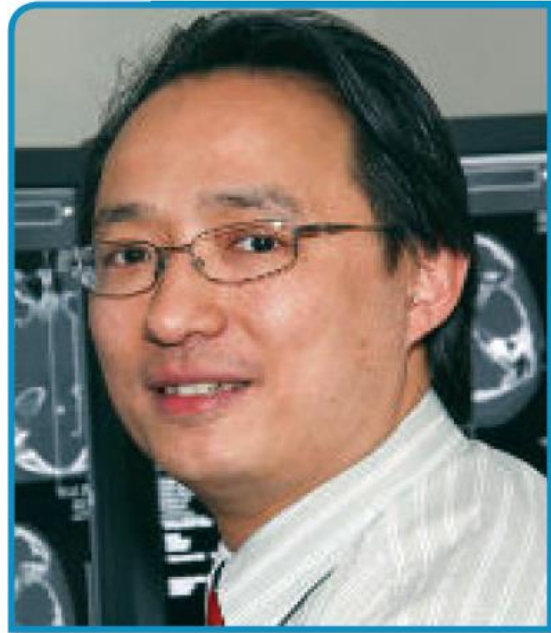




Dr Gabriel Lau

Diagnostic & Interventional Radiology
Dunedin Public Hospital

Radiologic Diagnosis and Stenting in VTE - Main Session (Workshop options scheduled)

Saturday, 17 August 2013

Start 9:10am

Duration: 20mins

Plenary



South GP CME 2013

General Practice Conference & Medical Exhibition

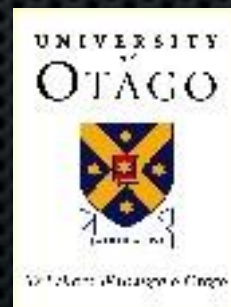
15-18 August | Edgar Centre | Dunedin



DVT -Diagnosis and Intervention

Gabriel Lau

Interventional/Body Radiologist



Introduction

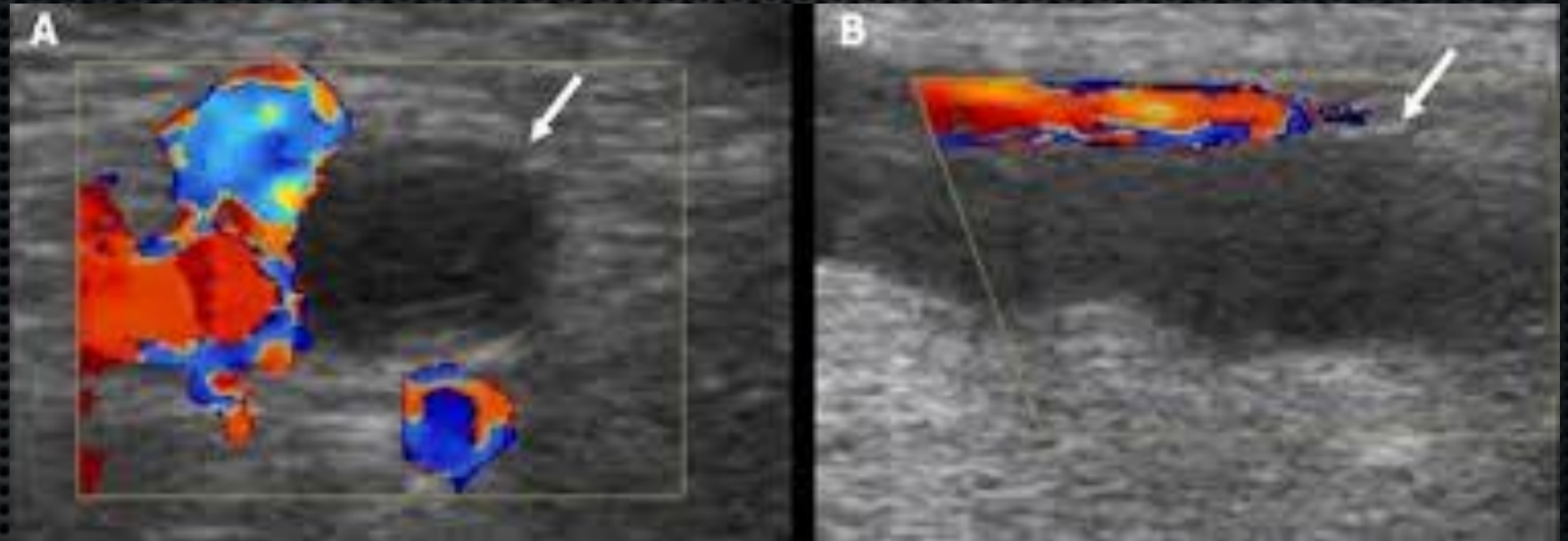
- ✦ Radiological diagnosis
- ✦ Intervention

Modalities

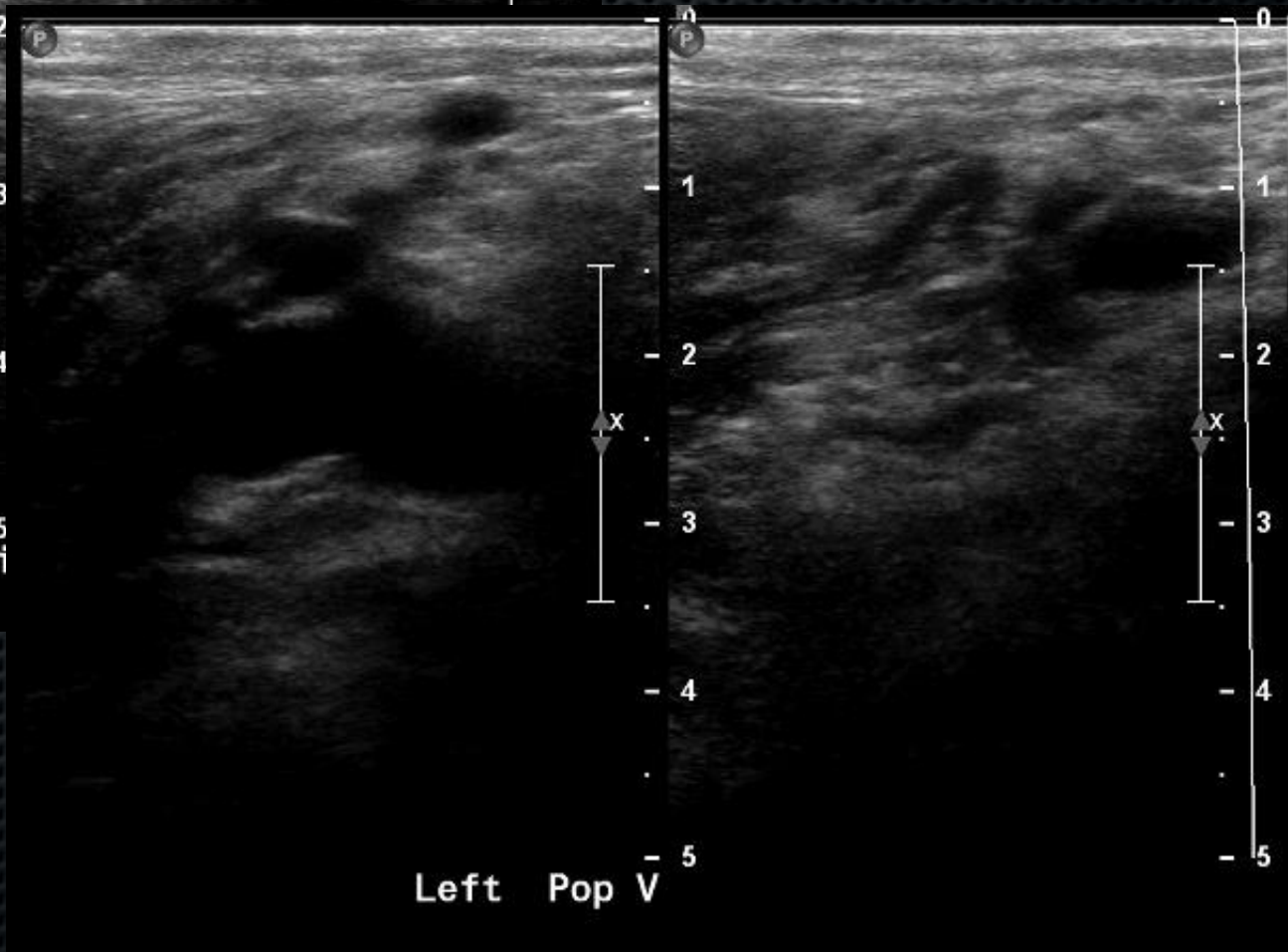
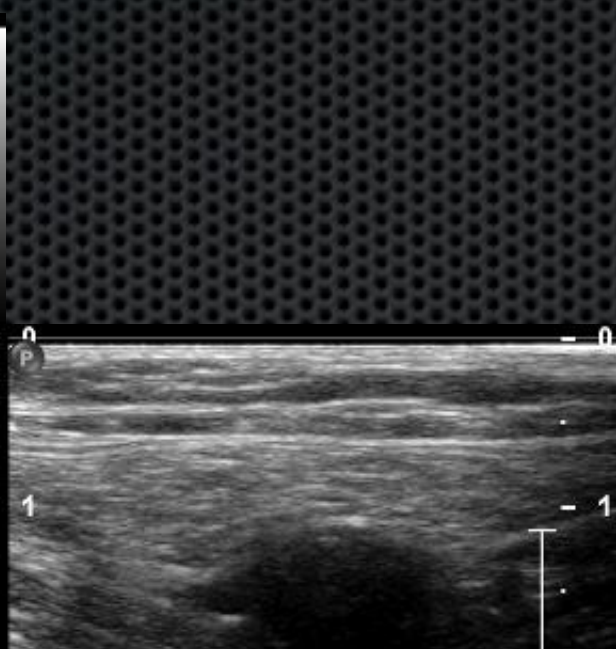
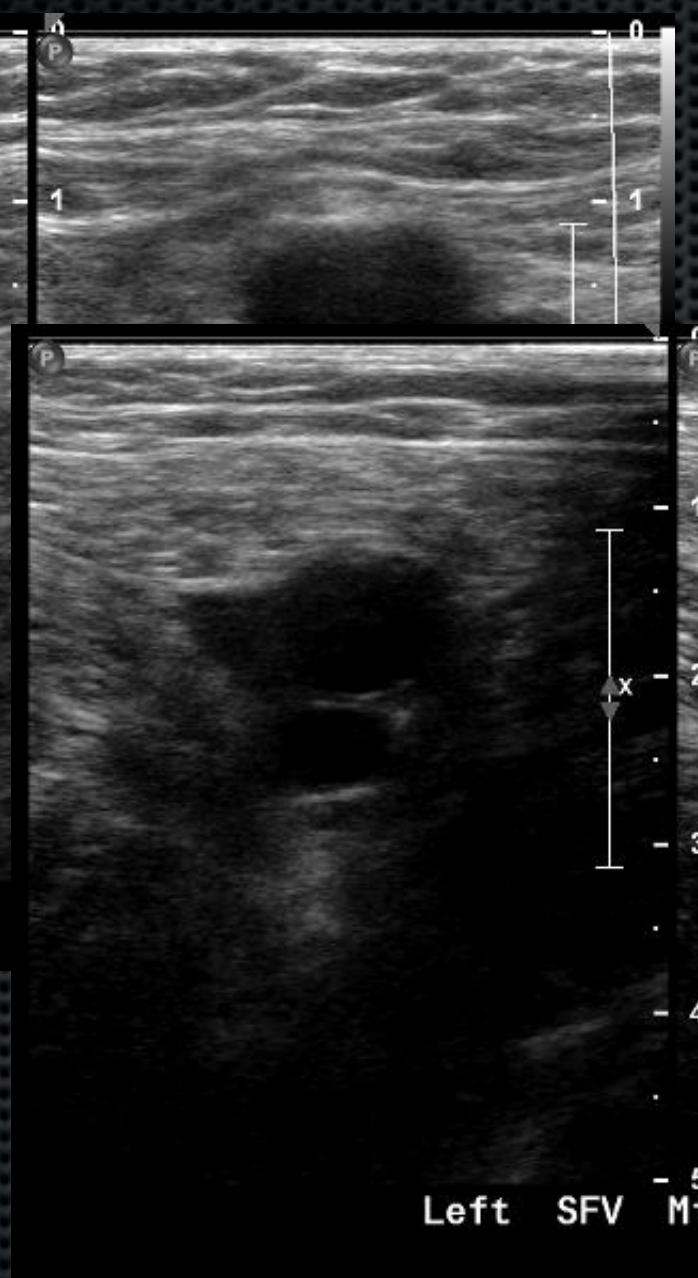
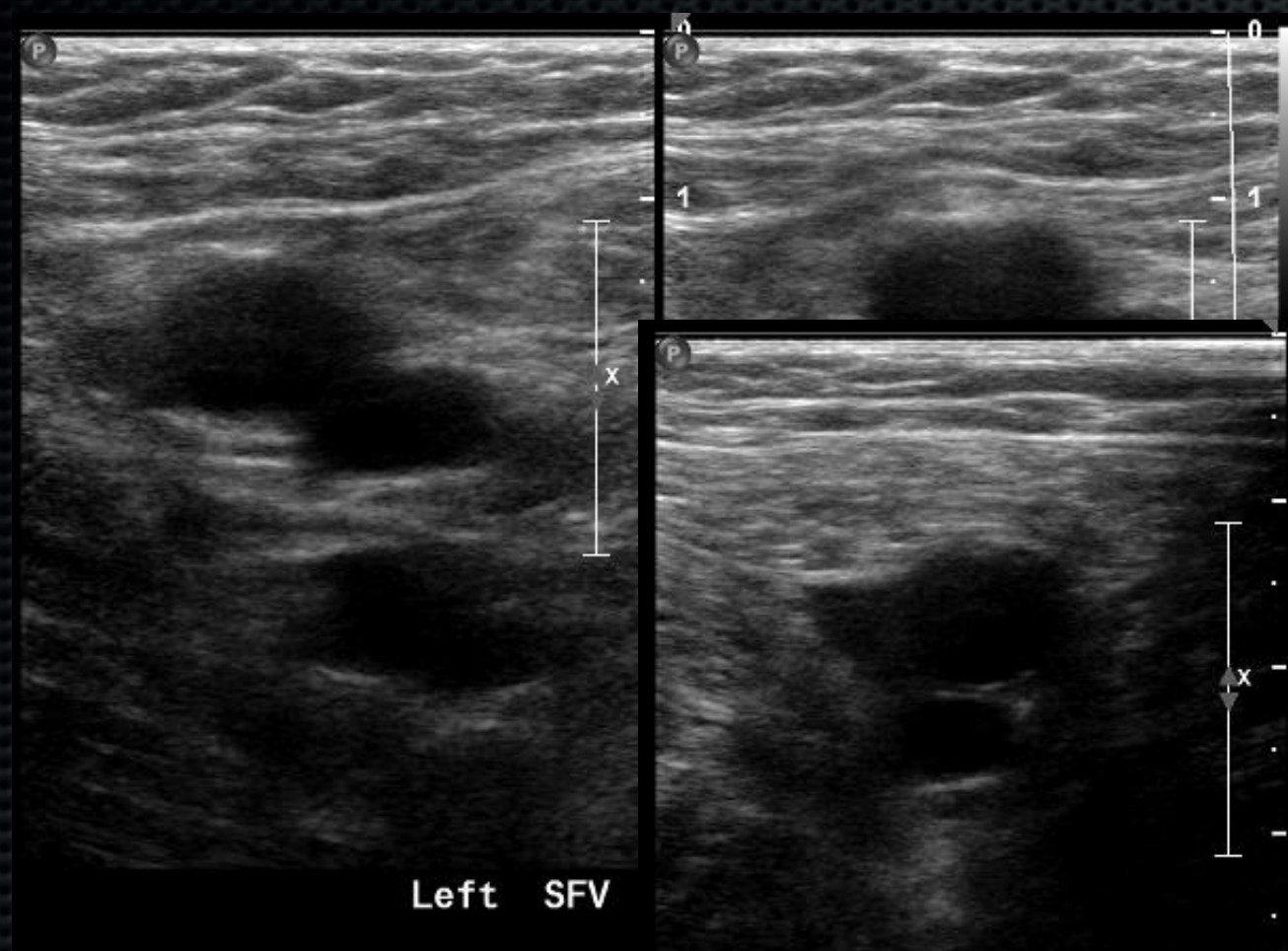
- ✦ US
- ✦ CT
- ✦ MRI
- ✦ DSA

US

- non-invasive
- b-mode
- quick bedside vs dedicated diagnostic study
 - presence vs absence
- augmentation?



US



CT

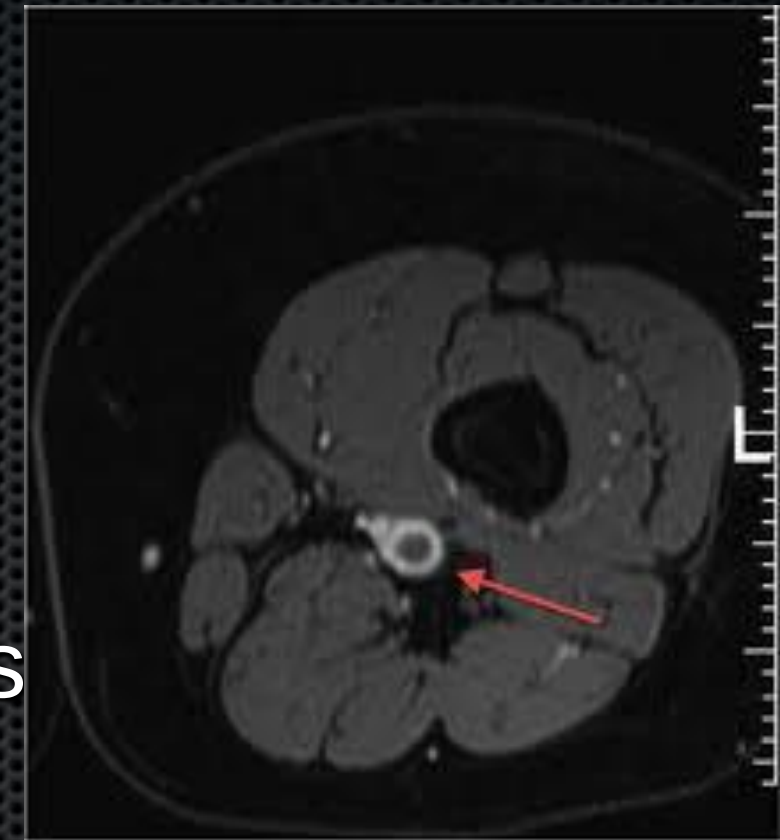


- non-visualised thigh or pelvic segments
- radiation
- contrast



MRI

- non-visualised thigh or pelvic segments
- two types
 1. imaging deep venous system and its attributes, needs iv contrast (bloodpool agents)
 2. imaging thrombus itself, utilising magnetic attributes of methaemoglobin in clot



DSA

- ✦ limited use in diagnosis
- ✦ planning for intervention

LET Classification

- standardised classification
- based on anatomical landmarks
- designed on haemodynamic hypothesis, that severity of DVT, risk of developing PTS or recurrent DVT is related to extent of outflow obstruction and residual thrombus



PTS

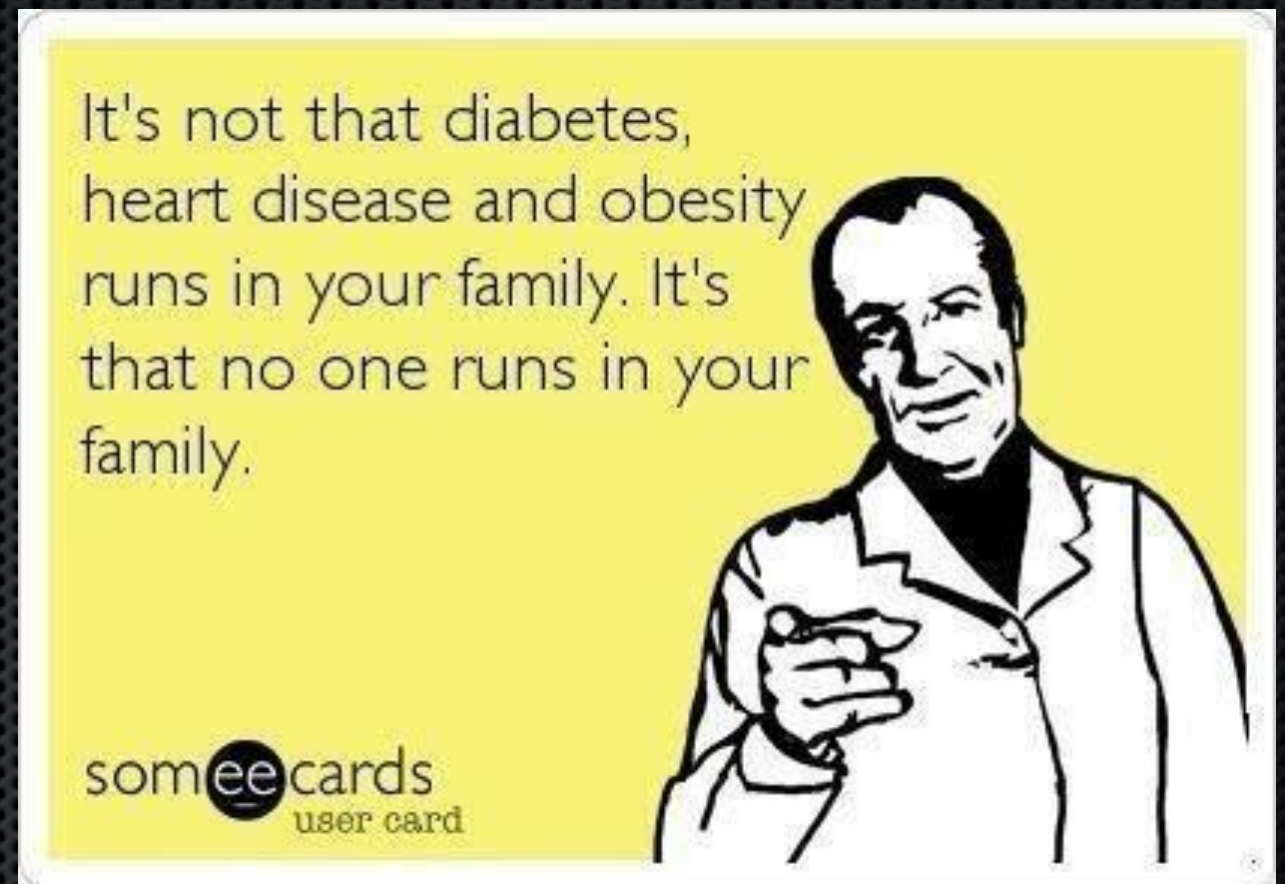
- Incidence - 20-50%
- Symptoms arise within first year post-DVT
- Mild signs
 - slight swelling, venous eczema, pigmentation
- Severe signs (5-10%)
 - severe oedema, venous claudication, chronic pain and recurrent ulcers

PTS

- Strong risk factors
 - Ipsilateral recurrence
 - Residual occlusion
 - Residual reflux

PTS

- Moderate risk factors
 - age
 - obesity
 - female gender
 - thrombus location
 - insufficient quality of anticoagulant therapy
 - D-dimer



PTS

- ✦ Unclear/no correlation
 - ✦ provoked vs unprovoked
 - ✦ thrombophilia
 - ✦ inflammatory markers

Catheter Directed Therapies

- delivery of thrombolytic drug directly into the thrombus using a catheter or catheter-based device
 1. high intra-thrombus drug concentration
 2. more efficient thrombolysis
 3. ability to prevent recurrent DVT

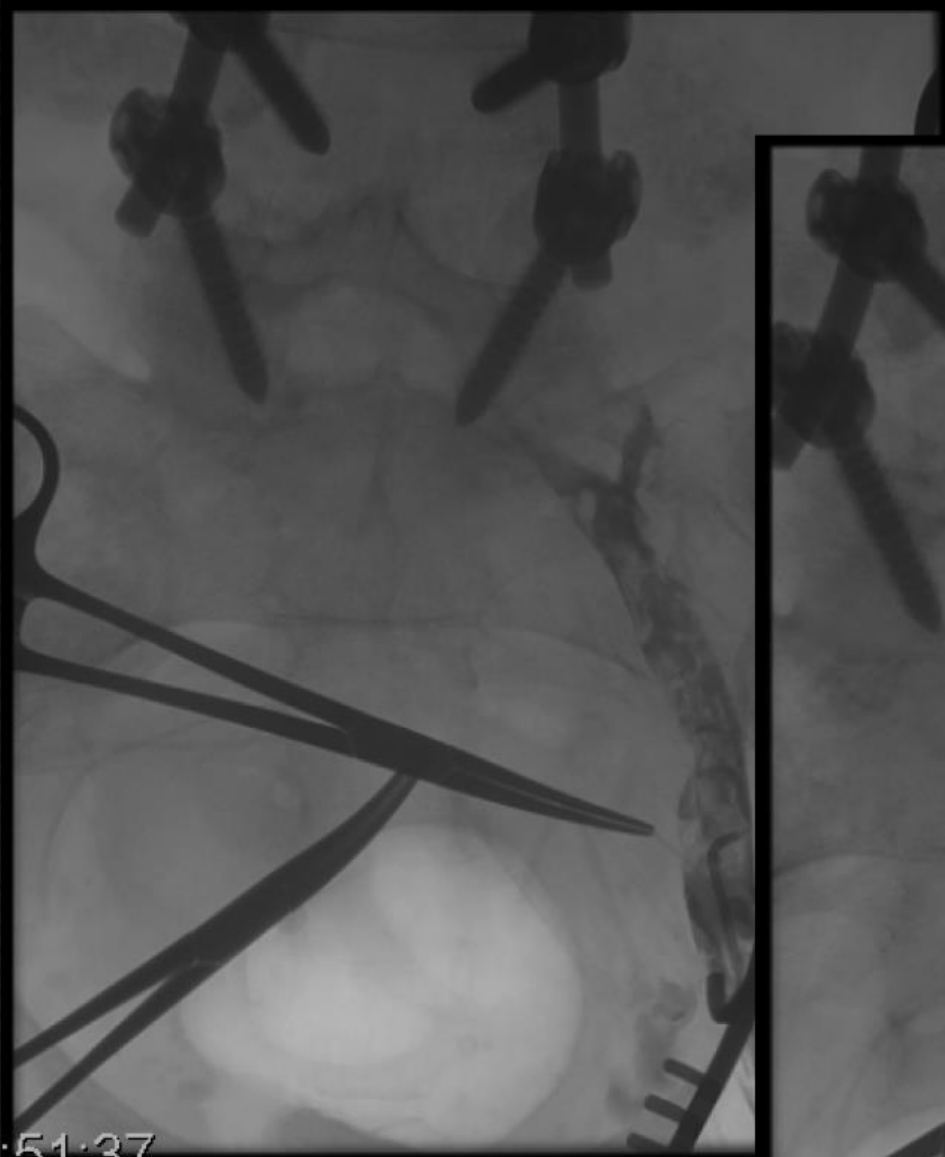
Pharmomechanical Catheter-Directed Thrombolysis

- combination of intra-thrombus drug delivery with use of percutaneous mechanical thrombectomy devices
 - improves drug dispersion and macerates and/or aspirate thrombus from the venous system

Indications

Clinical scenario—goal of therapy	Patient's expected risk of bleeding		
	Low	Moderate	High
DVT causing acute limb threat	Yes—Urgent	Yes—Urgent ^a	No ^a
Progressive IVC thrombosis despite AC	Yes—Urgent	Yes—Urgent ^a	No
DVT symptoms markedly increased despite AC	Yes—Elective	Usually no	No
Major anatomic DVT extension despite AC	Yes—Elective	Usually no	No
Initially presenting acute iliofemoral DVT (prevent PTS)	Yes—Elective	Usually no	No
Initially presenting acute femoral/popliteal DVT (prevent PTS)	Usually no	no	No

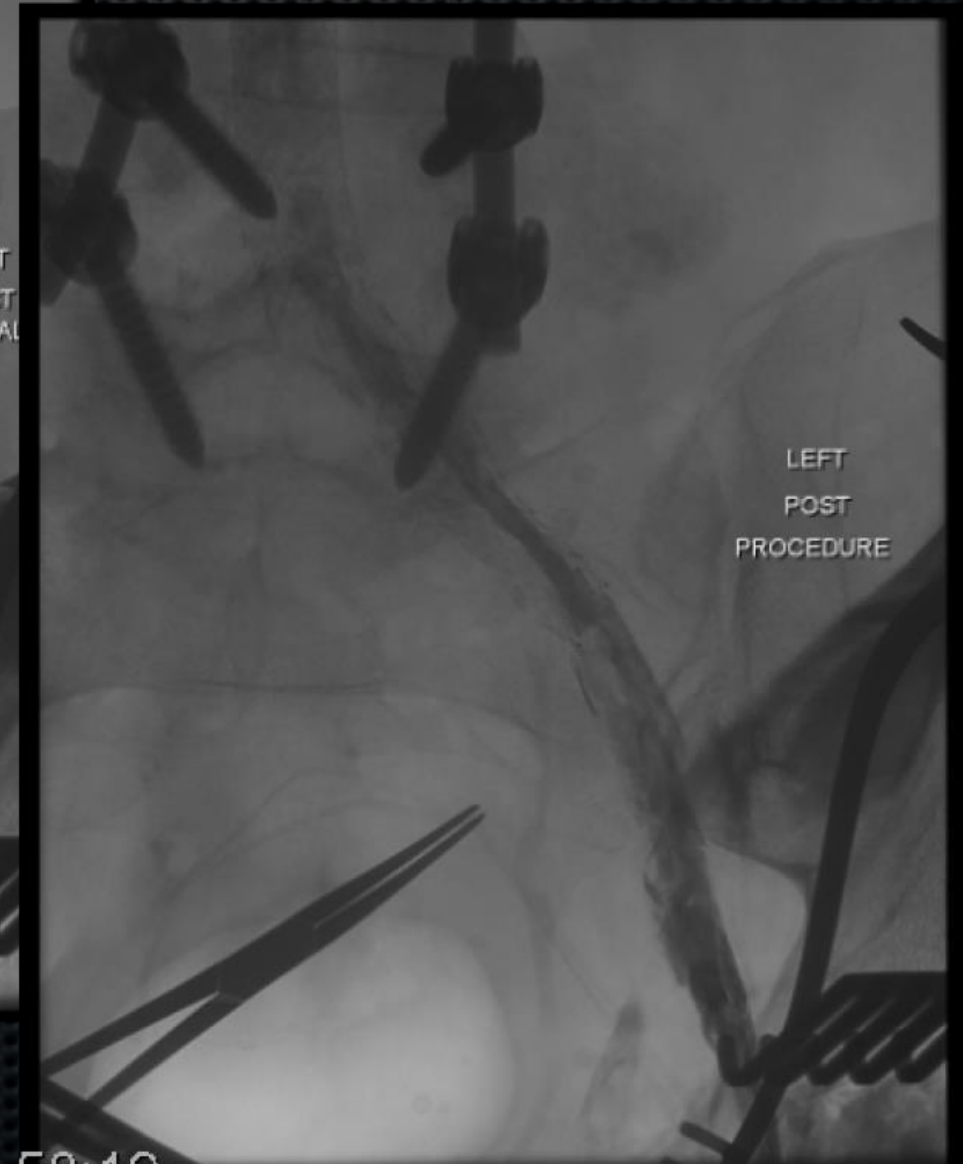
Chronic Venous Ulcers



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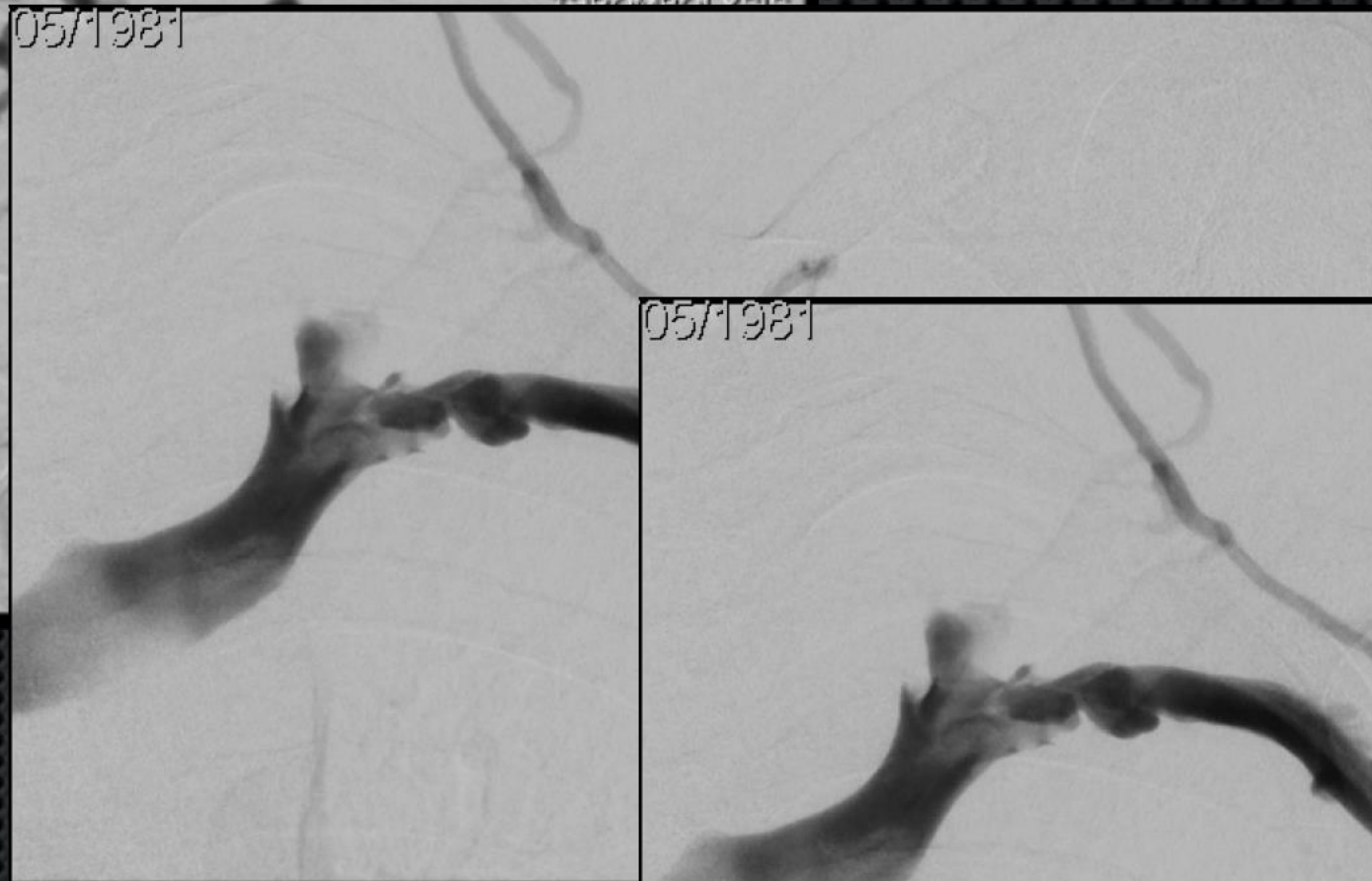


15:03



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Acute Upper Limb DVT



Acute Upper Limb DVT

T1W SAG RIGHT ARM DOWN

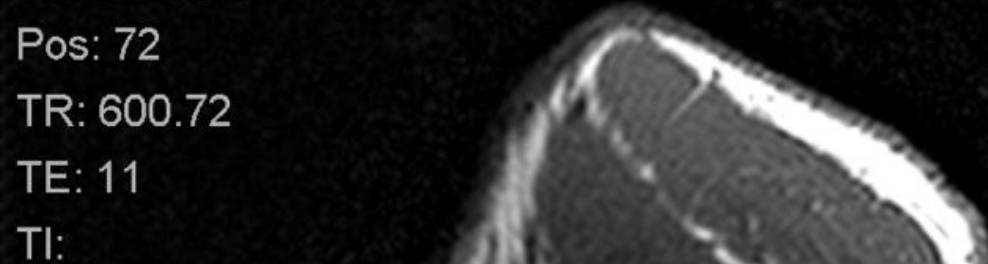
Slice: 3 mm

Pos: 72

TR: 600.72

TE: 11

TI:



T1W SAG LEFT ARM DOWN

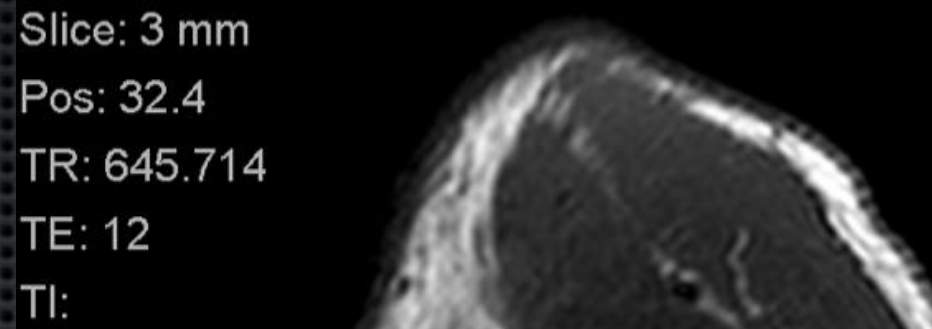
Slice: 3 mm

Pos: 32.4

TR: 645.714

TE: 12

TI:



T1W SAG RIGHT ARM UP

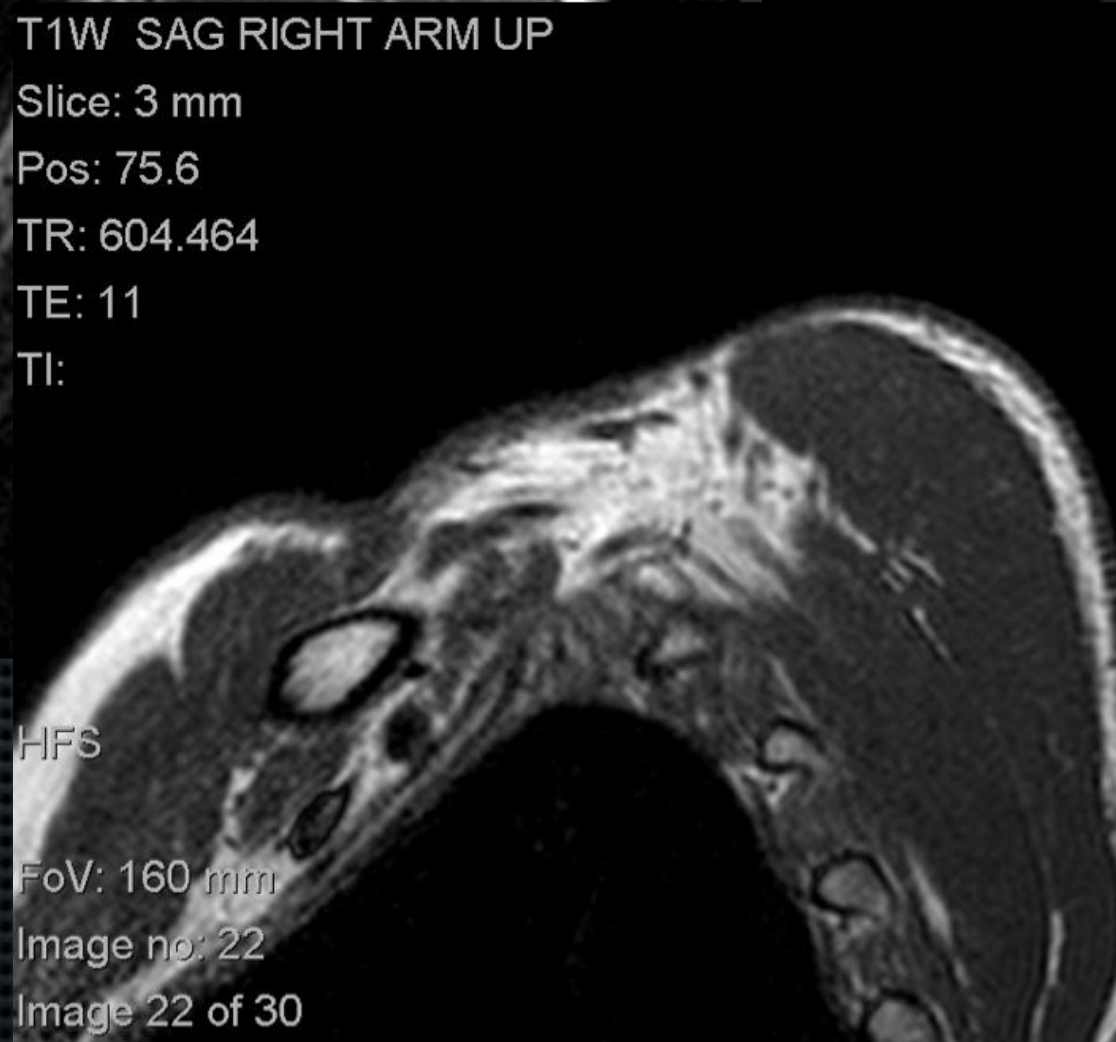
Slice: 3 mm

Pos: 75.6

TR: 604.464

TE: 11

TI:



T1W SAG LEFT ARM UP

Slice: 3 mm

Pos: 36

TR: 607.698

TE: 11

TI:



HFS

FoV: 160 mm

Image no: 21

Image 21 of 30

HFS

FoV: 160 mm

Image no: 22

Image 22 of 30

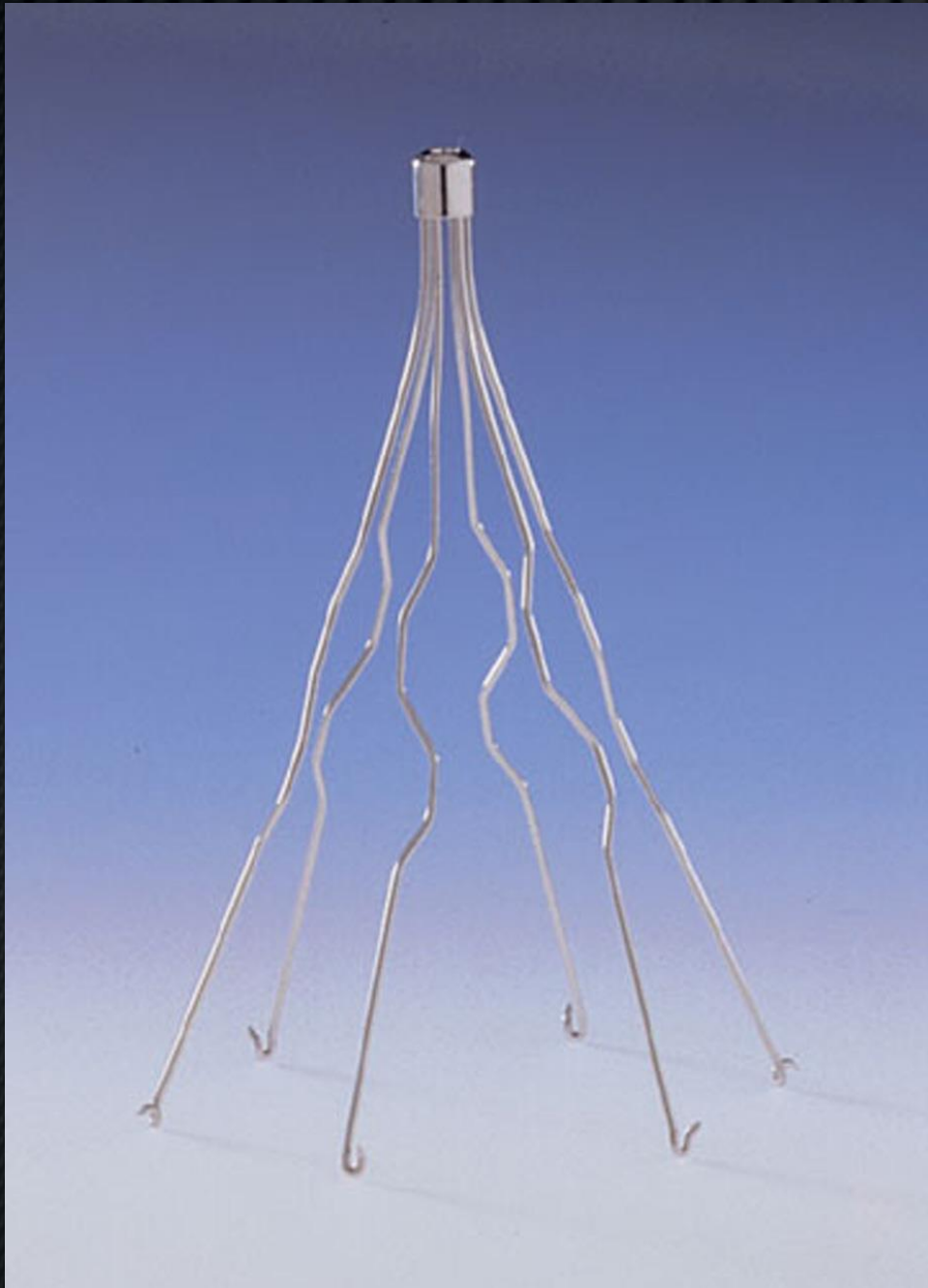
HFS

FoV: 160 mm

Image no: 11

Image 11 of 30

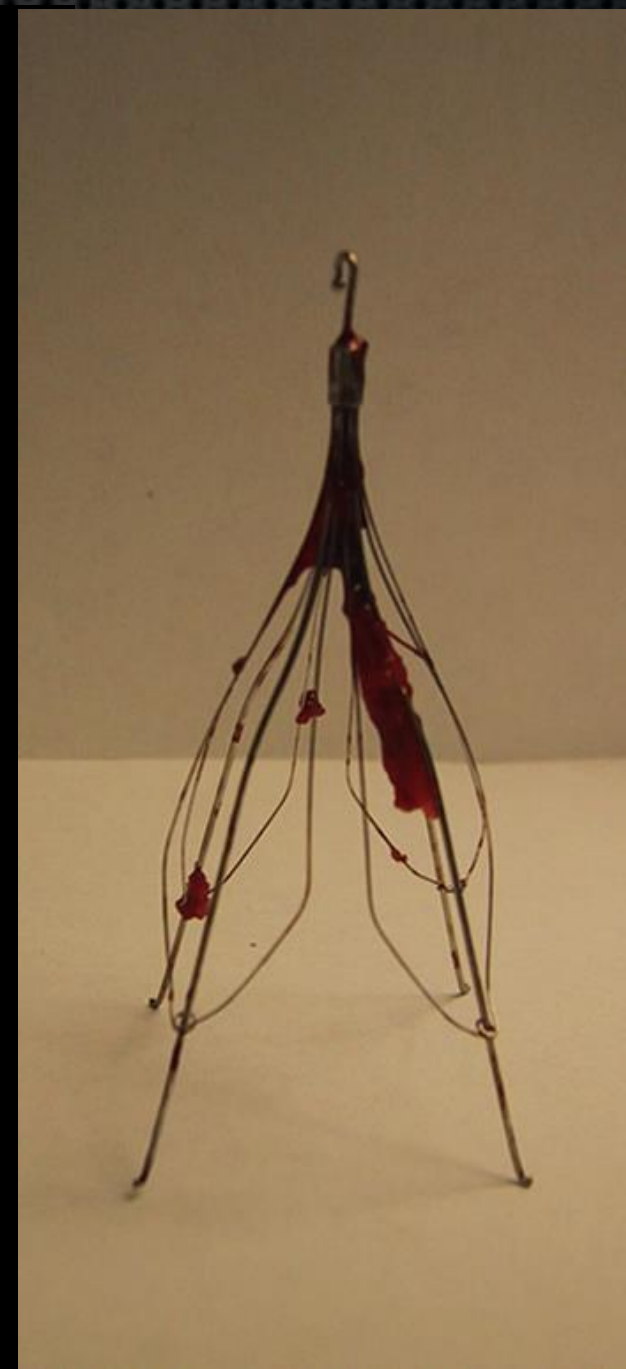
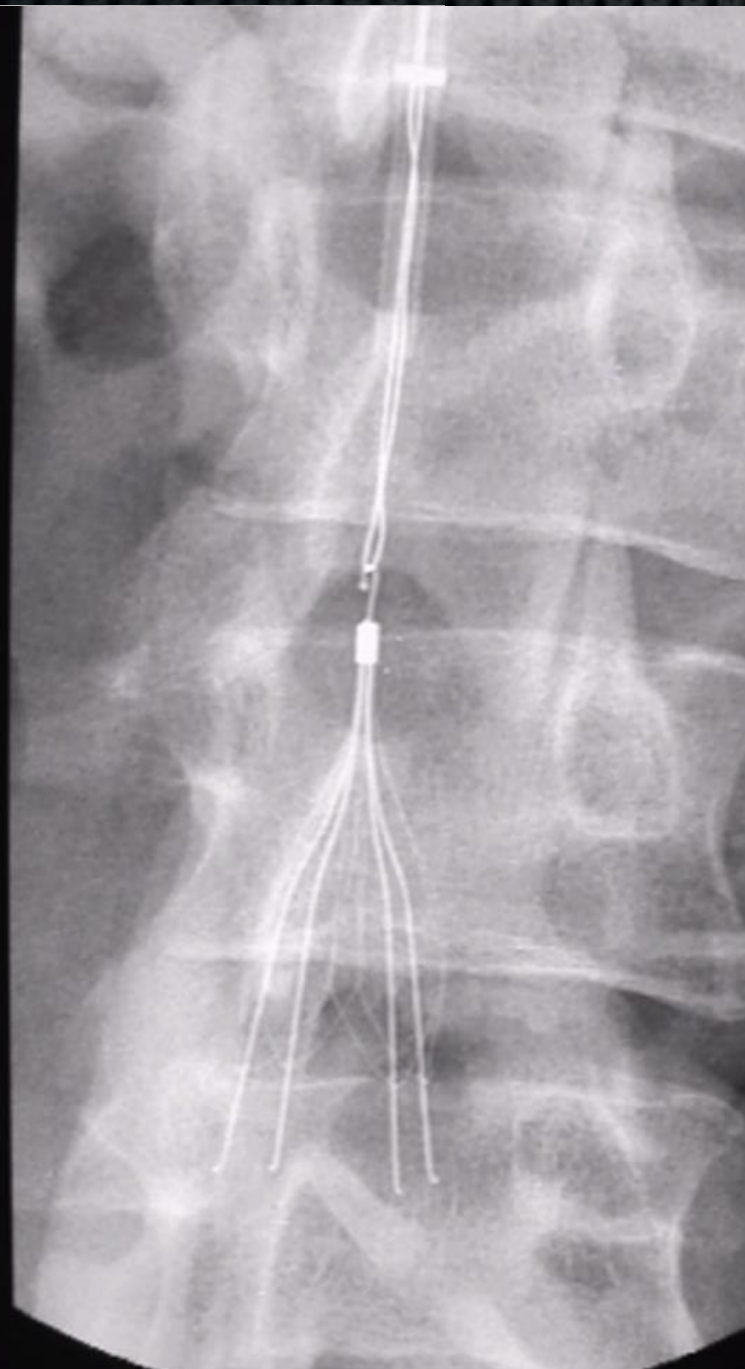
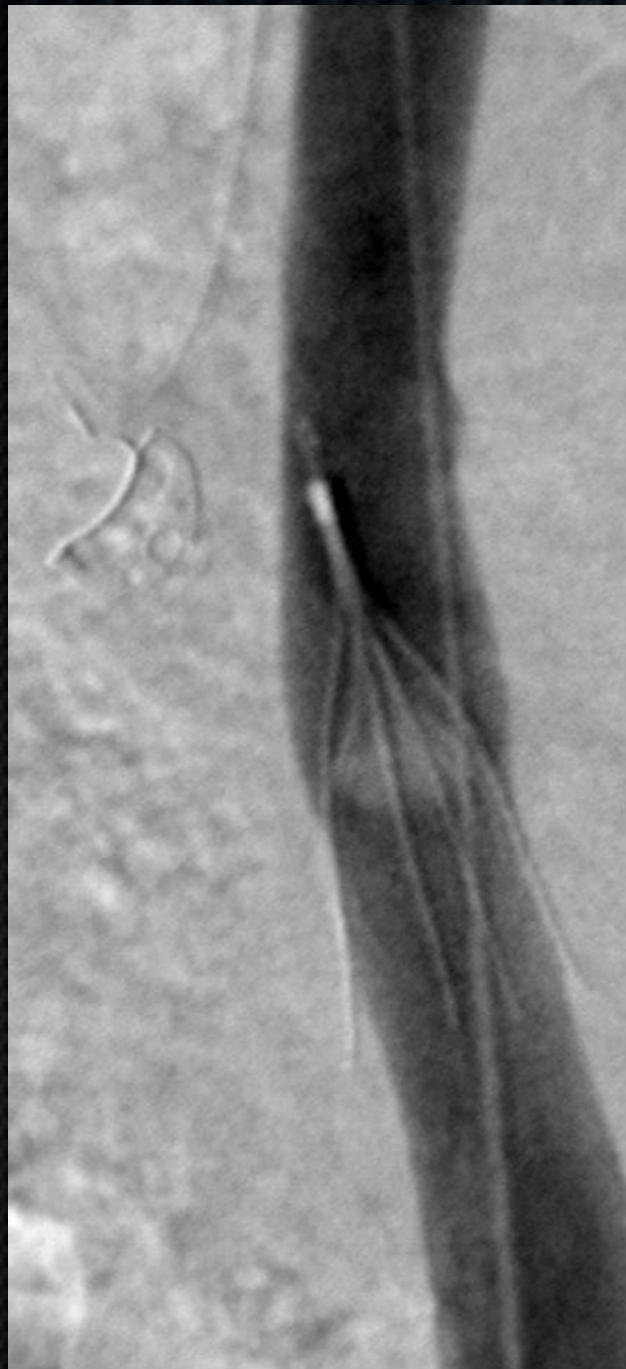
IVC Filters



Indications

- ✦ DVT/PE with contra-indication to anticoagulant therapy
- ✦ DVT/PE with a complication of anticoagulant therapy
- ✦ Failure of anticoagulant therapy
- ✦ Free-floating iliofemoral or caval thrombus
- ✦ PE prophylaxis?

IVC Filters - optional



Complications

- Penetration of caval wall by the filter leg
- Migration (<1%)
- Fracture (<1%)
- Infection (<1%)
- Caval thrombus (5%)
- Death (30d mortality, <1%)

Thank you