Management of Large Bore Access, Closure, and Acute Limb Ischemia in Structural Heart and Hemodynamic Support Cases

Richard C Kovach, MD, FACC, FSCAI, FACP, FACOI

Division Director, Interventional Cardiology
Medical Director, Adult Cardiac Catheterization Laboratory
Deborah Heart and Lung Center, Browns, Mills, NJ, USA

Clinical Professor of Medicine; Philadelphia College of Osteopathic Medicine
Chair, Horizons International Peripheral Group
Associate Interventional Course Director, Cardiovascular Institute of Philadelphia
Disclosures:

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- Boston Scientific: Medical advisory board, speaker, fellow training faculty, educational grants, trainer, investigator
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- Endoshape, Inc.: Stock Holder
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Peripheral Vascular Skill Sets for Large Bore Access and Closure are Necessary for:

- TAVR
- EVAR
- TEVAR
- (ASD, VSD, PFO closure)
- Hemodynamic Support (ECMO; Impella)
- Above typically 14F-18F, ECMO up to 24F!

All Structural Heart Interventionists must possess basic peripheral vascular interventional skills!!

In the US, most, however do not have these skill sets.
Large Bore Closure Begins With Pre-procedure Evaluation and Access

- CTA or prior angiogram
- US
- Micro-puncture access (US guided if available)
- Understanding of vascular anatomy for alternative access should complications occur
Baseline Angiography After Access is mandatory!!

Bulky plaque at puncture site
“Pre-Closure” Options

• Perclose Prostari

• Perclose Proglide®
Post-Procedural Closure

- **Manta®**

Achieves hemostasis by "sandwiching" arteriotomy
- Poly-lactic-co-glycolic acid intra-arterial toggle
- Extra-vascular bovine collagen plug
- 2-0 Polyester Suture
- 316L Stainless Steel Suture Lock
- Over-the-wire design
- 14 F MANTA (maximum OD/profile of 18F)
- 18F MANTA (maximum OD/profile of 25F).

Surgical option: open surgical cut down and repair
Failed Closure: Persistent Leak

Options:

• Additional closure devices (even if wire access is maintained, additional devices may not pass.)
• Covered Stent mediated closure (requires second access point)
Covered Stent Mediated Closure

Micro-puncture access (“preclosed” with 2 Perclose devices.

Failed closure in spite of successful capture of both Perclose devices.

US guided retrograde contralateral CFA access, sheath and covered stent.
Failed Closure: Acute Vessel Occlusion
(Following TAVR sheath removal)

Site closed with 2 Perclose Proglide devices; ACT>300 (Occlusive 14F TAVR sheath)

US guided retrograde micro-puncture distal CFA access, sheath and SE stent placement.
Acute Limb Ischemia Following Impella CP Insertion
(unable to remove CP pump due to cardiogenic shock)

Micro-puncture access left CFA

SFA 100% but caliber OK and profundal run-off good

Shortly after urgent Impella CP pump placement, LLE cold, cyanotic and painful
Contralateral Access-Diseased EIA

Micro-puncture access R CFA

Obstruction by 6F sheath

POBA to prevent RLE acute ischemia

Adequate flow
Left side Antegrade Profunda Access

US guided left profunda micro-puncture access

Small antegrade sheath
Right CFA to Left Profunda
External Bypass Below Impella Sheath

Right SFA sheath
Male to male adapter
Impella sheath
Antegrade left profunda sheath
Conclusions

• Vascular complications will invariably be more frequent with large bore access and closure
• Know the vascular anatomy before hand, have a plan for access and closure, and be prepared for complications
• Be proficient with micro-puncture access and comfortable with gaining access at all possible vascular entry sites
• Be competent with available large bore closure devices and have a plan to manage any possible vascular complications if and when they fail.
Thank You
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