With Juxtarenal Aorto-Iliac Occlusion
Open Surgery Is Best and Safest: What Precautions May Be Needed

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Outcome of the surgical repair of carotid in-stent restenosis

Main Topics in Surgical treatment for CAS failure

Indications

✓ Plaque proximally placed to deployed stent
✓ Unsuccessful redo endovascular approach
  (heavy calcified plaque, protrusion, LAL Type 4/5)
✓ Refuse of new endovascular approach

Type of CAS ISR

✓ Primary CAS
✓ CAS for Post-CEA restenosis

Operative techniques

✓ Endarterectomy with stent removal
✓ Bypass graft

All vascular surgeons know how the ABF bypass is efficacious, probably one of the best long-term outcome in vascular surgery


5-year patency of aortoiliac/aortofemoral prosthetic grafts ranges from 64 to 95%

Today the endovascular option changed our approaches

Changed the vascular surgery

Excellent outcome are reported in literature for TASC II type A B C and most of type D cases
TASC II classification of aorto-iliac occlusive diseases

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>I</td>
<td>No significant stenosis.</td>
</tr>
<tr>
<td>IIa</td>
<td>Significant stenosis of one iliac artery and no or mild iliac restenosis.</td>
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<tr>
<td>IIb</td>
<td>Significant stenosis of one iliac artery and severe iliac restenosis.</td>
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<tr>
<td>III</td>
<td>Significant stenosis of both iliac arteries.</td>
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<tr>
<td>IV</td>
<td>Occlusion of both iliac arteries.</td>
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116 pts submitted to open surgery for aortic occlusion (in 74 pts juxtarenal)
- 53 aortic EA followed by ABF bypass
- 21 extra-anatomical AxF bypass due to high risk
- Suprarenal clamping in 34 cases
- Renal arteries grafting in 9 pts
- ePTFE bifurcated prosthesis in all pts


Perioperative complications
- Myocardial infarction 2 (3.8%)
- Renal failure 5 (9.4%)
- Permanent dialysis 0
- Respiratory failure 2 (3.8%)
- Ileus 1 (1.9%)
- Lower limb ischemia 1 (1.9%)

How to prevent complications

- Pre-op risk assessment (consider, if possible, EV treatment for high-risk patients)
- Accurate pre-op planning based on imaging
- Avoid traumatic surgical dissection of the aorta and diseased arteries (embolization risk)
- Avoid prolonged suprarenal cross-clamping
- Perform “under-vision” endarterectomy
- Choose the best aortic reconstruction for each pt

How to prevent renal embolization

- Simultaneous occlusion of both renal arteries preferably with digital control or using clamps
- Perform aortic endarterectomy through a transverse aortotomy few cms below the lowest renal artery, followed by flushing of the proximal aorta and the renals (sometimes a longitudinal aortotomy may be needed)
- Move the clamp down to infrarenal level and perform aortic reconstruction

Surgical technique

- Gupta and Veith were the first to illustrate surgical techniques to reduce RIT during OSR of JRAO
- They used suprarenal aortic clamping to allow removal of aortic clots and debris through the infrarenal vertical aortotomy under direct vision
- This procedure allows more thorough removal of all debris without the risk of renal embolization
- The suprarenal aortic clamp is then transferred to the infrarenal aorta, allowing renal perfusion.


Surgical technique: End-to-End proximal anastomosis

- Inline flow, hemodynamic superiority, better long term patency
- Protection from infrarenal aneurysmal disease or atheroembolization due to exclusion of the distal aorta
- Prevention of twists and decrease chances of aortoenteric fistula
- Easy endarterectomy with good confirmatory visualization in juxtarenal occlusion
- Avoidance of competitive flow between a graft and patent iliac artery


Surgical technique

Surgical technique
Surgical technique:
End-to-Side proximal anastomosis

- Limited dissection and faster performance
- Bigger proximal anastomosis
- Preservation of distal antegrade flow to the hypogastric, inferior mesenteric and lumbar arteries and any accessory renal arteries with subsequent reduced incidence of impotence, colon ischemia or paraplegia
- PREFERRED FOR MORE DISTAL DISEASE

Conclusions

- Aortorenal endarterectomy followed by aortic bypass replacement is the treatment of choice for JRAO. It requires almost invariably aortic suprarenal (sometimes supraceliac) cross-clamping and may be associated with significant morbidity and mortality.
- Removal of the adherent thrombus in the orifices of the renal arteries is crucial to preserve renal function
- Keeping the visceral and renal ischemic time as short as possible is mandatory to reduce complications rate