

Surgical treatment of atherosclerotic popliteal aneurysms

Retrospective study

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Patients and methods (1) :

- ▶ **Retrospective study from 1987 to December 2004**
- ▶ **86 patients underwent 114 interventions**
- ▶ **Mean age \Rightarrow 66 years old (36 to 86)**
- ▶ **Sex ratio \Rightarrow 42 men/1 woman**
- ▶ **Mean follow-up 36 months (1 to 177)**

Patients and methods (2) :

cardio-vascular risk factors

▶ arterial hypertension	⇒	56%
▶ diabetes	⇒	14%
▶ smoking	⇒	84%
▶ dyslipemia	⇒	36%
▶ 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		1
▶ 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%
- Thrombosed aneurysms 39%

Results (3) :

Types of intervention (1)

► Bypass grafting 97

- ⇒ vein 79
- ⇒ prosthesis 16
- ⇒ composite 2

► Replacement-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

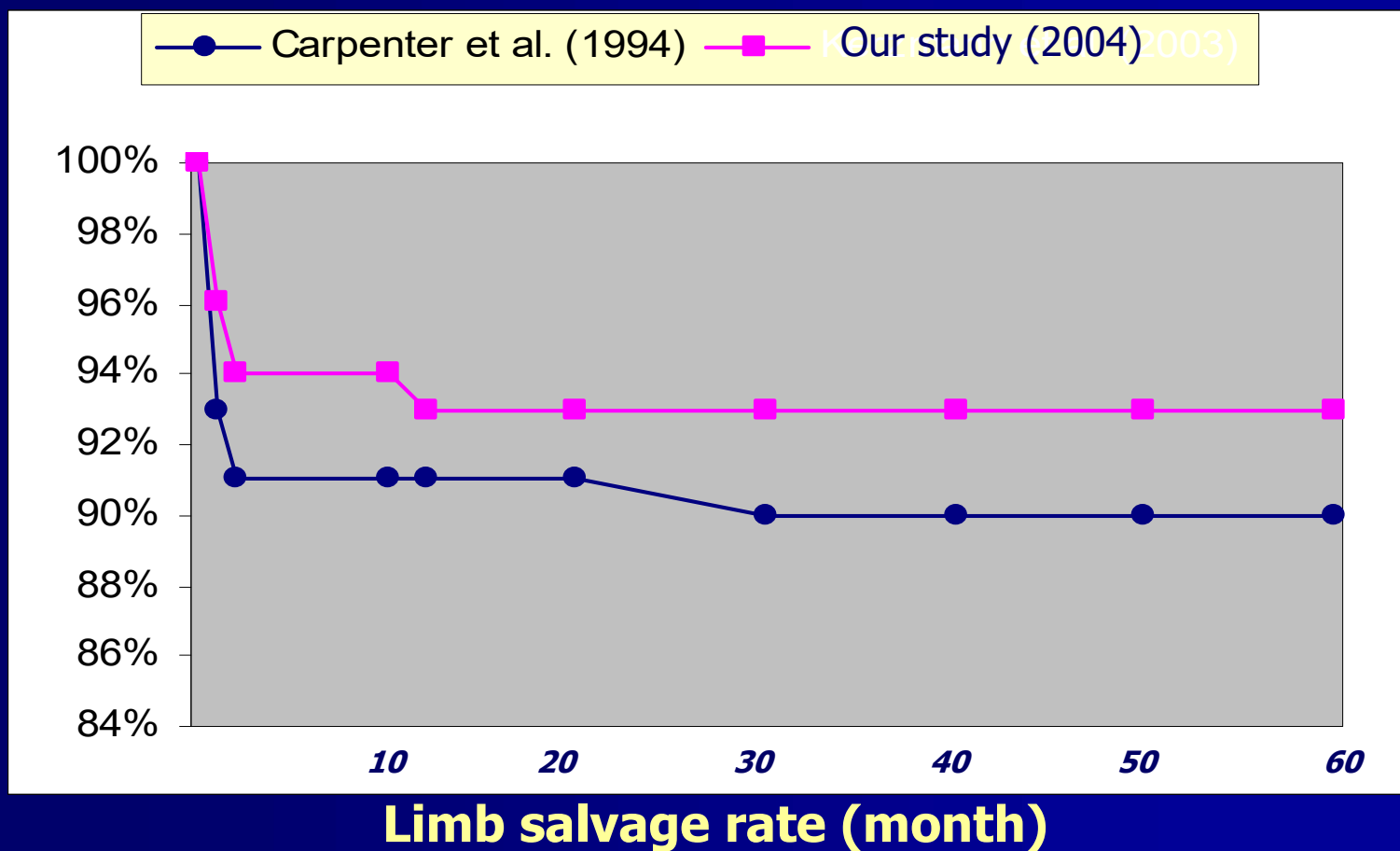
- ▶ **Mortality 3 MOF/86 patients** **3,4%**
- ▶ **Morbidity - general : PE (1); RF (1); DVT (1); pressure
reaction to transfusion (1);
BPN (2)**
- **local : distal embolism (1); hematoma
(8); infection (4)**
18,4%
- ▶ **Reinterventions : thrombosis (7); hemorrhage (5);
prosthetic infection (1); minor
amputation (3); major**

Results (7) :

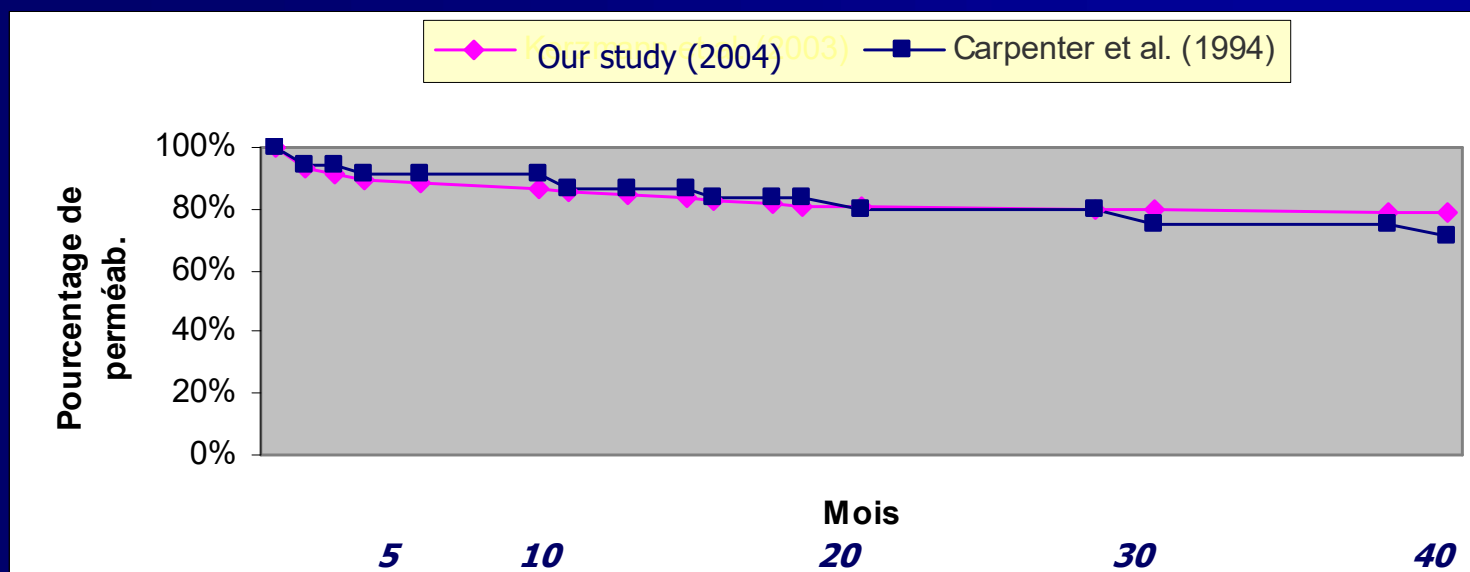
Late complications

▶ 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) :



Results (9) :



Primary graft patency rate (month)

Comparison of studies :

AUTHOR S	NUMB ER OF CASE S	AGE years old	FOLL OW-UP months	BILATERAL %	AAA %	ϕ mm	ASYMPT. %	ACUTE ISCHEMIA %	PREOP. THROMBOL YSIS	BYPASS/ REPLACEM ENT	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)
<i>Our study 2005</i>	<i>114</i>	<i>66</i>	<i>36</i>	<i>33</i>	<i>50</i>	<i>30</i>	<i>36</i>	<i>38</i>	<i>4</i>	<i>97/17</i>	<i>77/23</i>	<i>96 (at 1 month) 93 (at 36 months)</i>	<i>93 (at 1 month) 79 (at 36 months)</i>

Conclusions (1) :

- ▶ **Popliteal aneurysms are the most frequent peripheral arterial aneurysms. They are often bilateral (33%) 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 (41%). 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 (8/47). This technique is able to restore some trunks of the leg. For patients with more acute ischemia, per-operative thrombolysis may be indicated (4/47).
- ▶ The ***LIMB SALVAGE*** and the ***PRIMARY PATENCY GRAFT*** rates are satisfactory in our study (respectively 93% and 79% at 36 months).