When And How To Use Sharp Devices For Iliocaval Recanalization

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Etiology of Occlusions

IVC
- Primary: Failure in development – congenital absence/atresia
- Secondary: Acquired occlusion
  - Thrombosis
  - Iatrogenic (IVC Filter, catheters)
  - Extrinsic compression (pregnancy)
  - Malignancy (RCC)
  - Retroperitoneal fibrosis
  - Trauma
  - Hypercoagulability

ILIAC
- Isolated Iliac: May-Thurner
- Extrinsic compression: uterus (pregnancy, fibroids)
- Iatrogenic
- Propagation of DVT

Incidence:

IVC Thrombosis:
- Up to 75,000 cases/yr
- 4-15% of DVT cases
- 5% of 20-40 yo presenting with DVT have IVC anomaly

Presentation

Sx’s Variable based on location and baseline status
- IVC only vs Iliacs vs BLE
- Chronic vs acute
  - Asymptomatic
  - Chronic Venous Insufficiency (venous HTN, edema, VV, etc)
  - PRE-Thrombotic (leg sx’s, DUS -)
  - Post Thrombotic DUS (+)
  - Pre-Load Phenomenon (exercise intolerance)
  - IVC provides 60% of venous return to heart
  - PE

IlioCaval Occlusions

When To Intervene
- Symptomatic
  - Many dx’d after developing LE DVT
  - Affects QOL
- Most IVC chronic occlusion pts don’t realize how affected they were until they are recanalized

Disclosures:

- Honoraria/Speaker: BSC, BTG/EKOS, Cook
- Research Support: BSC, BTG/EKOS, Cook
- Consultant: Merit Medical
- Royalties: Merit Medical

1 Luis G Fernandez, MD, Medscape IVC Thrombosis
Iliocaval Occlusions

Successful Recanalization:

1. 1st and MOST IMPORTANT step – proper planning
   - Evaluate & Examine pt & review imaging

2. Review/order necessary imaging (CTV, MRV)
   - MUST know extent of disease
   - Plan appropriate steps pre-procedure
   - Determine access sites (IJ, POP, CFV)
     - If CFV open – I start there, more accurate placement of IVC stent superiorly
     - Use IJ if fail from below: (“target” or for “TIPS” sharp recanal)
     - Pop if fem-pop DVT for lysis – stick CFV 2nd day
     - Access is initially at lowest open vein

3. Crossing the Occlusion:
   - Initially use .035 CTO catheter (NaviCross) + stiff straight guidewire
   - Support system (IE: Cook TriForce)
   - Sharp recanalization: back end of wire
     - Rosch-Uchida needle
     - CTO Devices

Physical Exam

- Not simple leg only DVT

Support & CTO Devices
Support & CTO Devices

Iliocaval Occlusions

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   - Snare for “body floss” stability
   - Exchange for stiff working wire (IE: Amplatz, Lunderquist)

   • AC: I start prior to procedure, others start after crossing
   • Lovenox 1mg/kg BID

Iliocaval Occlusions

4. “Prep” the vessel
   Sequential PTA through occlusion to appropriate size
   - PMT if acute thrombosis: PMT “Rapid Lysis”
   - EKOS lysis overnight - “softens” the vessel/scar
   - Seems to allow for greater expansion of stents
   - Caval Stents
     - (Wallstent up to 24mm)
     - Palmaz (mount on larger balloons)
     - Reconstruct the Bifurcation

Bifurcation Reconstruction-options

- Y Config
- Double Barrel
- T: Config

Bifurcation Reconstruction - options

“Kissing” – Extended Y
IlioCaval Reconstruction

- Stent options:
  - Wallstent: largest self-expanding stent (24 mm) - “inaccurate”
  - Palmaz: mount on desired balloon, precise landing
  - Multiple choices for iliacs
  - Endografts for IVC ??
- Concern for occluding collateral vessels
- Will material be thrombogenic in slow flow venous system

Case

- 58 yr F w/ chronic occlusive DVT & venous stasis ulcer
- PE in 1999, lifelong AC
- 6 ulcers since 2006, all took ~2yrs to heal
- current ulcer (3 x 2 cm) since 2011 (3.5 yrs)
- + compression (recently unable to tolerate)
- CREST syndrome
- CEAP – 6, Villalta – 33, VCSS – 17
- DUS => patent LT CFV -> pop
- CTV

Ulcer pre

Day 1

Day 2

CT
1 mos f/u:
- Villalta – 26, VCSS – 15
- Resolution in sx’s
- 12 lb wt loss, much more active w/o limitations
- Ulcer nearly healed 1st time in 3.5 yrs
- Healed at 3 mos

6 mos f/u:
- back to exercising, no issues

Iliocaval Occlusions

- Summary
  - IVC Occlusions present in a variety of etiologies & Sx’s
  - Evaluation: Thorough Exam + imaging review
  - Use appropriate access sites to succeed - often multiple
  - Prep vessel w/ appropriate PTA
  - EKOS: +/- Enable better stent expansion
  - Do NOT believe in jailing filters
  - Laser-assisted retrieval
  - Extend stents from below to above occlusion
Thank You