Surgical treatment of atherosclerotic popliteal aneurysms

Retrospective study

A. Kerzmann, Q. Desiron, G. Dekoster, R. Limet

Patients and methods (1) :

- Retrospective study from 1987 to December 2004
- 86 patients underwent 114 interventions
- Mean age ⇨ 66 years old (36 to 86)
- Sex ratio ⇨ 84 men/2 women
- Mean follow-up 36 months (1 to 177)

Patients and methods (2) :

cardio-vascular risk factors

- smoking ⇨ 84%
- arterial hypertension ⇨ 56%
- dyslipemia ⇨ 36%
- diabetes ⇨ 14%

- coronaropathy ⇨ 35%
- stroke ⇨ 10%

Patients and methods (3) :

Aneurysms associated with popliteal aneurysms

- **Abdominal aorta ⇨ 43/86**
- **Isolated femoral artery ⇨ 5**
- **Isolated iliac artery ⇨ 3**
- **Thoracic aorta ⇨ 2**
- **Carotid artery ⇨ 1**
- **Axillar artery ⇨ 1**

Results (1) :

Mode of presentation

▸ Asymptomatic		41/114 (36%)
▸ Acute ischemia	⇨ thrombosis	37/114 (32%)
	⇨ embolism	9/114 (8%)
▸ Blue toe syndrome		2
▸ Claudication		20/114 (18 %)
▸ Compression (veinous or nervous)		3
▸ Rupture		2

Results (2) :

Mode of diagnostic

- Arteriography ⇨ 75%
- Ultrasound ⇨ 72%
- CT scan ⇨ 18%
- Perop diagnostic ⇨ 3,5%

- Mean diameter = 30,0 mm (12 to 76 mm)
- Bilateral 62% (33% of patients operated bil.)
- Thrombosed aneurysms 44%

Results (3) :

Types of intervention (1)

- **Bypass grafting 97**
  - ⇨ vein 79
  - ⇨ prosthesis 16
  - ⇨ composite 2
- **Exclusion-graft 17**
  - ⇨ vein 9
  - ⇨ prosthesis 8

Approach:

- medial 85%
- posterior 15%

Results (4) :

Types of intervention (2)

Bypass grafting

- **Inflow vessel**
  - ⇨ common femoral 75
  - ⇨ distal superficial 22
- **Outflow vessel**
  - ⇨ distal popliteal 84
  - ⇨ tibioperon. trunk 4
  - ⇨ anter. tibial 2
  - ⇨ post. tibial 5
  - ⇨ peroneal 2

Results (5) :

- preoperative thrombolysis 8

- associated procedure
  - embolectomy 21
  - perop. thrombolysis 4
  - aortic procedure 5
  - femoral procedure 7
  - fasciotomy 2
  - minor amputation 1
  - TEA tibioperoneal trunk 1

Results (6) :

Early complications

- Mortality 3 MOF/86 patients 3,4%
- Morbidity · general : PE (1); RF (1); DVT (1); pressure sore (1); MI (1); acute reaction to transfusion (1); PN (2)

  · local : distal embolism (1); hematoma (8); infection (4)

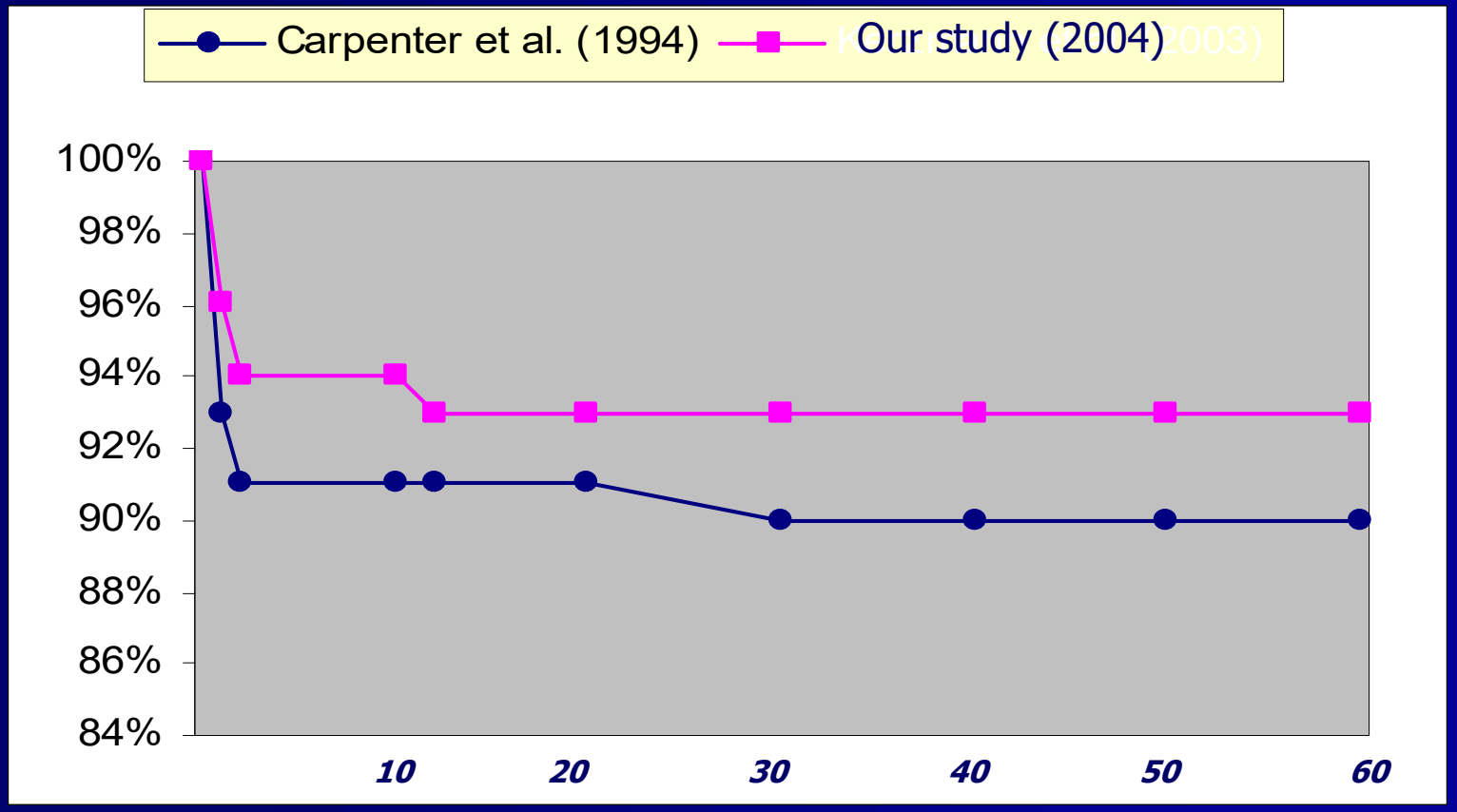
  18,4%
- Reinterventions : thrombosis (7); hemorrhage (5); fasciotomy (2); AVF (3); prosthetic infection (1); minor amputation (3); major

Results (7) :

Late complications

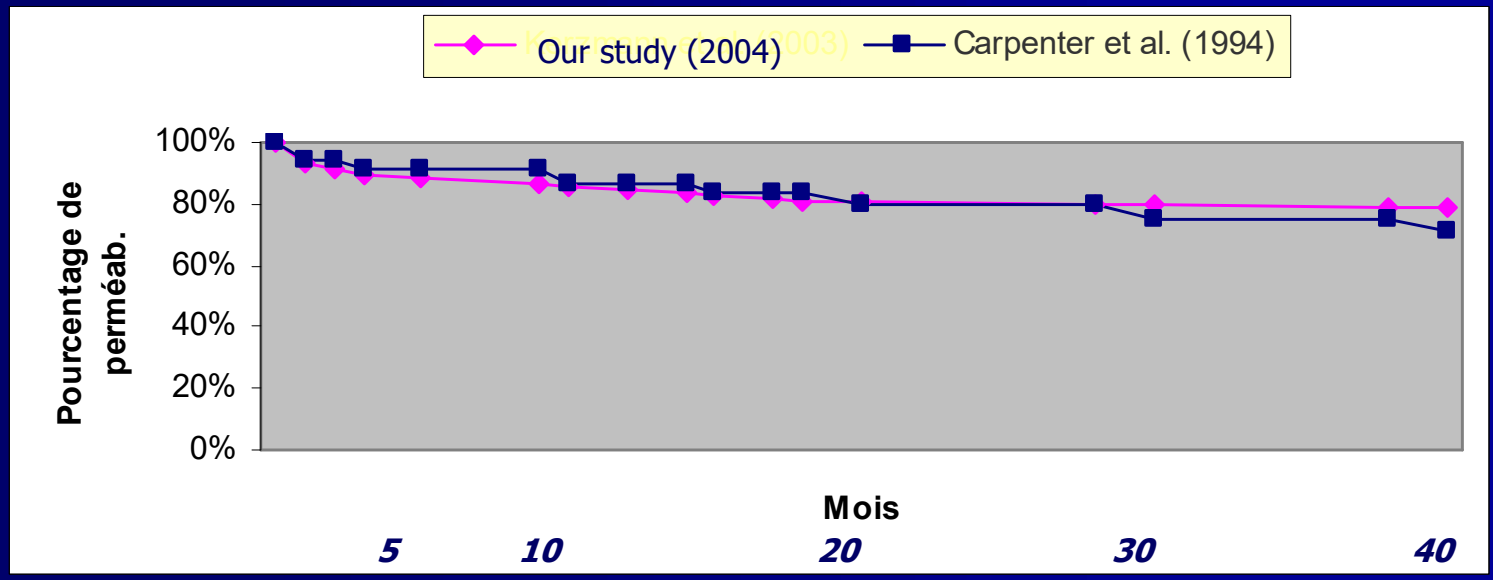
- Thrombosed graft 16
  - ⇨ medical management 7
  - ⇨ endovascular management 4
  - ⇨ surgical management 5
- Major amputation 1
- Minor amputation 2
- Neuritis 3
- Hematoma 1
- A-V fistula 3
- Anastomotic pseudo-aneurysm 1

Results (8) :



Limb salvage rate (month)

Results (9) :



Primary graft patency rate (month)

Comparison of studies :

AUTHORS	NUMBER OF CASES	AGE years old	FOLLOW-UP months	BILATERAL %	AAA %	ϕ mm	ASYMPT. %	ACUTE ISCHEMIA %	PREOP. THROMBOLYSIS	BYPASS/ REPLACEMENT	GRAFT (V/P) %/%	LIMB SALVAGE %	PRIMARY GRAFT PATENCY %
Dawson et al. 1991	44	65	60	42	36	36	14	19	0	42/2	60/40	95 (at 120 months)	75 (at 60 months)
Carpenter et al. 1994	45	64	62	62	58	27	39	44	7	32/13	93/7	94 (at 1 mon.) 90 (at 60 mo.)	95 (at 1 mo.) 71 (at 60 mo.)
Varga et al. 1994	133	69	22	54	33	20-30	22	28	9	133/0	78/22	-	-
Poirier et al. 1996	91	66	35	63	46	-	30	39	0	91/0	95/5	86 (at 39 months)	66 (at 60 months)
Sarcina et al. 1997	61	64	55	13	7	>20	69	19	0	32/29	16/84	83 (at 120 months)	75 (at 120 months)
Davidovic et al. 1998	59	61	48	32	20	42	19	53	0	39/20	87/13	95 (at 1 mon.) 72 (at 48 mon.)	93 (at 1 mon.) 78 (at 48 mon.)
Bowrey et al. 2003	47	73	35	46	41	-	45	28	9	47/0	98/2	91 (at 35 months)	74 (at 35 months)
Mahmood et al. 2003	50	68	26	44	27	-	56	27	4	30/20	100/0	94 (at 1 mon.) 87 (at 60 months)	87 (at 1mon.) 69 (at 60 months)
Our study 2004	*114*	*66*	*38*	*62*	*50*	*30*	*36*	*40*	*4*	*97/17*	*77/23*	*96 (at 1 month) 93 (at 36 months)*	*93 (at 1 month) 79 (at 36 months)*

Conclusions (1) :

- Popliteal aneurysms are the most frequent peripheral arterial aneurysms. They are often bilateral (62%) and associated with AAA (50%). ***NEED*** to look for the latter aneurysm in patients who present popliteal aneurysm(s).

- The most common mode of presentation is the thrombosis or embolism with threatened limb (40%). This clinical presentation may arise with aneurysms < 2 cm. ***INDICATION*** for prophylactic surgery with asymptomatic aneurysms ≥ 2 cm, even < 2 cm when there is thrombus at Doppler ultrasound.

Conclusions (2) :

- Some years ago, the pre-operative ***THROMBOLYSIS*** was suggested for patients with sub-acute ischemia (8/46). This technique is able to restore some trunks of the leg. For patients with more acute ischemia, per-operative thrombolysis may be indicated (4/46).

- The ***LIMB SALVAGE*** and the ***PRIMARY PATENCY GRAFT*** rates are satisfactory in our study (respectively 93% and 79% at 36 months).