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

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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

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
Introduction

Incidental finding in asymptomatic patients with varicosities

0.18% (7/3880) : Labropoulos, Surgery 1996

0.2% (7/2507) : Rubin, Am Venous Forum 1997


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)
Fusiform
25%

Saccular
75%

- above knee popliteal vein +++

- sapheno-popliteal jonction

- below knee popliteal vein
### Clinical presentation

#### Tableau 1.
Caractéristiques cliniques des patients avec anévrismes veineux poplités opérés (*n* = 125).

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

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

*a* embolie paradoxale (*n* = 3).

*b* [16, 46, 67].

*c* [16].

**EMC Techniques Chirurgicales. Vasculaire**
## Risk of pulmonary embolism

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

### Table I. — List of reported cases of primary PVAs.

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

% per total cases: 100

% per total cases: 39.3

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

Standing position
Imaging

No correlation between the shape and the diameter of the PVA and the risk of thrombus formation and PE
Anticoagulation therapy alone: ineffective


Medical treatment of PVA beginning with thrombotic episode was found to be 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.
Symptomatic patients: PE, DVT → SURGERY

Asymptomatic patients:

PVA

Saccular

Any size
With ou without thrombus

Fusiform

> 20 mm
With ou without thrombus

< 20 mm
No thrombus
Follow-up
Thrombus
PE
Enlargement

SURGERY
Surgical technique
Surgical technique

Saccular aneurysm without thrombus

Aldridge technique

Tangential aneurysmectomy with lateral venorrhaphy
Surgical technique

Saccular aneurysms without thrombus

Tangential aneurysmectomy with lateral venorrhaphy
Surgical technique

Saccular aneurysm with thrombus
Surgical technique

Fusiform aneurysm with thrombus

Tubulated vein graft with contralateral GSV
## Surgical techniques

**Tableau 2.**
Traitemet chirurgical des anévrismes veineux poplités.

<table>
<thead>
<tr>
<th>Type de chirurgie</th>
<th>Revue de la littérature (n=98)</th>
<th>Série des auteurs (n=27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anévrismectomie tangentielie</td>
<td>58</td>
<td>20</td>
</tr>
<tr>
<td>avec veinorrhaphe latérale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ patch veineux</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>+ <em>wrapping</em> PTFE</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Résection – pontage veineux</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Résection – anastomose</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Résection – pontage en PTFE</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Ligature - pontage veineux</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Résection – transposition veineuse</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Résection sans restauration veineuse</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Ligature</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Filtre VCI sans traitement de l’AVP</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Thrombectomie de l’AP sous CEC</td>
<td></td>
<td>1 (vivant)</td>
</tr>
<tr>
<td>+ filtre VCI</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


*Procédures associées au traitement de l’AVP.

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**Sessa C, Perrin M, Nicolini Ph. Anévrysmes veineux. Techniques chirurgicales. EMC 2005**
Symptomatic patients: PE, DVT

Asymptomatic patients

PVA

Saccular

Any size
With ou without thrombus

Fusiform

> 20 mm
With ou without thrombus

< 20 mm
No thrombus
Follow-up

Thrombus
PE
Enlargement

SURGERY

Conclusions


**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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