Interesting venous case: duplicated IVC

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History

• 51 yr old man, father of 7
• Ret Lt Col US ARMY
• 11/21/11 ER visit AHH for syncope
• CT head negative for bleed
• INR 13 (followed at VAH)
• 2 U FFP and 10 mg Vit K IM
• INR 1.4
• Started on Lovenox
Recent History

• Nov 7, 2011
• Presented with chest pain
• Treated at St Lukes
• Restenosis LAD stents rx with PTA
• ? PE
• Started on Warfarin
Pertinent Past History

• Pulmonary Embolus 2008
• DVT right leg:
  • “Flying reconnaissance” US Army
  • Out in the field in Grenada and his right leg swelled.
  • Initial diagnosis was “a bite”
• Documented DVT in Panama
• Warfarin 6 mo
History

• 2008 DVT Grenada
• 2006-7 Panama
• 2003 Iraq War
• 1990 Gulf War
  • Lt Col
  • Sniper
  • GSW to the abdomen
  • PTSD
• 1989 (age 29) evaluated for chest pain at VAH in Memphis
  • DX “asthma”
History

• Father Irish Russian
• Mother from Spain

Education
• University of Madrid
• University of IL Champagne-Urbana
• University of Tennessee MA Finance/Hx
• University of Texas SA PhD Russian Lit/Hx
Medications

- Metoprolol 12.5mg bid
- Plavix 75 mg/d
- Citalopram (Celexa) 40mg/d*
- Lisinopril 5mg/d
- Glipizide 5mg/d
- Trazodone 300mg/d*
- Coumadin 10mg/d
- Advair, Combivent inhalers
On Admission

- Cardiac Echo LVEF 50-55% LVH
- Lower extremity Duplex negative
- Factor V, Factor II DNA negative
- No physical signs of CVI
- On inhalers for “asthma”
- CT 11/23/11
  - “Large testicular vein left side”
Duplicated IVC

- Incidence .3-3.0%
- Embryology at 8 weeks
- Non regression of the L supracardinal vein
  - They parallel the aorta during development
- Can complicate aortic aneurysm surgery
- Source of recurrent PE
Anomalies of the Inferior Vena Cava
AJR 140:339-345 Feb 1983

- Contrast CT is the best diagnostic tool
- 12 cases/1 yr/~1000 exams
- Associated anomalies
  - Retrocaval ureter (1)
  - Renal vein collar (1)
  - Left-sided IVC (4)
  - Bilateral IVC (4)
  - Bilateral IVC with azygous continuation (1)
Treatment Options

• Indications in the lit for IVC filter include
  • Recurrent PE despite therapeutic OAC
  • Contraindications to OAC in pt with PE
  • High risk PE circumstances
• Right side filter with embolization L IVC
• Bilateral filter
• Suprarenal filter
Filter Placement for Duplicated Cava
Vascular & Endovascular Surgery 45(3) 269-273 2011

• Right-side + embolization
  • Small left side
  • Risk of occluding renal vein
• Supra-renal filter
  • Greenfield reported 71 cases 1992, MGH 70 pt
  • IVC >30mm diameter
• Bilateral filters
  • 14 case reports 1974-2011
Follow-up 30 pts mean 543d

Suprarenal IVC Filters: a 20-Year Single Center Experience
JVIR 2008;19:1041-1047 MGH

• Complications of filters
  • Migration 0
  • Strut fracture 1 (3%)
  • Recurrent PE suspected in 10 pts 1 + CT
  • Caval obstruction none
  • Penetration of IVC wall 2 (7%)
  • Thrombus in filter 3 (10%)
  • Retroperitoneal hematoma
There are only a few reports of thromboembolic disease with a duplicated IVC. It is unknown whether patients with this and other IVC anomalies have a higher incidence of VTE. Studies on the characteristics of venous blood flow and endothelial function in a duplicated IVC are lacking.
Conclusion

• Recurrent PE without a source of embolus should raise the question of a duplicated IVC.
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