Approach to True Tandem Intracranial Occlusion from Extracranial Lesion

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Disclosures

- **Co-Chair of the Endovascular Committee:** StrokeNet NIH/NINDs Research Consortium
- **Steering Committee:** NIH/NINDs Defuse 3 Acute Ischemic Stroke RCT
- **Overall International PI:** ARISE II EMBOTRAP stent-retriever acute stroke study.
- **Overall International PI:** ATLAS Brain Aneurysm Stent Embolization Prospective Study
- **Past president:** Society of Vascular and Interventional Neurology (SVIN) and Endovascular Neuro Section AAN
- **Consultant:** Stryker, Penumbra, Medtronic, and Neuravi, ThrombxMedical
- **Co-Founder:** Galaxy Therapeutics LLC
Introduction

Different techniques have been described for anterior circulation Tandem IC LVO from an EC lesion presenting with acute ischemic stroke (estimated at 10-15% of MT cases).

1. Target symptomatic IC LVO only approach:
   - Cross the proximal lesion and MT to IC LVO only (if Acomm collateral exist)

2. Combined Extra and Intracranial lesions approach (if no collateral from CL side or to improve the antegrade flow):
   - EC first then IC MT (usually in cases when it is hard to cross): Angioplasty w or wo stenting (if recoil or dissection or clotting post plasty only or to improve collateral flow) on the way up and then MT to IC lesion
   - IC MT first then EC angioplasty with or without stenting on the way out.
Combined Approach

✓ Usually it consists of switching the sheath and performing the stenting or angioplasty procedure following the MT or prior to MT

✓ Here we described utilizing the same MT tools and performing the EC treatment during the stent-retriever incubation time over the same stent retriever microwire while its in place
Case Presentation

✓ 54 yo RH man with known hx of HTN, HrLip, Smoking Hx, who presented following an elective laparoscopic cholecystectomy (Sx at 7:44 AM) from an outside hospital with drowsiness post op given Narcan with no improvement; then noted with left sided weakness and neglect.

✓ In the post op area around 11am
✓ Stroke susp around 15:00 pm
✓ Head CT, early stroke signs at 16:59 at the outside hospital
✓ Transferred to our center, flight for life
✓ His NIHSS on arrival 18
Postop Stroke due to Tandem Lesion: CT (ASPECT 6)
Postop Stroke due to Tandem Lesion: CTA
Endovascular Therapy Decision

- Head CT scan ASPECT of 6, borderline
- CTA still some cortical pial collateral
- ? Acute on chronic severe carotid stenosis, ischemic deconditioning and tolerance?
- Proceed to MT
## Endovascular Technique: Tools

<table>
<thead>
<tr>
<th>Tool Description</th>
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<tbody>
<tr>
<td>Femoral sheath 8Fx 55 cm</td>
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<tr>
<td>FlowGate 8F (0.84) BGC</td>
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<tr>
<td>Marksman 027 Microcatheter over Synchro 14 preshaed Standard Microwire</td>
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<tr>
<td>Stent-retriever 4 x 40 mm Solitaire</td>
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<td>Sterling balloons 3 and 5 x 20 mm</td>
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<tr>
<td>Sterling Balloon inflator ready with 50/50 mmixture</td>
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Endovascular Technique

**Step I:** Door to puncture 35 m

**Step II:** Quick baseline run of the right CCA in AP and Lateral showing the right ICA stump occlusion, delayed phases confirmed the tandem MCA occlusion
Step III: Cross the ICA proximal EC occlusion with microcatheter over synchro 2 standard preshaped 0.14 while the BGC is inflated fro proximal protection; and ICA run confirming MCA clot at M1 origin.

Time Puncture to MC 8 min
**SEIMLESS Technique:**
Simult. Extracranial and Intracranial Mechanical lesional

**Step IV:** Cross the MCA clot with MC 027

**Step V:** Deploy the stent retriever into the clot and remove/slip the MC out of the body

**Step VI:** Carotid angioplasty while the SR deployed: Track the carotid angioplasty balloon overt the SR wire while the BGC inflated

*Time: 25 min from P*
Simultaneous IC and EC MT Technique: Final results

Final IC Run with Pre and post: 28 min from GP
Final EC Run with Pre and post
Follow up

✓ His NIHSS improved from 18 to 9
✓ 3 months mRS is 3
✓ CTA showed patent carotid on the FU images
Endovascular Technique
Simultaneous IC and EC MT Technique: Final results