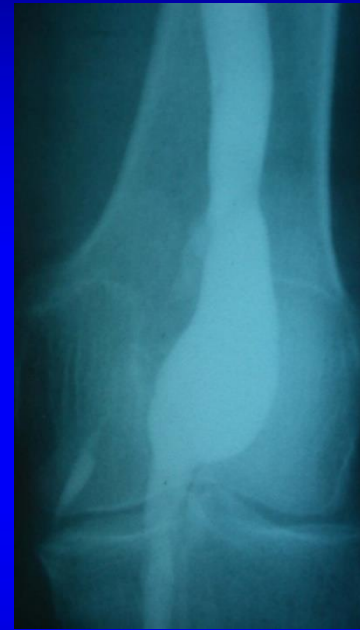


# Should the asymptomatic popliteal vein aneurysm be operated: indication and strategy. Pro

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**C.Sessa MD, PhD**

**Groupe Hospitalier Mutualiste de Grenoble**

**Controversies updates in Vascular Surgery  
January 19-21, 2017. Paris**

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## Disclosure

Speaker name: Carmine Sessa

.....

- 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

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Rare, underestimated

**Main risk**                      **thromboembolic complications**  
**pulmonary embolism (PE)**  
**recurrent PE**

Popliteal vein aneurysm presenting as recurrent PE. J Radiol Case Rep 2015

Popliteal venous aneurysm as a cause of recurrent PE. Vasc Endovasc Surg 2013

Recurrent PE secondary to popliteal vein aneurysm with intraluminal wall ulcer. Phlebology 2013

**Anticoagulation therapy alone : ineffective**

**Diagnosis during work-up for superficial or deep vein insufficiency**

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# Introduction

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## Incidental finding in asymptomatic patients with varicosities

**0,18% (7/3880) : Labropoulos, Surgery 1996**

**0,2% (7/2507) : Rubin, Am Venous Forum 1997**

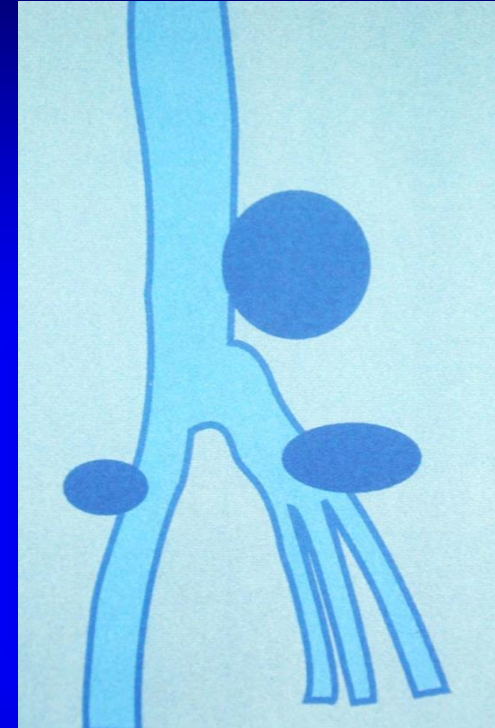
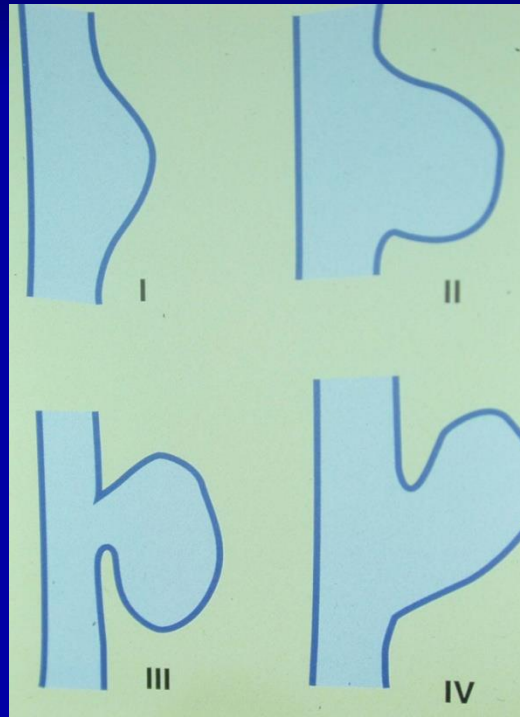
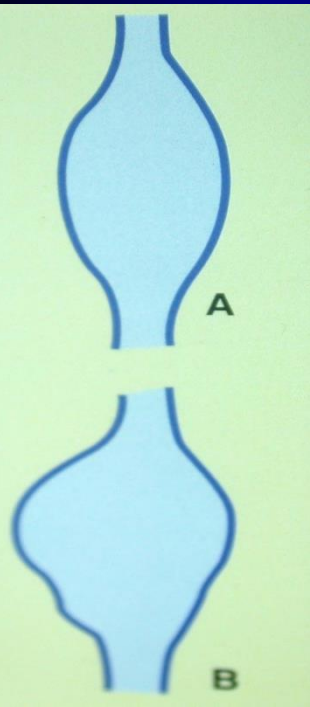
### ***Maldonado-Fernandez et al. Ann Vasc Surg 2013;32:902-12***

We found 91 cases in addition to the 117 cases (25 personal cases+  
92 cases from the literature) described by Sessa and colleagues  
(JVS 2000) as well as the 4 contributed by our group **(212 cases)**

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# Definition

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Fusiform  
25%

Saccular  
75%

-above knee popliteal vein +++

-sapheno-popliteal junction

- below knee popliteal vein

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# Clinical presentation

43-169-A ■ Anévrismes veineux

**Tableau 1.**

Caractéristiques cliniques des patients avec anévrismes veineux poplités opérés (n = 125).

Symptômes ou signes	Revue de la littérature (n = 98) <sup>a</sup>	Série personnelle (n = 27)
Embolie pulmonaire	47 <sup>a</sup> (49 %)	7 (26 %)
Thrombose veineuse profonde	7 (7 %)	6 (22 %)
Découverte d'une masse poplitée	6 (6 %)	0 (0%)
Maladie veineuse chronique		
Douleur, œdème de jambe	2 (12 %)	3 (10 %)
Varices	20 <sup>b</sup> (20 %)	14 (52 %)
Ulcère veineux	2 (2 %)	4 (15 %)
Angiodysplasie <sup>c</sup>	4 (4%)	0 (0%)

Note : Certains patients figurent dans plusieurs rubriques symptômes ou signes.

<sup>a</sup> embolie paradoxale (n = 3).

<sup>b</sup> [16, 46, 87].

<sup>c</sup> [16].

**EMC Techniques Chirurgicales. Vasculaire**

# Risk of pulmonary embolism

## Akagi Int Angiol 2006

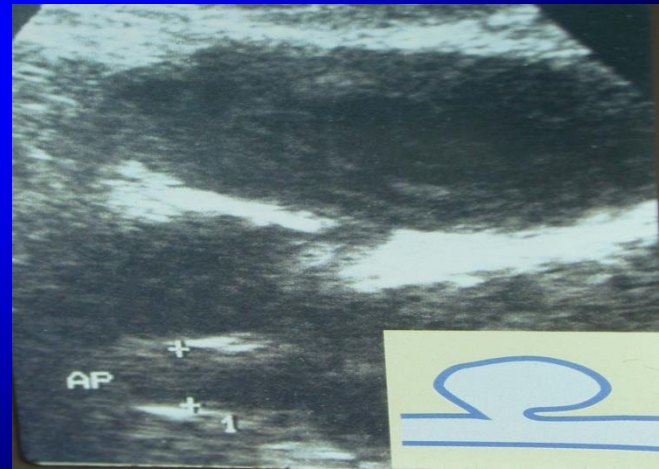
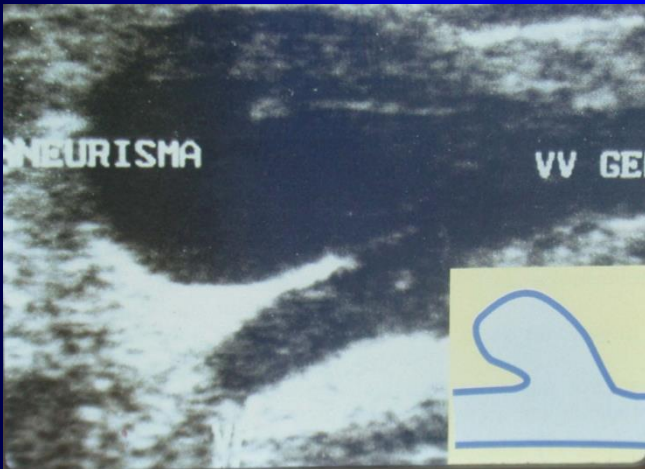
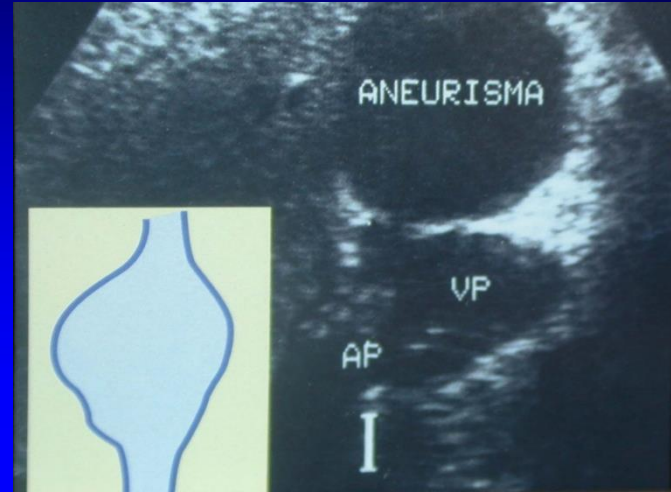
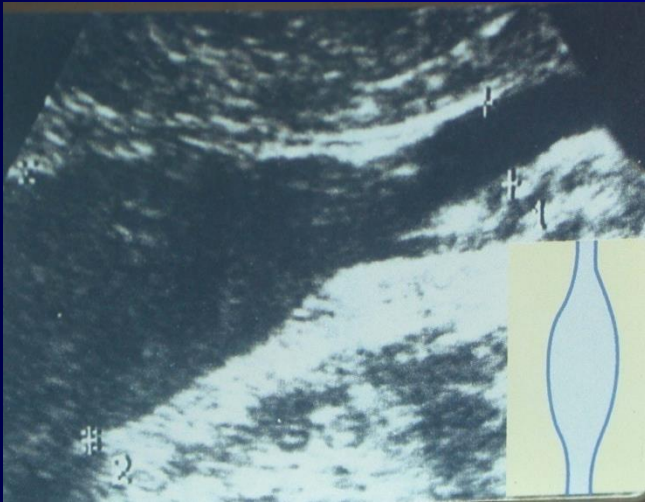
TABLE I.—List of reported cases of primary PVAs.

Author	Year	No. of cases	Aneurysms	Saccular (thrombus)**	Fusiform (thrombus)**	PE	Died
Ross <i>et al.</i> <sup>55</sup>	1988	2	2	1 (0)	1 (1)	2	0
Helsted <i>et al.</i> <sup>49</sup>	1991	3	3	3 (1)	0 (0)	1	0
Aldridge <i>et al.</i> <sup>41</sup>	1993	2	2	1 (0)	1 (1)	0	0
Cheatle <i>et al.</i> <sup>44</sup>	1993	5	5	3 (2)	2 (1)	0	0
Winchester <i>et al.</i> <sup>42</sup>	1993	3	3	3 (2)	0 (0)	1	0
Labropoulos <i>et al.</i> <sup>33</sup>	1996	7	7	7 (0)	0 (0)	0	0
Debing <i>et al.</i> <sup>32</sup>	1998	2	2	2 (2)	0 (0)	2	0
Sessa <i>et al.</i> <sup>2</sup>	2000	25	25	18 (9)	7 (2)	6	0
French <i>et al.</i> <sup>23</sup>	2003	2	2	1 (0)	1 (1)	1	0
Single cases	1976-2005	37*	38	24 (19)	14 (10)	22	1
<b>Total</b>		<b>88</b>	<b>89</b>	<b>63 (35)</b>	<b>26 (16)</b>	<b>35</b>	<b>1</b>
<b>% per total cases</b>		<b>100</b>				<b>39.3</b>	<b>1.1</b>

\*) One case had 2 aneurysms, on bilateral sides. \*\*) Cases of intra-aneurysmal thrombus detected on images. PE: pulmonary embolism.

**No correlation between the shape and the diameter of the PVA and the risk of thrombus formation and PE**

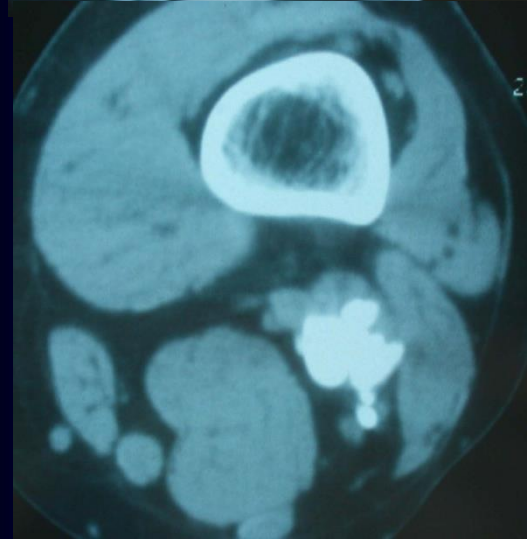
# Duplex scan



**Standing position**

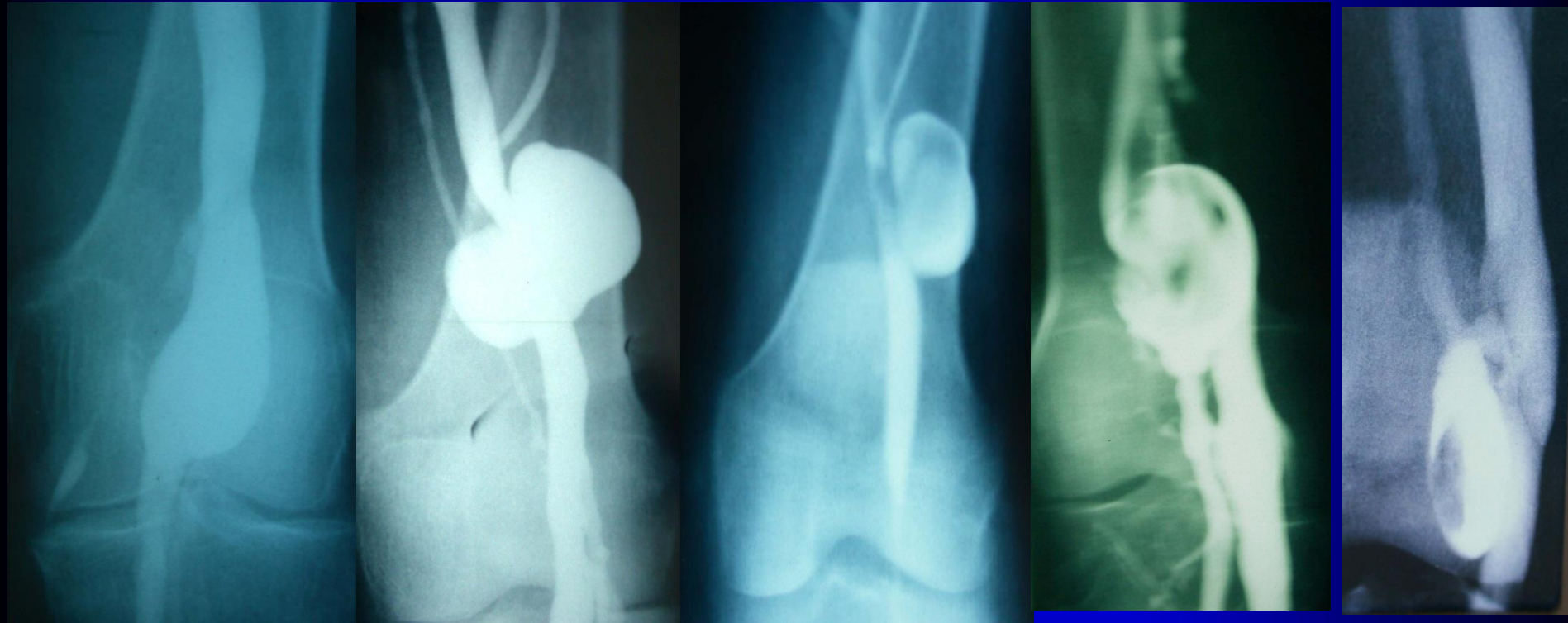


# Imaging



# Imaging

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**No correlation between the shape and the diameter of the PVA and the risk of thrombus formation and PE**

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# Management strategy

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## Anticoagulation therapy alone : ineffective

Sessa et al J Vasc Surg 2000

Maldonado-Fernandez et al. Ann Vasc Surg 2013

Medical treatment of PVA beginning with thrombotic episode was found to associated with **80% of new thromboembolic episode**

Asymptomatic patients treated **with anticoagulation alone had a failure rate of 43%**, with thromboembolic complications.

**5 deaths** due to PE in patients with medical treatment

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# Strategy

**Symptomatic patients: PE, DVT** → **SURGERY**

**Asymptomatic patients**

**PVA**

**Saccular**

**Fusiform**

**> 20 mm**

**< 20 mm**

**Any size  
With or without  
thrombus**

**With or without  
thrombus**

**No thrombus**

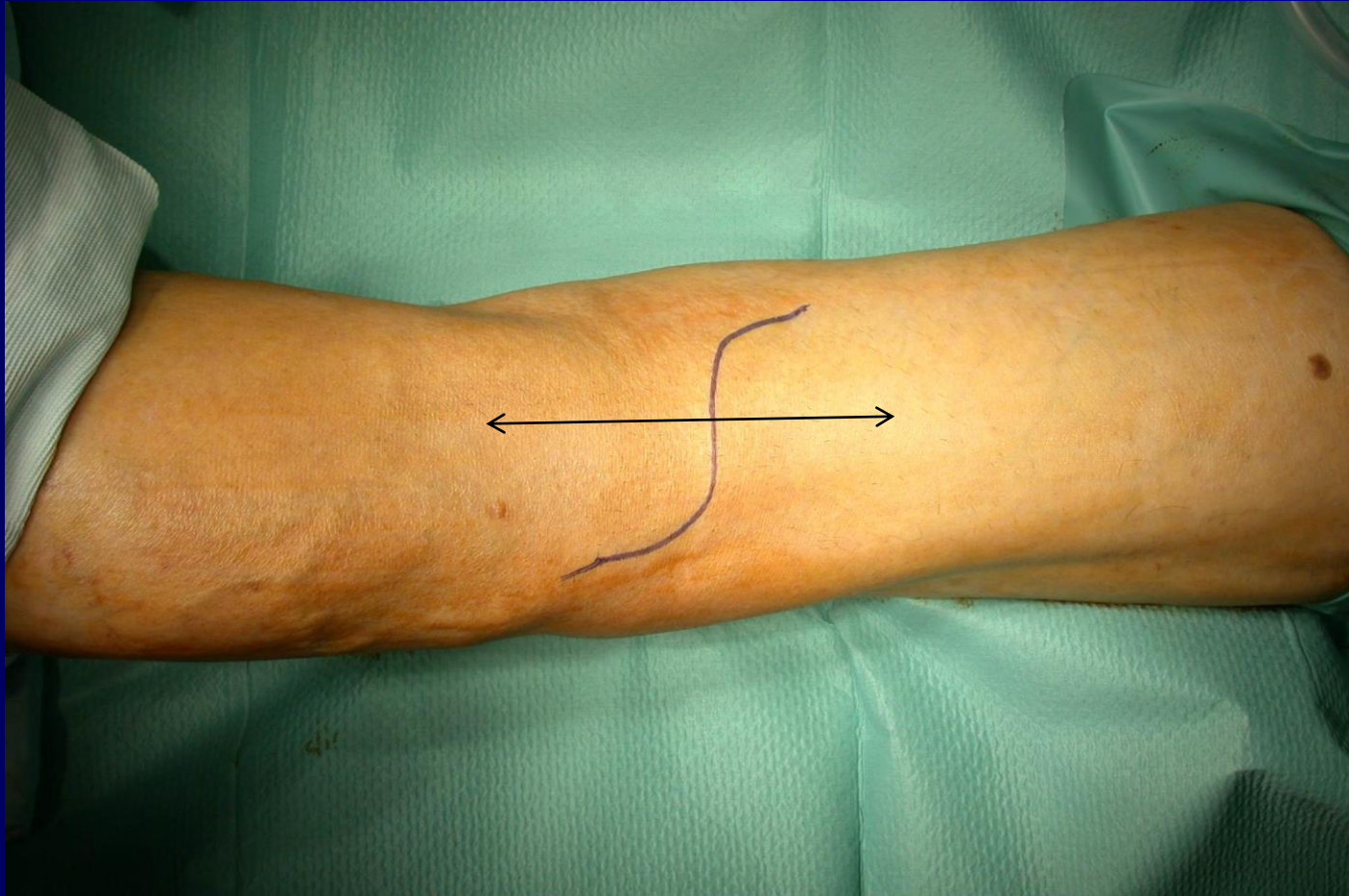
**Follow-up**

**Thrombus  
PE  
Enlargement**

**SURGERY**

# Surgical technique

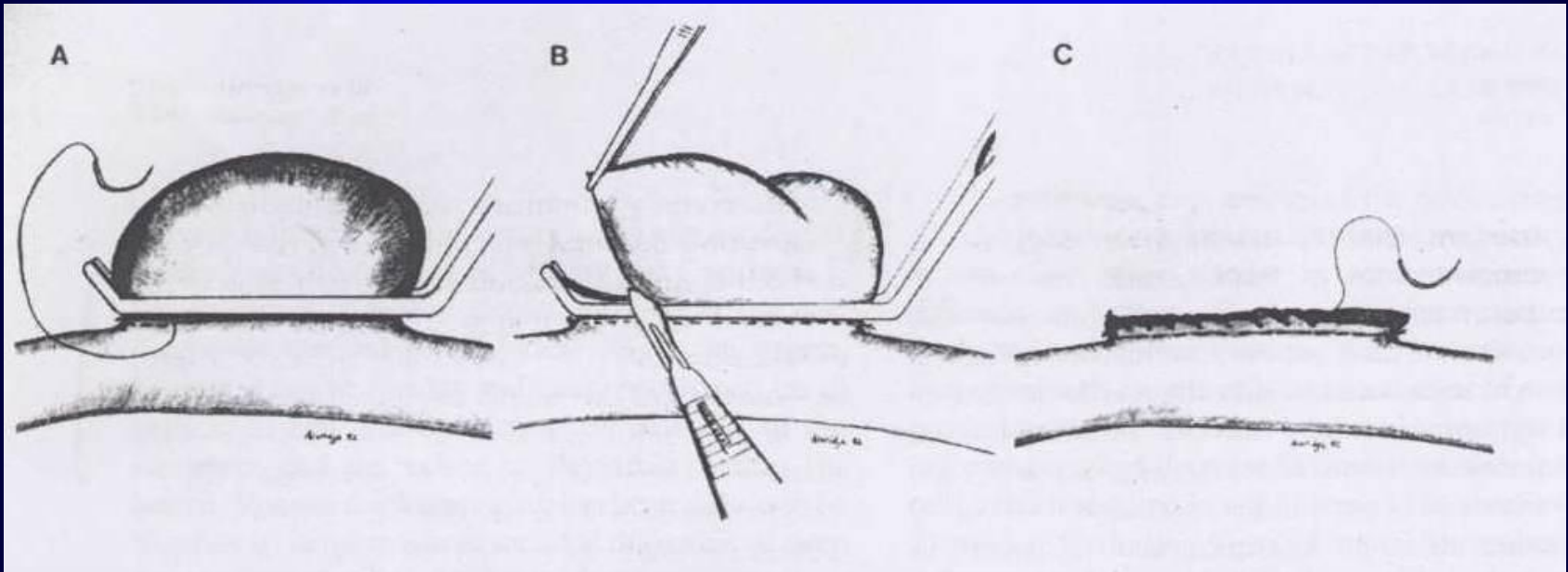
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# Surgical technique

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## Saccular aneurysm without thrombus



### Aldridge technique

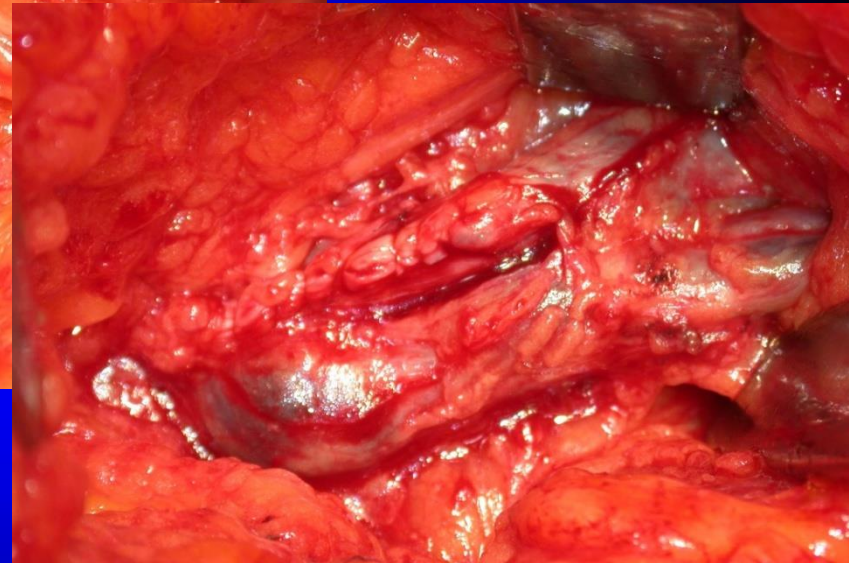
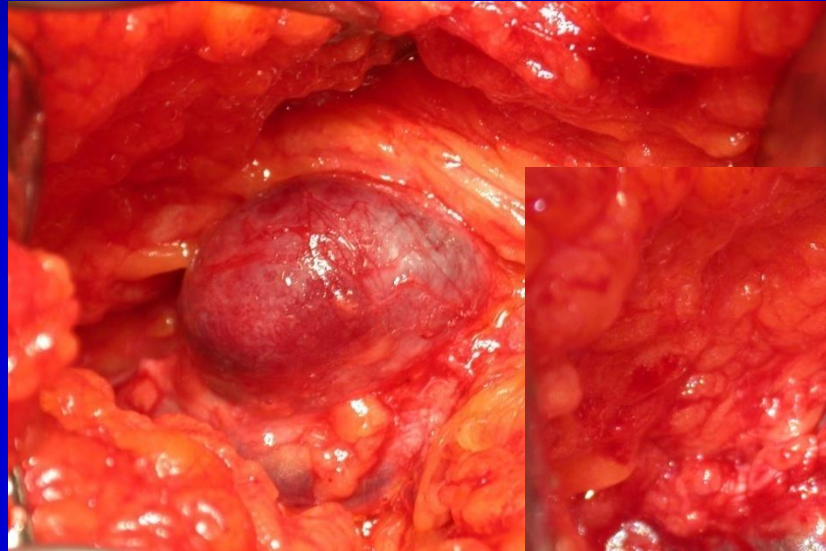
Tangential aneurysmectomy with lateral venorrhaphy

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# Surgical technique

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## Saccular aneurysms without thrombus



**Tangential aneurysmectomy with lateral venorrhaphy**

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# Surgical technique

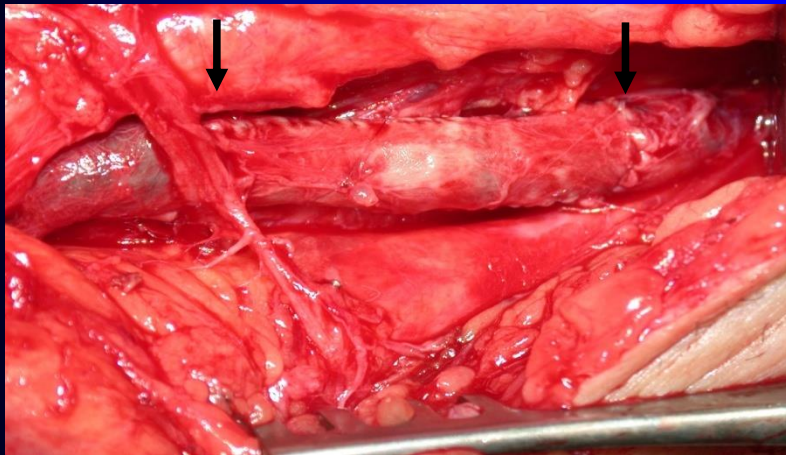
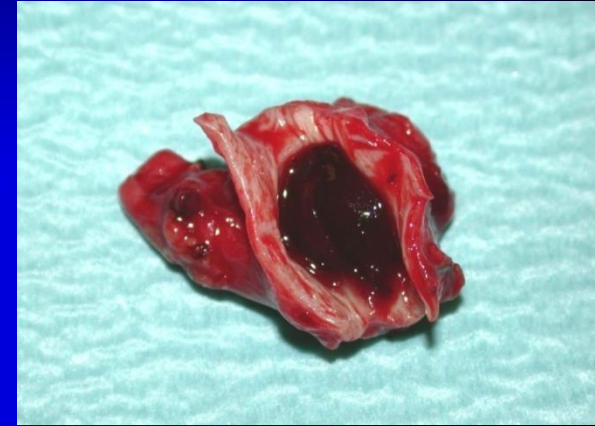
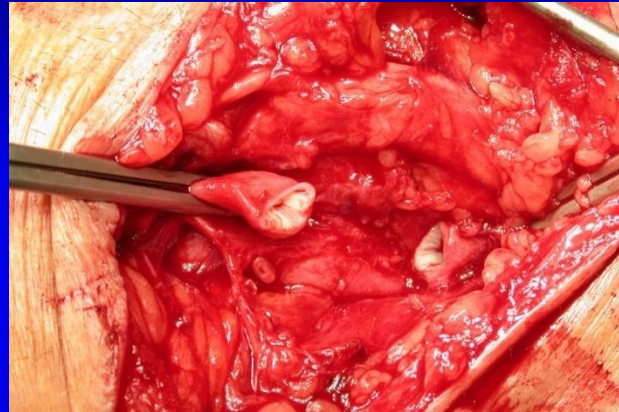
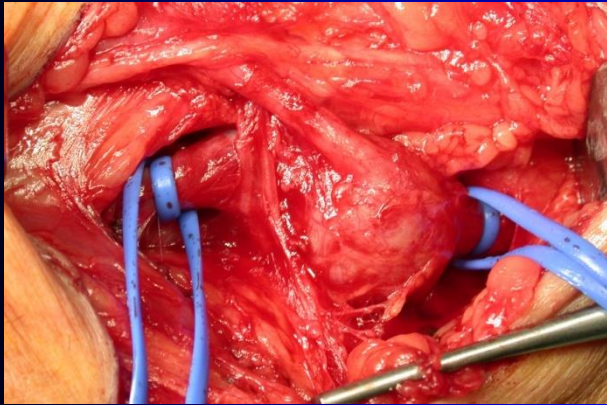
## Saccular aneurysm with thrombus





# Surgical technique

## Fusiform aneurysm with thrombus



**Tubulated vein graft with controlateral GSV**

# Surgical techniques

43-169-A ■ Anévrismes veineux

**Tableau 2.**

Traitement chirurgical des anévrismes veineux poplités.

Type de chirurgie	Revue de la littérature (n=98)	Série des auteurs (n=27)
Anévrismectomie tangentielle avec veinorrhaphie latérale	58	20
+ patch veineux	2	0
+ <i>wrapping</i> PTFE	1	1
Réséction – pontage veineux	12	4
Réséction – anastomose	7	2
Réséction – pontage en PTFE	1	0
Ligature - pontage veineux	1	0
Réséction – transposition veineuse	1	1
Réséction sans restauration veineuse	7	0
Ligature	6	0
Filtre VCI sans traitement de l'AVP	4	2 <sup>a</sup>
Thrombectomie de l'AP sous CEC + filtre VCI	1 (décédé)	1 <sup>a</sup> (vivant)

VCI : veine cave inférieure. AP : artère pulmonaire. CEC : circulation extracorporelle.

<sup>a</sup> Procédures associées au traitement de l'AVP.

**Sessa C, Perrin M, Nicolini Ph. Anévrismes veineux.  
Techniques chirurgicales. EMC 2005**

# Strategy. Sessa et al. J Vasc Surg 2000

Symptomatic patients: PE, DVT

**SURGERY**

Asymptomatic patients

**PVA**

**Saccular**

**Fusiform**

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**With or without  
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**No thrombus**

**Follow-up**

**Thrombus  
PE  
Enlargement**

**SURGERY**

# Conclusions

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***Maldonado-Fernandez et al. Ann Vasc Surg 2013;32:902-12***

**CONCLUSIONS:** The most recent publications confirm the recommendations made by Sessa et al. more than 10 years ago. Thus, no further changes should be made to the current approach to treatment of venous aneurysms.

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