Endovascular Management of Distal Embolization During Iliac CTO Intervention

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Endovascular Management of Distal Embolization During Iliac CTO Intervention: Is It Always Possible?

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Disclosure

Speaker name: .................................................................................. 

I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

I do not have any potential conflict of interest
Distal Embolization:

- more investigated and reported in infrainguinal interventions especially with development of atherectomy and distal embolic protection devices
- although it may be underreported in iliac interventions, single review showed frequency of 1-10% *

Patient #1

- 62 yo M presented with <1 block left buttock claudication for 6 months and left foot rest pain for about a month

- PMH:
  - ASCVD, CAD

- PSH:
  - CABG in 2012

- Social History:
  - Smoking 1 ppd x 45 years
Patient #1

• S/p left SFA stent placement elsewhere
• Physical Exam: Left great toe with cyanotic very tender spot; no palpable femoral/popliteal/pedal pulses on the left
• LE Arterial Studies
  • ABI’s: right 0.9, left 0.39
  • Occluded left SFA stent
• The patient needed an “in-line” flow restoration
Patient #1

• Intervention
  – Heparin 100 U/kg (12,000 U IV)
  – bilateral femoral access, US-guided
  – unable to cross from the left side
  – left CIA occlusion was crossed using up-an-over advancement of guidewire/snare captured on the left, creating through and through wire with eventual advancement of aortic guidewire from the left access
Patient #1

Omnilink 8x59 mm

Absolute 8x40 mm
Patient #1

- Impression:
  - obvious occlusive distal embolization into the mid SFA with knocking down all the collaterals

- Action:
  - placement of 6 F 55 cm long Cook sheath up and over the bifurcation right to left)
  - Solent Dista Angiojet catheter (Boston Sceintific) was used for mechanical thrombectomy
Patient #1

– Impression:
  • Significant decrease of thrombus load, opening of collaterals
Patient #1

– Action:

• QuickCross (*Spectranetics Co*) catheter and 0.014” Command (*Abbott Vascular*) wire were used to cross into the single vessel runoff PTA
• Placement of Viabahn 6x150 mm (*Gore*)
• Popliteal artery and proximal PTA angioplasty with 4x150 mm Armada balloon (*Abbott Vascular*)
Patient # 1

– Immediate result:
  • Resolution of the rest pain
  • Palpable PTA pulses

– Action:
  • Plavix 300 mg in in recovery, then 75 mg daily
  • Lipitor 20 mg daily
Patient #1

- Follow up at 12 months
  - Asymptomatic
  - Palpable PTA pulses
  - Left ABI’s went from 0.3 to 0.99
Patient #2

- 69 yo WF with new onset of disabling proximal claudication, 20-30 feet
- PMH:
  - ASCVD, CAD, PAD, DM, hypercholesterolemia, bronchial asthma
- PSH:
  - Left CIA stent (iCast - *Gertinge/Atrium*) and left EIA stent (SMART) in 2009
  - Left CIA PTA for in-stent restenosis in 2011
  - CABG, hysterectomy
Patient #2

• Social:
  • Non-smoker, never smoked
• Multiple meds, including:
  • Crestor, ASA, Fenofibrate
• On Exam:
  • Left foot without throphic changes, no ulcers, no palpable femoral/popliteal/pedal pulses on the left
Patient #2

- Lower extremity arterial studies
  - ABI’s 1.01 and 0.49 (left toe pressure 21 mm Hg)
  - occluded left iliac artery stent on arterial duplex
Patient#2

- Aortogram and runoff was performed
- **Intervention:**
  - Double femoral access
  - Routine in-stent CTO crossing from the left
  - “Kissing balloons” PTA and left CIA re-stenting with 8x59 mm Omnilink
  - Left EIA 9x60 mm Absolute Pro stent
Patient#2

- Arteriogram showed patency of the left iliacs
- Large thromboembolus in the RIGHT CIA bifurcation
- Action:
  - Pronto device (*Vascular Solutions*) was initially used for thromboaspiration
Patient#2

• Findings
  – fragmented thromboembolus in right hypogastric, CF bifurcation and TPT bifurcation

• Action
  – Up and over crossing into the right CIA with 6F 45 cm Terumo sheath
  – Angiojet Solvent Dista catheter was used for mechanical thrombectomy from the RIGHT hypogastric, CFA, profunda, TPT
Patient#2

Patient started c/o severe left foot pain
Patient #2

- Open thrombectomy
  - at the LEFT CFA bifurcation
  - rubbery texture
- Immediate result:
  - Asymptomatic
  - Palpable bilateral PTA pulses
Patient # 2

- Follow up in 6 months
  - Asymptomatic
  - ABI’s : 1.08 and 1.04
  - Patent left iliac stents
Distal Embolization in Iliac Revascularization: Summary

- Dreaded complication that may result in acute ischemia of the limb and also may compromise results of intervention and further revascularization options
- Beware and always do completion bilateral runoff
- Thromboembolus composition is believed to be complex and may contain old organized material and unorganized or fresh thrombus
Distal Embolization in Iliac Revascularization: 

**Summary**

• Rescue should be started with transcatheter means; our preference is Angiojet device

• Larger, organized embolus resulted in acute ischemia may be better treated by immediate open direct thrombectomy
Thank you!