Management of Common Femoral Disease – I Disagree: Surgical Reconstruction is Still the Gold Standard for CFA Reconstruction

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Disclosure

Speaker name: Matthew Menard

I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☒ Other(s) – Scientific Advisory Board: Janssen, Inc

☐ I do not have any potential conflict of interest
Common Femoral Artery Occlusive Disease

- Endarterectomy historical gold standard
  - Easy surgery
  - Stellar results
  - Durability

- Traditional “no stent” zone
  - CFA centerpoint of surgical world
  - Joint flexion point
  - Negatively impact access for future endo care
Where goes the profunda, there goes the leg...
Common Femoral Artery Endarterectomy
Hybrid - “Dartmouth Special”

Literature validates hybrid iliac stenting in combination with femoral endarterectomy

Ruzidlo et al, JVS 2003,

• 34 pts – external iliac covered stents
• 53% concomitant CFA endarterectomy

• 70% one year primary patency
• 88% one year primary assisted patency
66 y.o. F s/p R CFA endarterectomy, with progressive L sided claudication
Common Femoral Artery Endarterectomy

Historically very low-risk elective operation

• 1513 patients
• 30-day mortality rate -- 1.5%
• Morbidity
  – Superficial surgical site infection -- 6.3%
  – Cardiac complications -- 1%
  – Pulmonary complications -- 1.9%
• High-risk patients
  – Functional dependent
  – Dyspnea
  – Obesity
  – Steroid use
  – Diabetes

Assessing the Perioperative Safety of Common Femoral Endarterectomy in the Endovascular Era

Jeffrey J. Siracuse, MD, Heather L. Gill, MD, Darren B. Schneider, MD, Ashley R. Graham, BA, Peter H. Connolly, MD, Douglas W. Jones, MD, and Andrew J. Meltzer, MD
Common femoral artery occlusive disease: Contemporary results following surgical endarterectomy

Jeanwan L. Kang, MD, Virendra I. Patel, MD, Mark F. Conrad, MD, Glenn M. LaMuraglia, MD, Thomas K. Chung, MA, and Richard P. Cambria, MD, Boston, Mass

Surgery 2013; 58(1):277
Common Femoral Artery Endarterectomy

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Surgery 2013; 58(1):277

- 100% Technical Success
- Average LOS -- 3.2 days
- Survival at 5 years -- 70%
- No perioperative mortality
- No amputations
- Assisted primary patency at 5 yrs -- 100%
Endovascular Options

- POBA
- Drug-eluting angioplasty
- Atherectomy
- Laser
- Stenting
- Stent grafting
- Lithoplasty
Endovascular Therapy of Common Femoral Artery Occlusive Disease

- Small single center studies
- Limited statistical analysis
- Heterogeneous patient profiles
- Limited follow up
## Endovascular Therapy of Common Femoral Artery Occlusive Disease

<table>
<thead>
<tr>
<th>Author</th>
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<tr>
<td>et al. 2016</td>
<td>Balloon angioplasty</td>
<td>Overall 3.5%</td>
<td>Technical success 100% 1 yr TLR free survival 85%</td>
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<tr>
<td>Mehta et al. 2016</td>
<td>Balloon angioplasty + atherectomy</td>
<td>Mortality 0.6%</td>
<td>1 yr Restenosis 20%</td>
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<td>Azema, et al. 2011</td>
<td>Primary Stent placement</td>
<td>Overall 5%</td>
<td>Technical success 100% 1 yr Primary patency 80%</td>
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<td>Stricker and Jacomella</td>
<td>Balloon angioplasty + Stent placement</td>
<td>Overall 8.5%</td>
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<tr>
<td>Siracuse et al. 2017</td>
<td>Balloon angioplasty</td>
<td>Overall (11.5%)</td>
<td>1 yr TLR 15%</td>
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<td>Linni, et al. 2014</td>
<td>Bioabsorbable stent implantation</td>
<td>Access site hematoma 5.2%, Arterial dissection 2.9%, Distal embolization 0.7%, Access site stenosis or occlusion 0.5%, Arterial perforation 0.6%</td>
<td>Technical success 97.5% 1 yr Primary patency 80%</td>
</tr>
<tr>
<td>Cioppa et al.</td>
<td>Directional atherectomy + Drug coated balloon angioplasty + provisional stenting</td>
<td>Overall complications 3.3% Mortality 0%</td>
<td>Technical success 100% 1 yr TLR 6.7% 1 yr patency 90%</td>
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- N = 36 1 yr patency 80%, TLR 15%
- N = 94 1 yr patency 80%, TLR 14%
- N = 27 1 yr patency 87%
- N = 16 1 yr patency 94%
- N = 40 1 yr patency 80%
- N = 30 1 yr patency 90%, TLR 7%
- N = 167 20 mo patency 93%
# Endovascular Therapy of Common Femoral Artery Occlusive Disease

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<td>Mehta et al. 2016&lt;sup&gt;6&lt;/sup&gt;</td>
<td>Single Center Retrospective Analysis n=167 Balloon angioplasty Balloon angioplasty + atherectomy Balloon angioplasty + Stent Placement</td>
<td>Overall 3.5% Mortality 0.6%</td>
<td>Technical success 100% Angioplasty 20mo Interval patency 93% Atherectomy 20mo Interval Patency 95%</td>
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<td>Azema, et al. 2011&lt;sup&gt;4&lt;/sup&gt;</td>
<td>Single Center Retrospective Analysis N=36 Primary Stent placement Self-expandable Balloon assisted</td>
<td>Overall 5% Mortality 0%</td>
<td>Technical success 100% 1 yr TLR free survival 85% 1 yr Restenosis 20%</td>
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<td>Bonvini et al. 2013&lt;sup&gt;4&lt;/sup&gt;</td>
<td>Single Center Retrospective analysis N=94 Balloon angioplasty Provisional stenting Self-expanding nitinol stents Directional atherectomy</td>
<td>Overall 8.5% Mortality 1%</td>
<td>Technical success 91.8% 1 yr TLR 14.1% 1 yr Restenosis 19.5%</td>
</tr>
<tr>
<td>Stricker and Jacomella 2004&lt;sup&gt;13&lt;/sup&gt;</td>
<td>Single Center Retrospective Analysis n=27 Balloon angioplasty + Stent placement</td>
<td>No major complications or deaths</td>
<td>Technical success 100% 1 yr Cumulative patency 87%</td>
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<td>Calligaro et al. 2013&lt;sup&gt;7&lt;/sup&gt;</td>
<td>Single center Retrospective Analysis n=16 Stent Placement PTFE covered nitinol stents</td>
<td>No major complications or deaths</td>
<td>Technical success 1yr Primary patency 94%</td>
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<tr>
<td>Siracuse et al. 2017&lt;sup&gt;8&lt;/sup&gt;</td>
<td>Multicenter database Retrospective analysis n=1014 Balloon angioplasty Stent placement Stent graft placement Atherectomy</td>
<td>Overall (11.5%) Access site hematoma 5.2%, Arterial dissection 2.9% Distal embolization 0.7%, Access site stenosis or occlusion 0.5%, Arterial perforation 0.6% Mortality 1.6%</td>
<td>Technical success 91% 1 yr Primary patency 83% 1 yr Re-intervention free survival 87.5%</td>
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<td>Linni, et al. 2014&lt;sup&gt;18&lt;/sup&gt;</td>
<td>Single Center Randomized Control Trial n=40 in BASI group Bioabsorbable stent implantation Common femoral endarterectomy</td>
<td>Overall 5% Mortality 2.5%</td>
<td>Technical success 97.5% 1 yr Primary patency 80%</td>
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<td>Cioppa et al&lt;sup&gt;9&lt;/sup&gt;</td>
<td>Single Center Retrospective Analysis n=30 Directional atherectomy + Drug coated balloon angioplasty + provisional stenting</td>
<td>Overall complications 3.3% Mortality 0%</td>
<td>Technical success 100% 1 yr TLR 6.7% 1 yr patency 90%</td>
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Siracuse et al

- Vascular Quality Initiative
- 2010-2015
- PVI module
- Isolated CFA +/- DFA interventions
Results

• **72,842** total patients
• **5,387** with CFA or DFA interventions
• 49% had prior PVI
Results

• Indications
  – Claudication -- 67%
  – CLI -- 32%

• Interventions
  – Angioplasty -- 77%
  – Stent -- 35%
  – Stent graft -- 2%
  – Atherectomy -- 19%
Technical Results

- Success: 91%
- Residual stenosis: 4.8%
- Failure: 4.2%
Periprocedural Outcomes

- 30-day mortality -- 1.6%

- Complications
  - Access site hematoma -- 5%
  - Arterial dissection -- 3%
  - Distal embolization -- 0.7%
  - Access site/occlusion -- 0.5%
  - Arterial perforation -- 0.6%

- Hospital length of stay -- 1.5 +/- 5.5 days
Endovascular interventions of CFA/DFA have a low rate of perioperative morbidity and mortality.

Stent use is associated with re-interventions and amputation and should be avoided if possible.

Patency is lower than historical controls of CFA endarterectomy.
Growing impact of restenosis on the surgical treatment of peripheral arterial disease. Jones D et al; JAHA 2013

Proportion of all LEB (N=3,504) performed as secondary procedures, By indication and year

RESTENOSIS IS THE NEW VASCULAR EPIDEMIC
“Don’t believe anything you hear if you don’t have more than 2 years of data”

Yogi Berra
Outcomes of drug-eluting balloon angioplasty versus endarterectomy in common femoral artery occlusive disease


Outcome of drug-eluting balloon (DEB) angioplasty in treating CFA occlusive disease is largely unknown. This study compared the efficacy, safety, and short-term patency rate of DEB angioplasty and femoral endarterectomy for treatment of CFA occlusive disease.

Methods: From March 2013 to June 2016, there were 100 patients with symptomatic CFA occlusive disease who were retrospectively reviewed. Forty patients were treated with DEB angioplasty and 60 were treated with femoral endarterectomy. Each patient received regular follow-up. Patency rate, ankle-brachial index, target lesion revascularization, and adverse events were assessed.

Results: Technical success was 100% in all patients. The DEB group had a lower 1-year primary patency rate (75.0% vs 96.7%; P = .003), but the secondary patency rate was similar between the two groups (97.5% vs 98.3%; P = 1.000). At 2-year follow-up, the primary patency was lower in the DEB group (57.1%) than in the endarterectomy group (94.1%; P = .001), whereas the secondary patency rate had no significant difference (90.5% vs 97.1%; P = 1.000). Both groups had significant improvement in ankle-brachial index. Freedom from target lesion revascularization was lower in the DEB group both at 1 year (75.0% vs 96.7%; P = .003) and at 2 years (57.1% vs 94.1%; P = .001). There was no significant difference in the incidence of complications and adverse events.

Conclusions: Femoral endarterectomy has a better primary patency rate compared with DEB angioplasty in treating CFA occlusive disease without significant increase in complications. In patients not suitable for endarterectomy, DEB angioplasty provides a similar secondary patency rate and could be considered an alternative treatment. (J Vasc Surg 2019;69:141-7.)
Outcomes of drug-eluting balloon angioplasty versus endarterectomy in common femoral artery occlusive disease


- N = 100
- DEB 40/CFE 60
- 1 year Primary Patency: DEB 75% vs CFE 97%
- 2 year Primary Patency: DEB 57% vs CFE 94%
- 2 year Freedom from TLR: DEB 57% vs CFE 94%
Management of Isolated Atherosclerotic Stenosis of the Common Femoral Artery: A Review of the Literature.

Halpin D, Erben Y, Jayasuriya S, Cua B, Jhamnani S, Mena-Hurtado C

Abstract

• OBJECTIVE:
  Common femoral endarterectomy (CFE) remains the standard of care for treatment of atherosclerotic stenosis of the common femoral artery (CFA). Endovascular interventions have become the first-line therapy for atherosclerotic disease of the aortoiliac and femoropopliteal systems. Recent reports have documented high rates of technical success and low rates of complications with endovascular management of CFA stenosis. This study is a contemporary review of the surgical and endovascular literature on the management of CFA stenosis and compares the results of these methods.

• METHODS:
  A search of OVID Medline identified all published reports of revascularization of isolated atherosclerotic CFA stenosis. For each study selected for review, the number of patients, number of limbs treated, percentage of patients with critical limb ischemia, and mean length of follow-up was recorded. Study end points included survival, primary patency, freedom from target lesion revascularization (TLR), freedom from amputation, and complications.

• RESULTS:
  The review included 7 CFE studies and 4 endovascular studies. Survival was similar between the groups. Primary patency was consistently higher with CFE compared to endovascular therapy. Freedom from TLR was lower with CFE compared to endovascular therapy. Morbidity and mortality were also higher with CFE compared to endovascular therapy. Freedom from amputation was not consistently reported in the endovascular studies.

• CONCLUSION:
  There is limited data to support endovascular treatment of isolated CFA atherosclerosis. CFE has durable results, but there is significant morbidity and mortality resulting from this procedure. Endovascular interventions have low rates of complications, high rates of technical success, good short-term patency but increased need for repeat interventions when compared to surgery. Further trial data comparing CFE with endovascular...
Management of Isolated Atherosclerotic Stenosis of the Common Femoral Artery: A Review of the Literature.

Halpin D, Erben Y, Jayasuriya S, Cua B, Jhamnani S, Mena-Hurtado C

- 7 CFE and 4 Endovascular studies
- Survival similar
- Primary patency consistently higher with CFE cf endovascular treatment

Conclusion: There is little data to support endovascular treatment of isolated CFA atherosclerosis.
Vascular Intervention for Limb Salvage: Recent Reports

VASCULAR DISEASE FOUNDATION 2018

- “CFA, PROFUNDA, AND SFA DISEASE: IS THERE A ROLE FOR ENDOVASCULAR RECONSTRUCTION WHEN A PATIENT IS NOT A SURGICAL CANDIDATE?

CITING THE 5 YEAR PATENCY, “CFE REMAINS THE GOLD STANDARD”

BOB BEASLEY
First you came for the carotid, …

Then you came for the legs, …

Then you came after aortic aneurysms, …

Now you’re coming after our surgical soul…
Conclusion and General Dictums

• Technical Success is Necessary- but not Sufficient
  – Just because you can, ....

• Vascular treatment failure in PAD carries consequences
  – Stent thrombosis can be catastrophic (particular in a claudicant)
  – Imperative to preserve the integrity of the profunda

• If a good operative candidate, find a surgeon who knows how to do this operation (if you can’t find one, keep looking...)

• There is clearly a role for endovascular Rx of the CFA, but it does not represent the gold standard
Management of Common Femoral Disease – I Disagree: Surgical Reconstruction is Still the Gold Standard for CFA Reconstruction

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