Acute Arterial Occlusions Treated Under Duplex Guidance Alone: Is It A Better Way?

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Disclosures

- None

Duplex Scanning Advantages

- Cheap
- Non-invasive
- Mobile/Repeatable
- Arterial wall imaging
- Hemodynamics
- Sensitive to low flow

Duplex-Guided Vascular Interventions

Advantages - I

- No radiation
- No nephrotoxic contrast
- Multi-planar, magnification
- Visualization of arterial wall

Advantages - II

- Selection & placement of:
  - Balloon
  - Stent
- Treatment of complications
- Adequacy of the technique
  - Anatomical
  - Hemodynamic

1. Reliably identifies inflow and outflow vessels
2. Selects the best site for an anastomosis (calcified)
3. Identifies the cause of occlusion
4. Visualizes low flow patent arteries (occluded by angio)
Duplex-assisted internal carotid artery balloon angioplasty and stent placement: A novel approach to minimize contrast material

- Femoral-popliteal 402
- Infrapopliteal 80
- Carotid artery 42
- Popliteal aneurysm 38
- Femoral-popliteal segment 402 cases; 310 patients

**Femoral-popliteal segment**: 402 cases; 310 patients

- Technical success: 387/407 (95%)
- Stenoses: 264/265 (99.6%)
- Occlusions: 123/142 (87%) *P < 0.0001

**Duplex - Guided Balloon Angioplasty**

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**Results**

- Male: 174 (56%)
- Age: 73 ± 10 Years (42 - 97)
- Risk Factors:
  - Hypertension: 241 (78%)
  - Diabetes: 161 (52%)
  - CAD: 124 (40%)
  - Tobacco: 122 (39%)
  - CRI: 115 (37%)

**A Duplex - Guided Approach to Acute Arterial Occlusions: 25 cases**

- Intraop. Thromboembolism (12/387 cases)
  - Thromboembolism: 12 (3.1%)
    - Popliteal: 6 (50%)
    - TP trunk: 5 (42%)
    - Peroneal: 1 (8%)

**Additional 15 Cases (CRF)**

- Infrapopliteal Arteries: 12
  - Femoral: 5
  - Popliteal (2 PAA): 6
  - TP trunk: 1
- Infrapopliteal Bypasses: 3
  - Fem-pop PTFE: 1
  - Fem-AT vein: 1
  - Fem-DP vein: 1

**Treatment**

- Mechanical thrombectomy: 16 (64%)
- Thrombolysis alone: 5 (20%)
- Mechanical + thrombolysis: 2 (8%)
- Thrombolysis + suction + stent: 2 (8%)
**A Duplex-Guided Approach to Acute Arterial Occlusions: 25 cases**

**Overall Results**

22/25 patent (88%)

3 – 36 months (mean 13 ± 8)

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**Thrombolysis for TP Trunk Embolus**

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**Thrombus proximal to the inflated balloon**

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**Acute Popliteal Embolus & SFA Stenosis**

**Mechanical Thrombectomy**

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**Conclusion**

- Avoidance of nephrotoxic agents
- Visualization of low flow arteries
- Identification of the cause of occlusion

...are unique advantages of duplex arteriography
Patients with acute arterial ischemia of diverse etiology can be safely treated by various endovascular procedure under duplex guidance alone.