

Lipectomy as a new approach for superficialization of forearm arterio-venous fistulae

Jan Bijan Tawakol

Southwest Kidney Institute, Phoenix

Pierre Bourquelot

Clinique Jouvenet, Paris

Background

- Adipose tissue overlying the AV access makes cannulation more difficult.
- Infiltration and hematoma formation is frequent.
- Superficialization has previously been described by elevation or transposition of the vein in a subcutaneous tunnel. Mobilization and transposition however may cause torsion of the vessel which may lead to stenosis.
- We present a surgical technique in which fistulae of the forearm are superficialized by lipectomy without mobilization of the vessel.

Patients

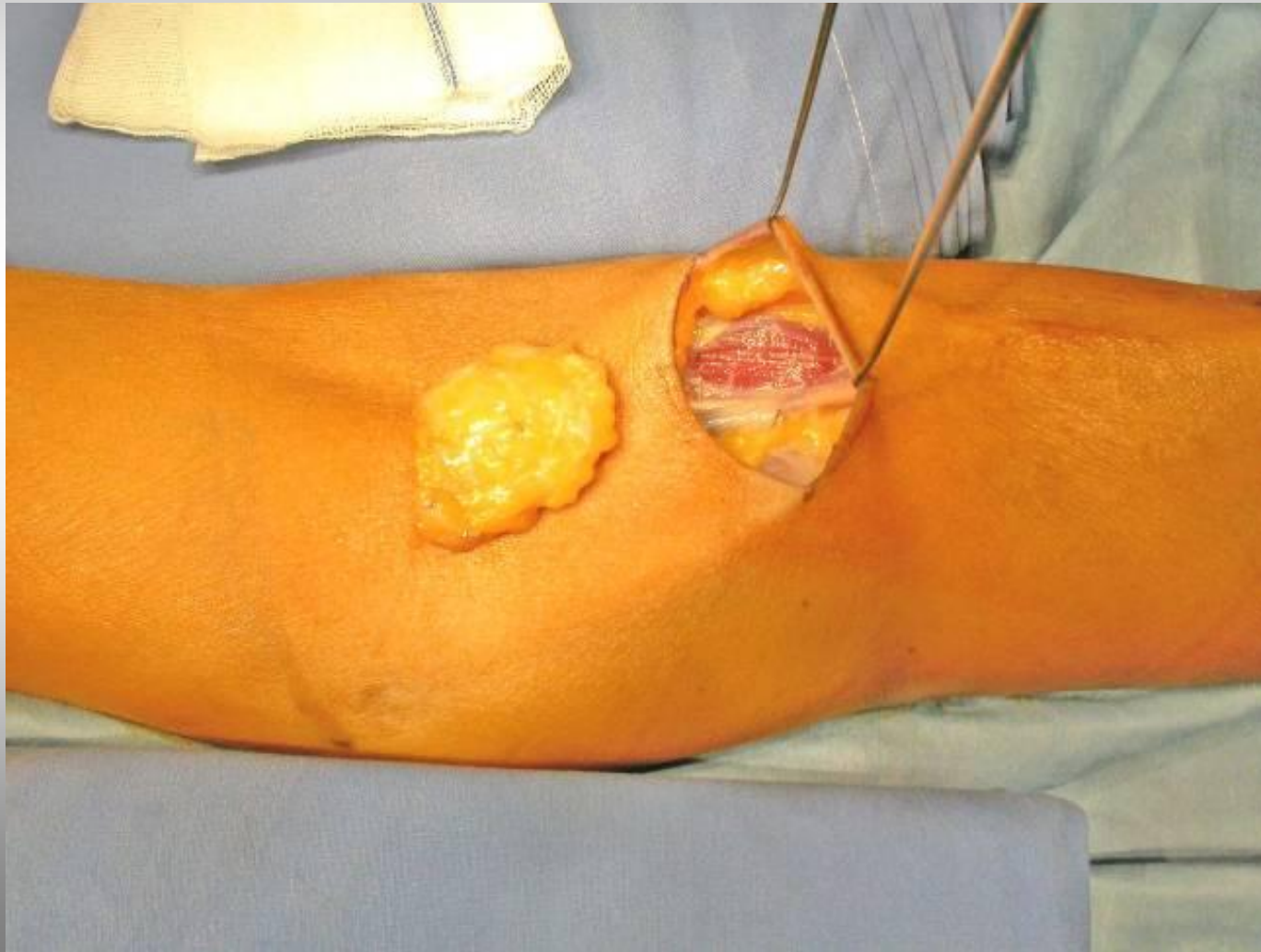
- 31 Patients underwent lipectomy during February 2003 and September 2006.
- The patients were followed for a minimum of 6 months duration.

Patient characteristics

Age (average)	54.0 (S.D = 16.0)
Females	67.7%
BMI (average)	29.8 (S.D. = 4.2)
Weight in kg (average)	79.8 (S.D. = 14.9)
Creatinine Clearance prior to surgery (average)	14.44 ml/min
Diabetes mellitus prevalence	32.3%
Hypertension prevalence	90.3%
Access Doppler flowrate (average)	833 ml/min (S.D. = 283)
Vein diameter at the time of surgery in mm (average)	7.03 (S.D. = 1.1)
Depth of the vein before intervention in mm	8.55 (S.D. = 3.2)
Depth of of the vein after intervention in mm	3.2 (S.D. = 1.2)

Surgical Technique

One or two incisions are made at a right angle over the cephalic vein. The subcutaneous adipose tissue is dissected from the skin distally and proximally from the incision site.



After release of the tourniquet



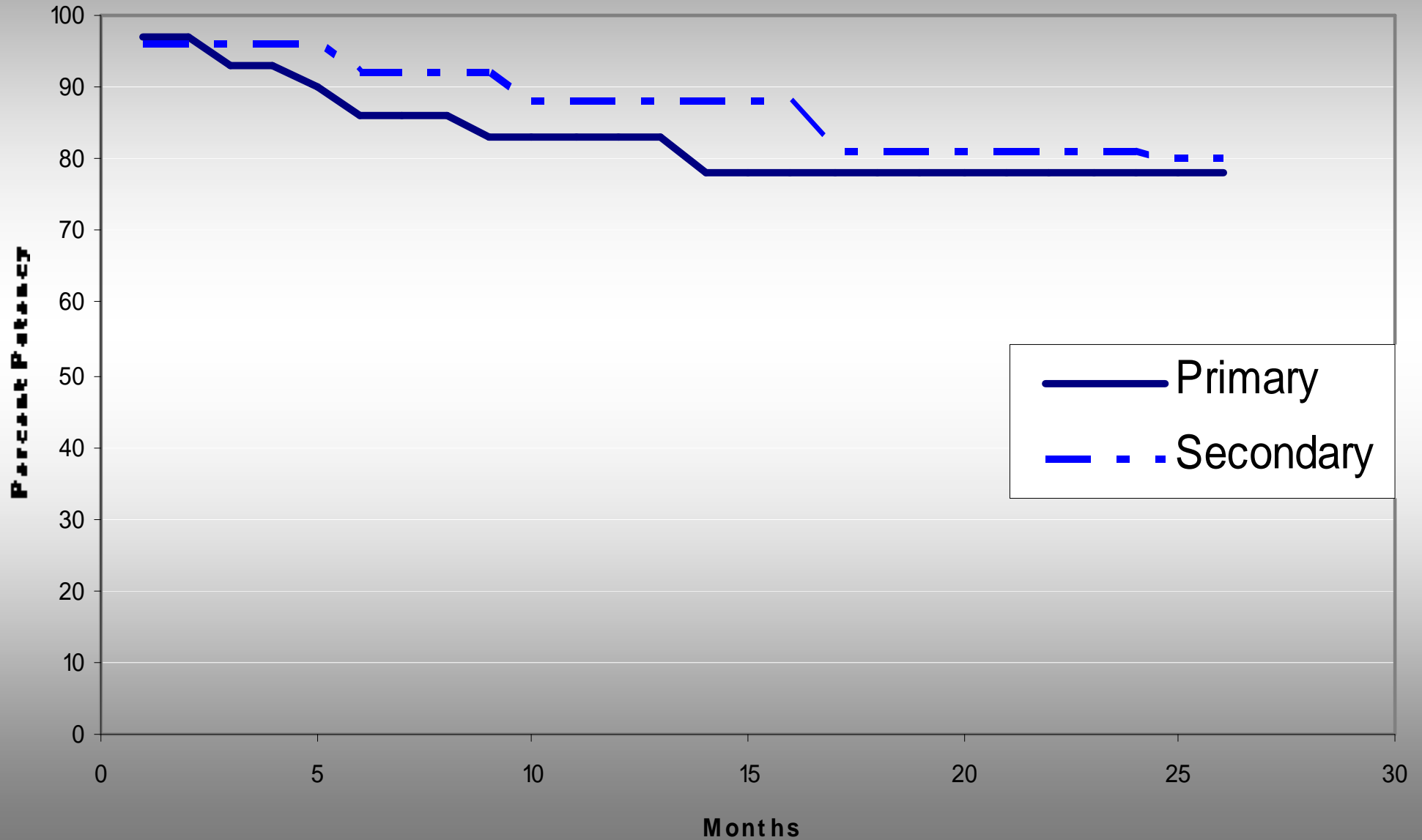
Final Result



Patency Rates

Months	Primary	Secondary
6	86%	92%
12	83%	88%
24	78%	81%

Results of Survival Analysis of the Primary and Secondary Patency Rates



Univariate Predictors of Failure by Cox Regression Analysis

Variable	Hazard Rate	Significance	95% Confidence Interval
Age	1.03	.005*	1.009 – 1.05
Body Mass Index	1.001	.99	.926-1.08
Smoking	.04	.12	.001-2.26
Diabetes Mellitus	2.34	.006*	1.28-4.28
Hypertension	3.16	.16	.27-21.90
Doppler Flow rate	.98	.03*	.96 - .999
Access Diameter	.54	.001*	.39 - .75
Depth Prior	.90	.09	.79 – 1.02
Female	2.42	.03*	1.07 – 5.45
Weight	1.03	.01*	1.01 – 1.05

*clinically significant

Conclusion

Difficulty cannulating a fistula is a common problem in our hemodialysis population.

This novel procedure facilitates cannulation of a hemodialysis access and provides a new asset to the spectrum of procedures available to achieve a usable and functioning fistula.

Superficializing a forearm fistula by lipectomy has a primary patency rate of 83% at one year.