IVC Recanalization in the Presence of a Thrombosed IVC Filter

David M. Williams  MD
University of Michigan
Department of Radiology

Disclosures

• Boston Scientific, Medical Advisory Board
• WL Gore & Associates, Consultant

• Incidence of IVC thrombosis (with total occlusion) after filter placement 2-5%
• No randomized studies of treatment
• Clinical series by practitioners
• Hopefully, careful clinical experience will reach a consensus, as clinical trials here are unlikely.


Iliocaval Recanalization

• Goals
  • Acute: finish in 2 days
  • Chronic: finish in 1 day
• Stages of thrombus
  • Acute: Responsive to lytic agent (days to 2 weeks)
  • Intermediate: Bulky but poorly responsive (weeks to months)
  • Chronic: Contracted (after ~6 months)
• Over 50% cross-sectional (IVUS) stenosis, stent
• Three vessel access (RIJ, groin veins); if progress from one access stalls, move on
• IVC filter: if you cannot remove it, jail it

Chronic iliocaval thrombosis in filter-bearing IVC

Filter not retrievable
• 66 year old male
• First DVT in 2002
• IVC filter placement in November 2004
• Right leg DVT in 2005, and bilateral leg swelling ever since.

7 yr follow-up, 3/22/2013
• Coumadin 5 mg daily. No aspirin
• INR 2.9.
• No active ulcerations.
• Walks approximately 1 mile daily. No edema, no leg pain.
3/22/2013: LEIV and LCIV in-stent stenosis

Chronic iliocaval thrombosis in filter-bearing IVC
Filter is retrievable

- 34 year old man, closed head injury in 2005, after which Bard G2 IVC filter was placed
- Hypercoagulable work-up negative
- Recurrent DVT's
- Venogram in 2011 showed IVC stenosis and partially recanalized iliac veins
- Now has bilateral leg pain and swelling, right greater than left
- No coumadin for 2 years, since he "wasn't getting any better".

After establishing guidewire from IJ and both femoral accesses, attempt filter retrieval, which here was successful.
• Predilate recanalized tract with 4x40 then venogram to rule extravasation
• IVC with 16x40 from each access
• Common iliac with 16x40
• External iliac with 14x60
• Common femoral with 14x60

Acute iliocaval thrombosis in filter-bearing IVC

• 58 year old man, hx testicular carcinoma in remote past
• Factor VIII deficiency, lupus anticoagulant factor +
• Recurrent DVT’s, Cook Celect filter placed in 2009
• Off Coumadin after shoulder injury in 2011, then resumed 10 days prior to ED visit (? Transition)
• Presents with bilateral leg swelling and scrotal edema
• CT showed iliocaval thrombosis, no recurrent tumor

Venography and thrombolysis 1/14/2013
Recanalizing the IVC
Technical Issues
• 3 accesses: right IJ and bilateral CFV or GSV
• Anticoagulate after through-&-through access
• Work “around the clock” until all 3 converge: sometimes refractory side will easily join the lumen after PTA of opposite iliocaval path
• Need coaxial catheter and sheath reinforcement to advance through obstruction
• Never hesitate to give up 5-10 cm and re-direct wire and catheter.
• Occasional sharp recanalization through filter

Conclusions
• Incidence of IVC thrombosis (with total occlusion) after filter placement 2-5%
• Remove filter if feasible, otherwise jail it
  • After jailing IVC filter, we have had no complaints of refractory back pain, no perforation of aorta or bowel, and no pericaval hemorrhage
• Stent down to good inflow; AVF uncommonly needed.
• Technical success >90%