MR and CT venography of the abdomen and pelvis

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3 scenarios

• “35 year old woman with pelvic fullness and pain and hematuria”
• “Lower extremity swelling, please evaluate pelvic deep veins”
• “Can you remove this IVC filter?”

3 clinical histories

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Multiple Ovarian veins with reflux

Catheter Venography

L renal venogram
L ovarian venogram
A rare etiology for PCS – the Nutcracker syndrome

- Left renal vein is compressed
- Results in left renal venous hypertension:
  - Hematuria/flank pain
  - Ovarian vein reflux

What MRV tells me in the setting of Pelvic congestion syndrome

- Direction of flow
- Size of the ovarian vein
- Characteristics of the ovarian vein (tortuosity, duplications) that inform my intervention
- Unilateral vs bilateral disease
- Degree of peri-uterine venous plexus engorgement
- Presence/significance of a nutcracker lesion
- ? May-Thurner

3 clinical histories

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What is happening in this man’s pelvis?
LAVA blood pool image (gadofosveset trisodium)

Blood pool imaging with gadofosveset trisodium (Ablavar®)
- Gadolinium containing agent that reversibly binds to albumin
- Reduced extravascular distribution
- Allows for high resolution steady state imaging → particularly useful in the venous system (i.e., when “venous contamination” is desirable)
- Can be used in tandem with time resolved MR angiography

45 yo female with 3 year history of LLE swelling

What MRV tells me in the setting of deep venous disease
- Presence of an iliocaval obstruction
- Degree of obstruction
- Presence of a luminal irregularity (e.g. a venous web)

43 year old woman
Are the stents still open?

FIESTA

Time of Flight

3 clinical histories

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Imaging IVC filters: The challenge

IVC Filter questions

• Status of the filter?
  – Tilt
  – Penetration
  – Thrombus
  – Fracture
• Status of the cava?
  – Thrombus
  – Stenosis

Conclusions – How MR and CT aids the interventionalist

• For gonadal vein pathologies, time resolved contrast-enhanced MR venography confirms the diagnosis and aids in treatment planning
• For deep venous pathologies, blood pool contrast-enhanced high resolution MR venography can influence whether an intervention is necessary
• IVC filters are best evaluated by CT