TASC D
AORTOILIAC OCCLUSIVE DISEASE

SURGERY

DISCLOSURES

- INDIVIDUAL
  None

- INSTITUTIONAL
  Cook, Inc
  W. L. Gore, Inc

MY OPPONENT

Nice guy.....

I try to surf every morning... I started using a waterproof beeper case when I was a resident at UCSF...

Creative / innovative.....
MY OPPONENT

Writes books…

Fearless…

HOW TO COMPETE

DATA
Little data specifically comparing open aortic reconstruction with endoluminal treatment of AIOD
Most reports describe endoluminal treatment of AIOD
- combine TASC C & D disease
- some combine TASC B, C & D disease

Infrarenal aortoiliac occlusion
- Diffuse disease involving the aorta and both iliac arteries
- Diffuse multiple stenoses involving the unilateral CIA, EIA, and CFA
- Unilateral occlusions of both CIA and EIA
- Bilateral occlusions of the EIAs
- Iliac stenoses in patients with AAA requiring treatment and not amenable to endograft placement or other lesions requiring open aortic or iliac surgery

Bilateral CIA occlusions
- Bilateral EIA stenoses 5-10 cm long not extending into the CFA
- Unilateral EIA stenosis extending into the CFA
- Unilateral EIA occlusion that involves the origins of the IIA and / or CFA
- Heavily calcified unilateral EIA occlusion with or without involvement of the origins of the IIA and / or CFA
## META-ANALYSIS

### Table II. Quality assessment of included studies

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Risk of Bias</th>
<th>Publication Bias</th>
<th>Randomness</th>
<th>Methodological Quality</th>
</tr>
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<tbody>
<tr>
<td>Nacoli</td>
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<tr>
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<td>+/-</td>
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<tr>
<td>All</td>
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<td>++</td>
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<td>Rausch</td>
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<td>+/-</td>
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<td>Domans</td>
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<td>+/-</td>
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<td>Lugn</td>
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<td>Sharafuddin</td>
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<td>Goebel</td>
<td>++</td>
<td>+/-</td>
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</tbody>
</table>

**Quality assessment criteria:**
- Risk of Bias: ++ = Low, + = Moderate, - = High
- Publication Bias: ++ = Low, + = Moderate, - = High
- Randomness: ++ = Low, + = Moderate, - = High
- Methodological Quality: ++ = Low, + = Moderate, - = High


### Table III. Summary of data obtained from the included studies

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Sex</th>
<th>Age</th>
<th>M/F</th>
<th>Stage</th>
<th>Clinical</th>
<th>Depth</th>
<th>Volume</th>
<th>Weight</th>
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<tbody>
<tr>
<td>2000</td>
<td>30</td>
<td>18</td>
<td>27</td>
<td>11</td>
<td>4</td>
<td>3</td>
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<td>12</td>
<td>3</td>
<td>15</td>
<td>5</td>
<td>50</td>
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<tr>
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<td>12</td>
<td>9</td>
<td>24</td>
<td>3</td>
<td>8</td>
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<td>5</td>
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<td>2004</td>
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<td>8</td>
<td>26</td>
<td>3</td>
<td>12</td>
<td>3</td>
<td>18</td>
<td>5</td>
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<tr>
<td>2005</td>
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<td>23</td>
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<td>3</td>
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<td>28</td>
<td>5</td>
<td>60</td>
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<td>2007</td>
<td>11</td>
<td>8</td>
<td>24</td>
<td>3</td>
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<td>22</td>
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<td>40</td>
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<td>2008</td>
<td>10</td>
<td>4</td>
<td>26</td>
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<td>6</td>
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<td>10</td>
<td>3</td>
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<tr>
<td>2009</td>
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<td>7</td>
<td>24</td>
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<td>8</td>
<td>5</td>
<td>22</td>
<td>5</td>
<td>50</td>
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</tbody>
</table>

## LIMITATIONS

- Not all studies used the TASC classification
- All mixed TASC lesions, usually C & D
- Some mixed B, C and D
- Referral centers or centers of excellence
- None randomized
- No exclusion criteria reported
- All retrospective
- Many small volume

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### Table III: Summary of data obtained from the included studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Location</th>
<th>TASC</th>
<th>Lesion Size</th>
<th>Technique</th>
<th>Venous Interventions</th>
<th>Follow-up</th>
<th>Primary Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>2008</td>
<td>UC-SF</td>
<td>A</td>
<td>12-30 mm</td>
<td>POBA</td>
<td>Yes</td>
<td>2 years</td>
<td>80% successful</td>
</tr>
<tr>
<td>Study 2</td>
<td>2009</td>
<td>UC-SF</td>
<td>B</td>
<td>30-40 mm</td>
<td>Stent</td>
<td>No</td>
<td>1 year</td>
<td>60% successful</td>
</tr>
<tr>
<td>Study 3</td>
<td>2010</td>
<td>UC-SF</td>
<td>C</td>
<td>40-50 mm</td>
<td>Stent-graft</td>
<td>Yes</td>
<td>2 years</td>
<td>70% successful</td>
</tr>
</tbody>
</table>

**LIMITATIONS**

- No standard technique
- POBA
- Stent
- Routine
- Selective
- Stent-graft
- Atherectomy
LIMITATIONS

- Arterial anatomy
  - Number of occlusions
  - Runoff status
  - Profunda
- Anticoagulation management
  - Type
  - Duration
- Adjunctive procedures
  - Management of common femoral disease
  - Intervention in adjacent infrainguinal bed

LONG-TERM OUTCOME
AORTOILIAC ENDOVASCULAR

<table>
<thead>
<tr>
<th>STUDY</th>
<th>N/TASC D</th>
<th>INTERVAL</th>
<th>PP</th>
<th>PAP</th>
<th>SP</th>
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<tbody>
<tr>
<td>Houston</td>
<td>43/8</td>
<td>10 year</td>
<td>68%</td>
<td></td>
<td></td>
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<tr>
<td>Park</td>
<td>171/16</td>
<td>3 year</td>
<td>74%</td>
<td></td>
<td></td>
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<tr>
<td>Domaini</td>
<td>42/24</td>
<td>5 year</td>
<td>68%</td>
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<tr>
<td>Balzer</td>
<td>89/52</td>
<td>3 year</td>
<td>90%</td>
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<td></td>
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<tr>
<td>Chang</td>
<td>171/104</td>
<td>5 year</td>
<td>60%</td>
<td>97%</td>
<td>98%</td>
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<tr>
<td>Gandini</td>
<td></td>
<td>10 year</td>
<td>68%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hans</td>
<td>40/13</td>
<td>4 year</td>
<td>69%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kashyap</td>
<td>65/49</td>
<td>3 year</td>
<td>74%</td>
<td>90%</td>
<td>96%</td>
</tr>
<tr>
<td>Moise</td>
<td>31/31</td>
<td>3 year</td>
<td>66%</td>
<td>90%</td>
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</tbody>
</table>

OUTCOME AFBG

Balzer et al, Eur Radiol, 2006

- Retrospective
- Selected
- No description of runoff
  - “poor” = ipsilateral SFA occlusion or >50% stenosis
- 41 pts underwent SFA intervention 4-6 weeks postop
- No categorization of TASC D lesion distribution
- CIA = 65
- EIA = 45
- Occlusions = 19
- 137 stents in 129 pts

- No disease extending into the CFA
- Some laser debulking
- No predilation
- Predominant stents
  - AVE Bridge
  - Cordis Corinthian
- SubQ heparin for 4 weeks
- Clopidogrel for 6 months for “poor” runoff
- ASA for life
- Many missing data points
- No hemodynamic data

Chui et al, Eur J Vasc Endovasc Surg 2010;39:460-71
### Long-Term Outcome

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Interval</th>
<th>AFBG-PP</th>
<th>ENDO-PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hans</td>
<td>2008</td>
<td>4 year</td>
<td>93%</td>
<td>69%</td>
</tr>
<tr>
<td>DeVries</td>
<td>1970-1996</td>
<td>5 year</td>
<td>87-91%</td>
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<tr>
<td></td>
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<td>10 year</td>
<td>82-87%</td>
<td></td>
</tr>
<tr>
<td>Kashyap</td>
<td>2008</td>
<td>3 year</td>
<td>93%</td>
<td>74%</td>
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<tr>
<td>Chui</td>
<td>1970-2007</td>
<td>5 year</td>
<td>89%</td>
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<tr>
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<td>10 year</td>
<td>82%</td>
<td></td>
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<td></td>
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<td>15 year</td>
<td>74%</td>
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<tr>
<td>Hertzer</td>
<td>2007</td>
<td>5 year</td>
<td>89%</td>
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<td>10 year</td>
<td>82%</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>15 year</td>
<td>74%</td>
<td></td>
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</tbody>
</table>

### Meta-Analysis

Nyman 2000 “The application of endovascular techniques to treat occlusions of the entire infrarenal aorta and aorto-iliac occlusions is feasible but remains to be defined relative to bypass grafting.”

Scheinert 2001 “Reported long-term patency rates after bypass surgery are greater than those we observed with interventional treatment.”

Greiner 2003 “the medium term patency rates are clearly inferior to those of bypass surgery”

Ali 2003 “In patients at low risk with extensive aortoiliac occlusive disease we continue to recommend aortobifemoral bypass…Extended follow-up with longer term results and larger number of patients will be needed before we can conclude that this technique offers comparable outcome…”

Ruzcidlo 2003 “Our results of endovascular treatment of multisegment iliac disease with stent grafting cannot be directly compared with those with surgical bypass grafting, because patients were selected as appropriate candidates. Overall, the results of stent-graft treatment of diffuse iliac occlusive disease are somewhat inferior to those with aortobifemoral bypass grafting…”

Chang 2008 “Aortobifemoral bypass grafting remains the standard of care for diffuse aortoiliac disease. Our results with this hybrid procedure cannot be directly compared with results for bypass grafting or isolated iliac stenting because of patient selection, associated comorbidities and the varying anatomic distribution of disease.”

Hans 2008 “Primary patency was inferior in the AIS group.”

Kashyap 2008 “Primary patency is significantly better with open reconstruction.”
COMPARISON

AFBG
- Equal mortality
- Higher morbidity and more significant
- Slower recovery
- Clearly improved patency
- Optimal management of
  - Internal iliac
  - Common femoral
  - Profunda
- Limited by physiology

AIS
- Equal mortality
- Lower morbidity and less significant
- Faster recovery
- Worse patency
- Can be repeated
- Suboptimal (or no) treatment of
  - Internal iliac
  - Common femoral
  - Profunda
- Limited by anatomy

SURGERY FOR AORTOILIAC TASC D

“We must beware of needless innovation, especially when guided by logic.”

Winston Churchill

REFERENCES 1
SURGERY FOR TASC D AIOD REFERENCES 2


