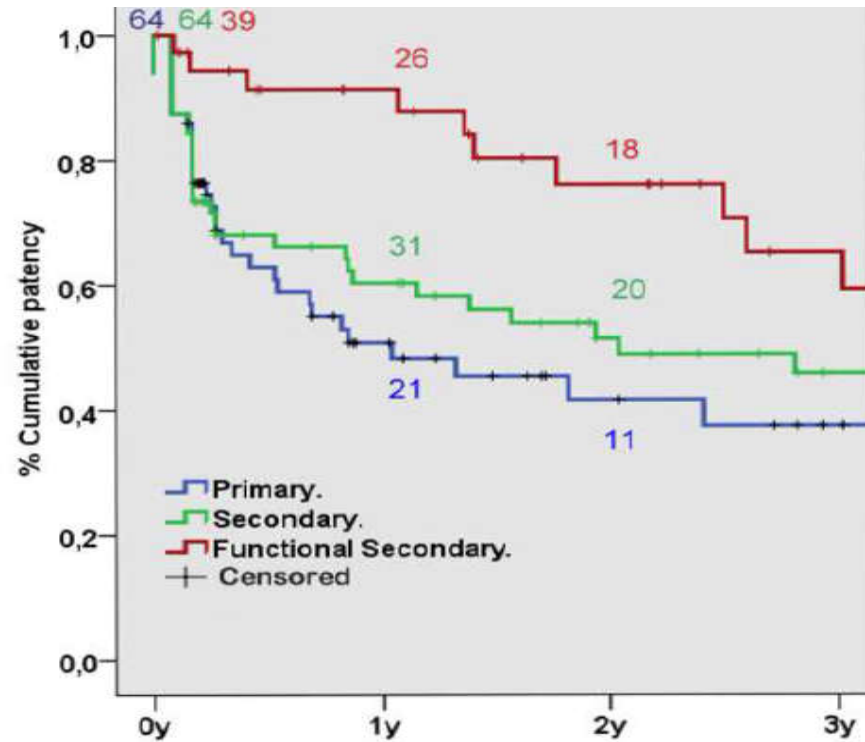


Cumulative Patency Rates

- The median follow-up was 1.1 y, range: 0 to 11
- Our results are concordant with previously published reports.
- The results of the patients with homozygous sickle cell anemia were not significantly different.

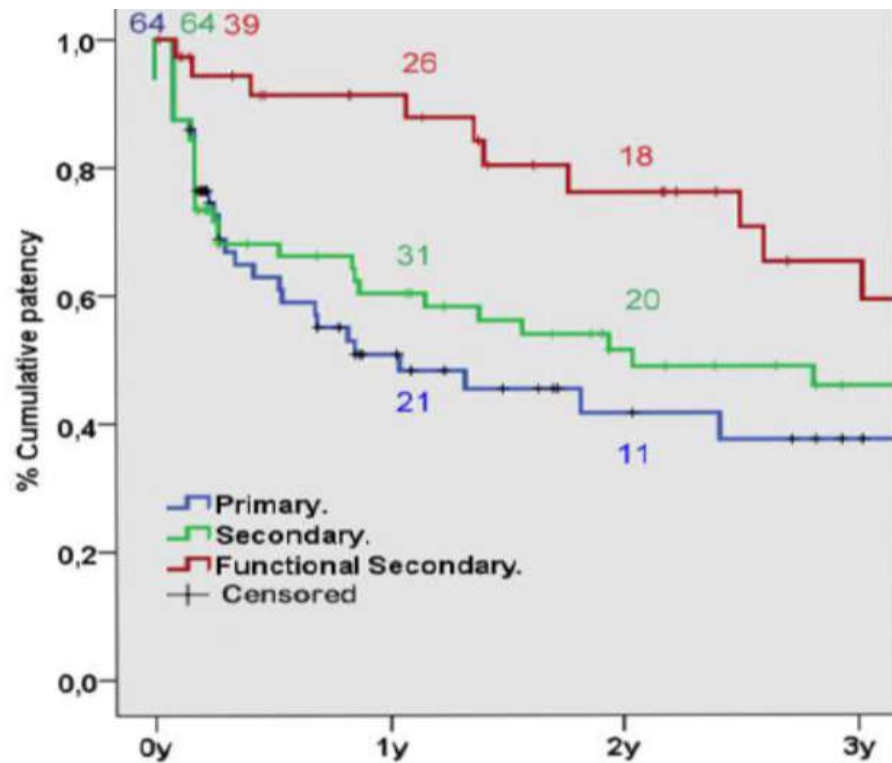
BrVT- AVF Kaplan-Meier curves

(with number of patients at risk - standard error $\leq .10$).



Patency rates

Kaplan-Meier



Life-Table

year	1	2	3
Functional patency	91%	75%	66%
Standard error	.05	.08	.10
Secondary patency	59%	50%	45%
Standard error	.06	.07	.07
Primary patency	50%	40%	37%
Standard error	.07	.07	.08

Previous Publications

N=12

Authors (first, last)	Year	N° pts	Stages	Φ mm	T/E	Patency rates
Bazan, Schanzer	2004	2	1	N/A	T	Successful at 1 y
Dorobantu, Novelli	2006	33	2	N/A	E	SP at 1 y: 81% (1 st stage failures excluded)
Elwakeel	2007	21	2	3mm	E	SP at 1 y: 76%
Greenberg Angle	2008	42	2	2.5mm	T	PP at 3 y: 38% SP at 3 y: 44% FSP at 3 y: 97% >> 28 PTFE if early referral
Arroyo, Jennings	2008	6	2	2.n5 mm	E	4 of 6 BrVT successful
Casey, Sternbergh	2008	17	1	4.0	T	SP at 1 y: 40% for BrVT (50% for BaVT)
Torina, Schanzer	2008	13	1	2.5 mm	T	SP at 1 y: 46%
Jennings Broughan	2009	58	1 or 2	2.5mm	T	PP at 2 y: 46% SP at 2 y: 92% <i>(short basilic veins included)</i>
Morale	2011	48	1	N/A	E	SP at 1 y: 70%
Lioupis Valenti	2011	15	N/A	N/A	E	SP at 1 y: 40%
Pham	2016	32	2 .5	N/A		PFAP at 1-y: 52% = ++ in pts without prior access surgery.
Karam, Rawa Schoenfeld Bourquelot	2018	64	2	No	T	PP at 3 y: 37% SP at 3 y: 45% FSP at 3 y: 66%

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Angle,Chandra	2005	18	2	2.5 mm	E	PP at 1 y: 95% (1 st stage failures excluded)
Dorobantu, Novelli	2006	33	2	N/A	E	SP at 1 y: 81% (1 st stage failures excluded)
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Brachial Vein Exploration

- Duplex US examination of brachial veins is time-consuming:
 - No specific anatomy description
 - Small caliber and multiple branches
- Venography may be also necessary but its evaluation is not straightforward

Indications

- Sufficient maturation delay
 - Progressive angioaccess failure
 - Progressive kidney failure
- No previous graft angioaccess (n:4)
- Previous BaVTr = *relative* contrindication (n:18)
- No brachial vein stenosis
- No central vein stenosis

Conclusion

- The brachial veins are small and fragile,
- Functional Secondary patency measured after 1st cannulation is correct after BrVT
 - at 1-year, 2-year, and 3-year
 - they were $91\% \pm 5\%$, $72\% \pm 8\%$, and $62\% \pm 10\%$, respectively.
- With few reinterventions, as compared to PTFE.
- When cephalic and basilic veins are not available, BrVT is the last autologous arteriovenous possible access in the upper-extremity but contra-indications are numerous.

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the Date:

Friday

September 14th

**Merci pour votre
attention**

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