Popliteal Artery Aneurysm Repair Vs. Exclusion

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Disclosures

Speaker’s Bureau:

• Gore
• Endologix
• Merrit (HeRO graft)
• Normal diameter is 0.5-1.1 cm.
• 2 cm in diameter is considered aneurysmal.
• It is the most common peripheral artery aneurysm (70%).
• Incidence is 7.4 x 100,000 males and 1 x 100,000 females between ages of 65-80.
• 50% bilateral
• 30-50% associated to AAA
• 50% will develop another aneurysm in the following 10 years.
• Growth
  • 1.5mm/year in smaller than 20mm.
  • 3.0mm/year when between 20-30mm.
  • 3.7mm/year when over 30mm.

• Hypertension most common risk factor

• Rupture rate 2.5%

• 74% will have complications of this condition in the 5 following years.
Indications for treatment

- Symptomatic aneurysm
- 2.0-2.5cm in diameter
Open Vs Endovascular
Mayo Clinic experience
(Huang et al, JVS 45:706-713, 2007)

• 3 groups (asymptomatic, chronic symptoms and CLI)
• Overall mortality 1% (CLI)
• Amputation 8% (CLI)
• ACS 8% (CLI)
• Patency at 5 years
  • Primary 76%
  • Secondary 84%
• Italian experience
• Prospective randomized clinical trial
• PAA of at least 2cm
• 1cm neck (distally and proximally)
• Exclusion criteria
  • Less than 50y/o, poor distal runoff, contraindication for antiplatelets
• 7 years study with 48 treated aneurysm in 42 patients, 27 open and 21 endo.
• Patency rates

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<tr>
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<th>Open Repair</th>
<th>Endovascular Repair</th>
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<tbody>
<tr>
<td>Primary Patency 12mon.</td>
<td>100%</td>
<td>88.15%</td>
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<tr>
<td>Primary Patency 72mon.</td>
<td>80.9%</td>
<td>71.4%</td>
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<tr>
<td>Secon. Patency 72mon.</td>
<td>88.15%</td>
<td>85.9%</td>
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Endoluminal Exclusion of Popliteal Artery Aneurysms: Ultrasound guidance is Superior to Fluoroscopy

David Varnagy M.D. R.V.T, John Horowitz M.D., Doug Marcum R.V.T., Paul Tate R.V.T.

Popliteal artery aneurysms are the most common of the infrainguinal peripheral arterial aneurysms, comprising 70% to 85% of the total aneurysms in the peripheral arteries. Open repair of popliteal artery aneurysms has long been considered the gold standard treatment. More recently, however, endovascular repair of popliteal artery aneurysms has become more popular. One of the limitations of endovascular stent-grafting of popliteal artery aneurysms is the accurate sizing of the proximal and distal landing zones. Inaccurate sizing either can lead to failure of aneurysm exclusion if undersized or graft thrombosis if oversized. Ultrasound guidance has been used to more accurately size the landing zones for popliteal artery aneurysm stent-graft repair as well as assist in performing the deployment of the graft itself. Color flow doppler ultrasound is also able to more accurately detect endoleaks in the peri- and post-procedure period. We have found ultrasound guidance to be superior to fluoroscopy for arterial sizing during popliteal artery aneurysm endoluminal repair and for the assessment of aneurysm exclusion.

This study documents early outcomes of a series of endoluminal popliteal artery aneurysm repairs using ultrasound guidance. METHODS: A review of our experience using ultrasound guidance to aid in the endoluminal repair of popliteal artery aneurysms was performed. Three cases of popliteal artery artery aneurysm repair are reported using ultrasound guidance. Patency was defined as continued presence of palpable pulses or maintenance of postoperative ankle-brachial index +/- 0.15. RESULTS: A total of 3 popliteal artery aneurysm repairs were performed. The popliteal artery aneurysm exclusions were performed using the Viabahn endoprostheses (WL Gore) under ultrasound guidance. Technical success was 100%. Mean follow-up was 6 months. Successful exclusion of the aneurysms was achieved in all three cases and confirmed by color flow doppler at the time of the procedure and during outpatient follow-up. CONCLUSION: In our experience ultrasound guidance is better than fluoroscopy in sizing endoprostheses for endovascular repair of popliteal artery aneurysms and for assessing exclusion of the aneurysm post-procedure. Other benefits include less radiation exposure and lower contrast requirements, a benefit that may prove significant in patients with renal insufficiency.
• I reviewed more than 14 studies, including 3 Meta-Analysis.
• There is no significant difference between open and endovascular therapy in all LOW QUALITY and POWER studies.
Conclusions

• Open repair is still more commonly used (better patency rates)
• Endovascular exclusion has been used in mostly asymptomatic disease, with optimal runoff.
• Endovascular approach provides less wound complications rates and faster recovery.
• Endoluminal treatment requires detailed study of the aneurysm anatomy.
• In my opinion, Endovascular repair should be reserved for patients with expected high surgical morbidity and/or lack of autogenous conduit.
• In the setting of acute thrombosis, lysis has shown increase limb salvage.
• Use common sense