Lessons Learned from the Magellan Robotic Catheterization System: when is it valuable, when is it essential?

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Disclosures

- Advisory Board:
  - Boston Scientific
  - WL Gore
  - Phillips Healthcare
- Speaker:
  - Hansen Medical

Robotic Catheterization Applications

- EVAR
- FEVAR
- Carotid Stent
- Renal Stent and Coiling
- SFA RX
- Left to right catheterization
- Embolization: coils, plugs
- Chemoembolization (hepatic)
- Failed Manual

Robotic Catheterization Applications (ROVER)

- Embolization 14
- Carotid 21
- Endograft 20
- FEVAR 2
- Renal 4
- Lower extremity 12
- Venous 5
- TOTAL 77

When is it Valuable?

Bilateral Critical Carotid Stenosis
Findings

- Right and Left proximal ICA with diastolic velocities > 240 cm/sec corresponding to 80-99% stenosis
- Post obstructive waveform in downstream left ICA
- Right ECA occlusion

Bilateral ‘Critical’ Carotid Stenosis

- Bilateral CAS
- Robotic catheterization and sheath placement
- No catheter exchanges
- Sheath directional control obviated need for shaping wires on EPD
- Both sides treated with single sheath, catheter and guide wire, no exchanges

Type III Arch, 3rd generation Robotic Catheter/Sheath

Iliac Artery Tortousity

Celiac Axis Selection

Celiac Axis Angiogram Via Robotic Catheter
Selection of Common Hepatic Artery with Robotic Catheter Followed by Robotic Catheter Advancement

Common Hepatic and Right Hepatic Angiogram

Robotic Catheter Stability Allows Advancement of Microcatheter into Tortuous Right Hepatic Artery Branches

Operator Takeaways

- Robotic catheter allowed for stable access into tortuous iliac artery which was not possible with long 6 French sheath
- Stable position and ability to manipulate 6 French robotic catheter allowed for easy selection of celiac axis and advancement into distal common hepatic artery (was not possible with 5 Fr 035 catheter)
- Microcatheter advancement into secondary branches of the right hepatic artery was facilitated by robot (not possible during prior chemoembolization procedure)
- Robotic catheter potentially reduced procedure time and radiation exposure to patient, operators, and staff
- Improved precision and stability with single robotic catheter eliminated need for catheter exchanges
Magellan Robot Cannulating Right Hypogastric

Right Hypogastric Embolization

Right Hypogastric Embolization

Right Common Iliac Artery Aneurysm
Conclusions

- **Definite Value**
  - Failed manual catheterization for embolization
  - Reducing radiation and increasing efficiency
- **Probable Value**
  - Reducing vascular trauma (?carotid stent)
  - Reducing need for catheter exchanges
  - FEVAR