

Femoral Vein Superficialization

P Bourquelot¹ , M Rawa², O Van Laere¹, G Franco¹

¹ Paris (France), ² Meknes (Morocco)

Disclosure

Speaker name:

..Bourquelot Pierre.....

- I have the following potential conflicts of interest to report:
 - Consulting
 - Employment in industry
 - Shareholder in a healthcare company
 - Owner of a healthcare company
 - Other(s)
- I do not have any potential conflict of interest

Introduction

- When possibilities of AV access in the upper limb are exhausted,
- after ruling out major lower limb arterial occlusive disease and vein stenosis,
- tFV may be an alternative, preferably to:
 - Saphenous vein : too small caliber for angioaccess
 - PTFE graft : infection and vein anastomosis stenosis.

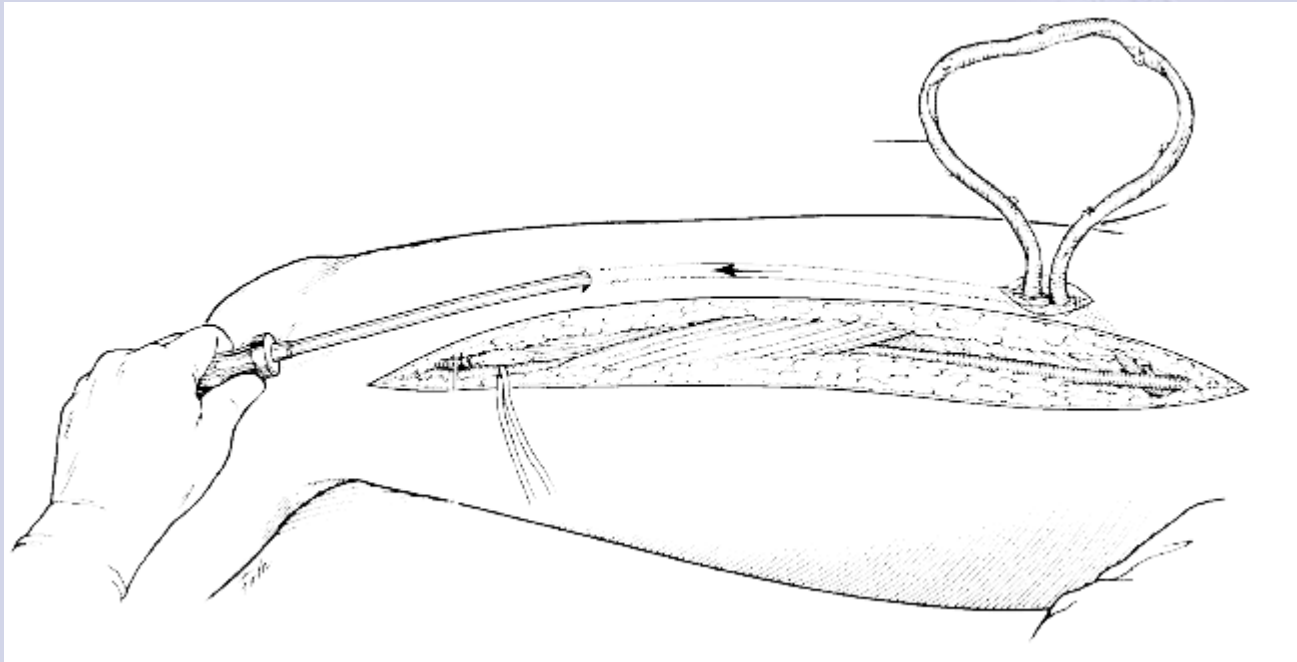
Patients

- Retrospective study
- 72 tFV, from 1984 to 2011 in 70 patients
- Sex ratio: 1/1
- Mean age: 48 years (1 to 84), 7 < 16 yrs included
- Mean time since beginning hemodialysis = 10 years
- Kidney Transplantations
 - Before tFV: 16
 - After tFV: 9

Surgical technique

- Mobilization of the femoral vein from the adductor hiatus up to its junction with the deep femoral vein.
- Transposition: straight subcutaneous tunnel
- Construction of a direct side-to-end anastomosis to the distal superficial femoral artery.

Surgical technique



From Gradman JVS 2001

Surgical technique

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Anastomosis



72 tFV – EARLY RESULTS

- 2 immediate failures and 4 patients lost to follow-up soon after the access creation.
- 6 fistula ligation for early complications :
 - acute distal ischemia (n=5)
 - compartment syndrome(n=1).
- 59/72 tFV were utilized for dialysis after a mean delay of 2 months resulting in a 82% success rate.

tFV in Children



**7 years
later**



tFV in a teenager



A 80 years old man



Flow measurements

- 33 patients
- Duplex ultrasound
- Mean flow : 1529 mL/min
- SD = 429
- Range: 700 mL/min to 3000 mL/min

Minor Complications

Minor Complications	N tFV	Treatment
Hematoma	5	Drainage
Delayed wound healing	2	Debridement
Lymphocele	1	Drainage
Distal edema	2	Conservative
Total	10/72 (14%)	

After wound necrosis



Mild Complications

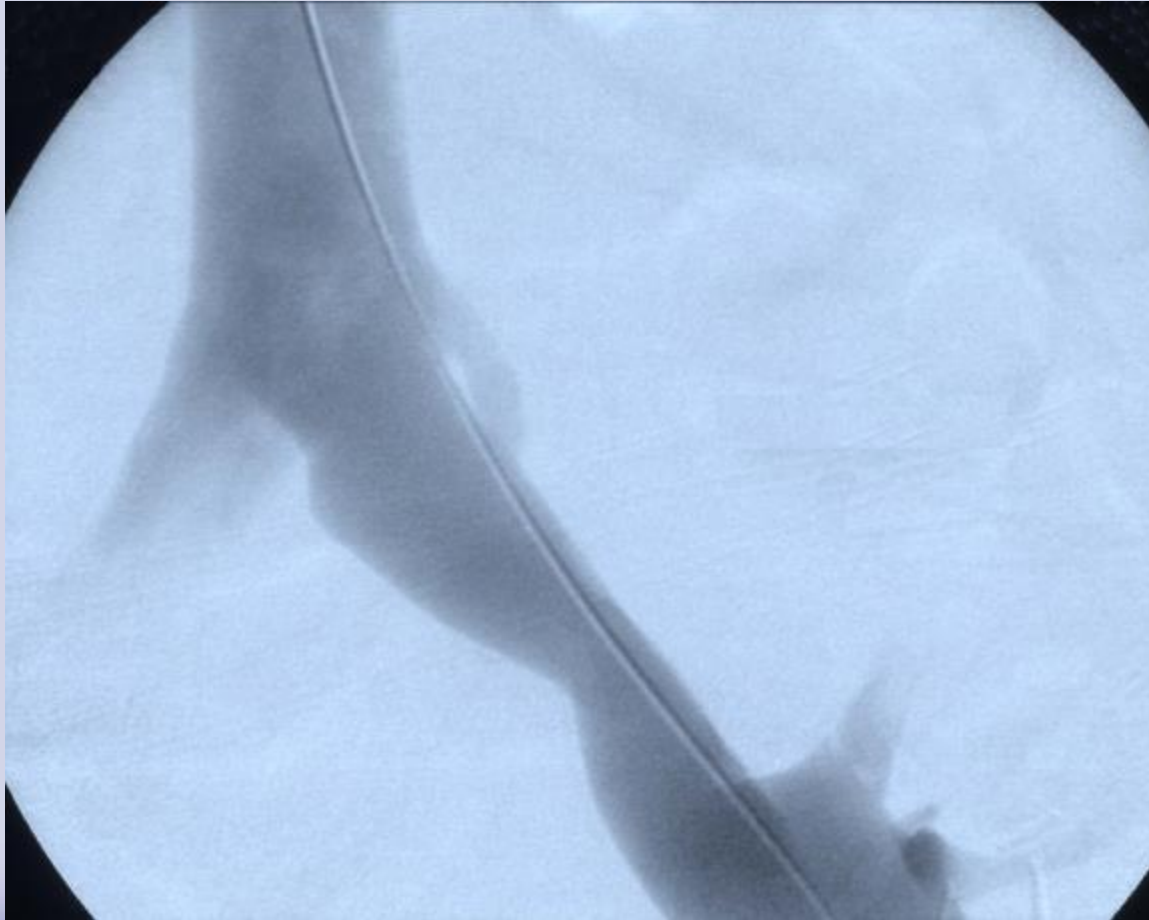
Mild Complications	N tFV	Treatment
Femoral vein and outflow stenosis	16	PTA 13 PTFE patch 3
Puncture site skin necrosis	2	Aneurysmorrhaphy + flap + PTA 2
Puncture site infection	1	PTFE derivation
Reversible thrombosis	3	Surgery 2, Percutaneous thrombectomy 1
Abandoned thrombosis	8 (after 8 years mean patency)	
Total	30/72 tFV (42%)	

Outflow stenosis



Outflow stenosis - PTA

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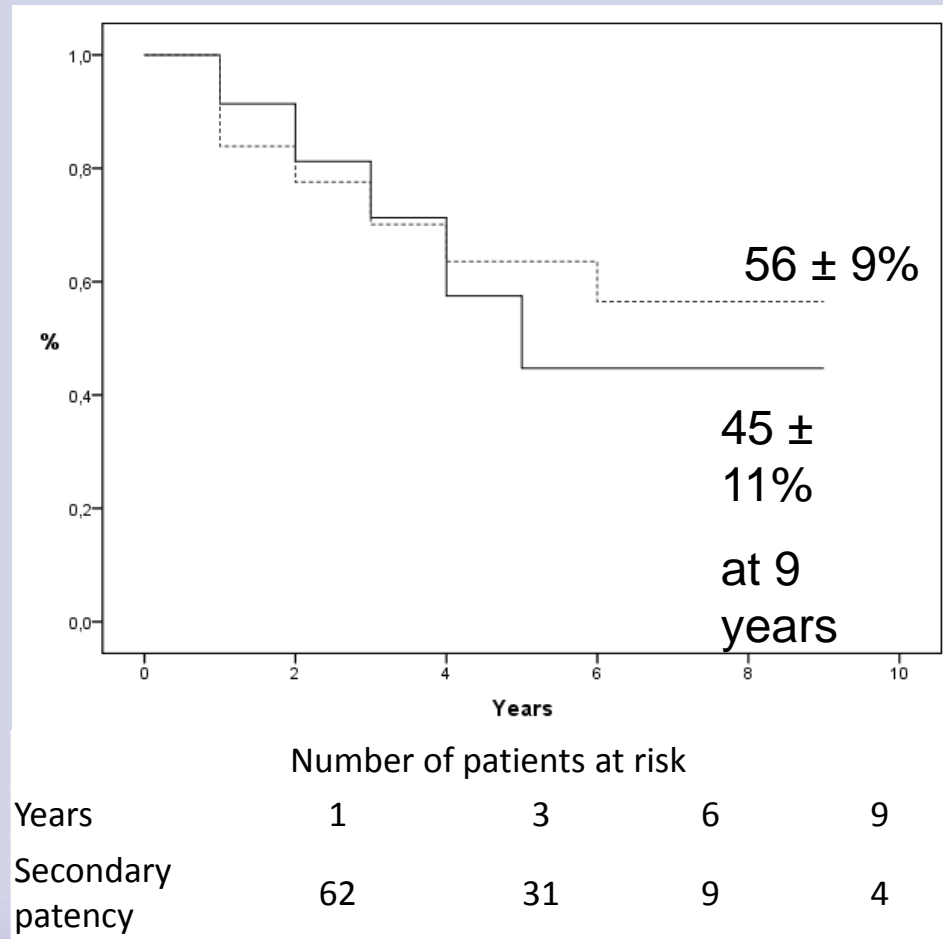
Aneurysm & Skin necrosis at puncture site



Major Complications

Major Complications	N tFV	Treatment
Acute distal ischemia	5	Fistula ligation 4 + Below-knee amputation 1
Acute venous hypertension	2	Fistula ligation
Lower leg compartment syndrome	1	Fistula ligation + fasciotomies
Bleeding	2	Fistula ligation
Major edema	2	Fistula ligation
High-output heart failure	1	Fistula ligation
Total	13 / 72 tFV (18%)	

Patency rates



WS. Gradman JVS 2002 - 2005

- 47 tFV
- 2002: 25 patients (unrestricted selection) → 9 distal ischemia (1 amputation)
- 2005: 22 patients (restricted selection and selective vein tapering → No distal ischemia
- Infection 0%
- Secondary patency: 90% at 2 years

Antoniou Lazarides 2008, Lower extremity AVA Meta-analysis

	N	Primary Patency (1 year)	Secondary Patency (1 year)	Ischemia (amputation)	Infection (access loss)
Grafts	720	48%	67%	7%	18%
Femoral vein	62	83%	93%	21%	2%

JM.Scollay. JVA 2010

- 12 patients, mean age: 53 years
- Secondary patency at 1 year: 80%
- 11 wound complications
- 2 lower limb ischemia (1 amputation)

Conclusion

- Femoral vein transposition in the lower limb is a valuable alternative to thigh arteriovenous grafts in terms of infection and long-term patency : 45% and 56% after 9 years of
- Secondary venous percutaneous angioplasties may be necessary.
- High flow rates are frequently observed and patient selection is essential in order to avoid ischemic & cardiac complications.