Ultrasound-Guided CAS

Born from our strategy to achieve ZERO complications for CEA...

1) **magnitude:** Mini–incision
   No external carotid endarterectomy

2) **complications:** Patient selection
   Technical precision
   Completion duplex

**Overall Stroke / Mortality Rates:**

<table>
<thead>
<tr>
<th>Event</th>
<th>Frequency</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>11</td>
<td>0.9%</td>
</tr>
<tr>
<td>Death</td>
<td>5</td>
<td>0.4%</td>
</tr>
<tr>
<td>Combined</td>
<td>15</td>
<td>1.25%</td>
</tr>
</tbody>
</table>

**Intraoperative carotid artery duplex scanning in a modern series of 650 consecutive primary endarterectomy procedures**

Enrico Ascher, MD
Natalie Marks, MD

NYU-Langone Hospital Brooklyn &
The Vascular Institute of New York®

No disclosures
Serum Creatinine & CEA Complications

<table>
<thead>
<tr>
<th>Creatinine (mg/dL)</th>
<th>Patients</th>
<th>Stroke</th>
<th>Mortality</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5-2</td>
<td>103</td>
<td>1</td>
<td>1</td>
<td>2 (1.9%)</td>
</tr>
<tr>
<td>2.1-3</td>
<td>41</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 3</td>
<td>22</td>
<td>1</td>
<td>4</td>
<td>4 (18%)</td>
</tr>
</tbody>
</table>

* p < 0.01
** p < 0.02

Chronic Renal Failure & Symptomatic Carotid Disease: A Call For Stenting Under Duplex Guidance?

Carotid endarterectomy in patients with chronic renal insufficiency: A recent series of 184 cases

Chronic Renal Failure & Symptomatic Carotid Disease: A Call For Stenting Under Duplex Guidance?

Duplex-Guided Carotid Stenting

- Aortic branches visualization
- Filter deployment
- Cerebral vasculature imaging

Aortic Arch MRI

Protection Device Position

Cerebral Arteriography
**Duplex-Assisted Carotid Stenting**

**41 Cases**

- Age 74 (44 – 92)
- Primary 26 (63%)
- Restenosis 15 (37%)

**Risk factors (41 cases)**

- HTN 86%
- CRI 32%
- CAD 51%
- DM 40%
- Smoking 31%

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**ICA & CCA Duplex Mapping**

**Duplex-Guided Arterial Cannulation**

- Fluoroscopy
- Cannulation
- Ipsilateral CCA

**Bovine Aortic Arch**
Primary Duplex-Assisted Carotid Stenting

- Filterwire EZ: 39 cases
- Debris: 18 cases (46%)

Mean procedure duration: 48 min ± 20
Range: 26 min – 90 min
CCA cannulation:
- Left (25): 33 min ± 25
- Right (16): 14 min ± 8

Technical success: All
No deaths
No strokes
1 ipsilateral TIA

Current Indications for Stenting
- Previous carotid endarterectomy
- Previous major neck surgery
- Radiation therapy to the neck
- Surgically inaccessible lesion
- Vocal cord palsy
- High risk patient for surgery
- Serum Creatinine ≥ 3

Results (41 cases)
- Technical success: All
- No deaths
- No strokes
- 1 ipsilateral TIA

Duplex-assisted internal carotid artery balloon angioplasty and stent placement: A novel approach to minimize or eliminate the use of contrast material

*P < 0.04
Interventional Vascular Ultrasound

Primary Duplex-Assisted Carotid Stenting

A New Vascular Surgery Sub-Specialty