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5-year follow up for acute DVT patients treated with EKOS™: experience from Aachen University Hospital

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Disclosure

I have the following potential conflicts of interest to report:

- Receipt of grants/research support

Medtronic, BD BARD, Cook, Ab medica, Bentley, Optimed, BTG

- Receipt of honoraria and travel support

Medtronic, BD BARD, Cook, Ab medica, Bentley, Optimed, BTG

Introduction

- 20-55% of pt's develop PTS after DVT
- PTS due to deep venous Thrombosis:
 - Calf: rare
 - Popliteal: rare
 - Femoral: common
 - Iliac/caval: common
- only 20 % of thrombosed iliac veins completely recanalize with anticoagulant therapy
- 44% claudication 5 years post iliac DVT
- 15% ulcers 5 years post iliac DVT
- the presence of residual thrombus in the iliofemoral distribution is a strong predictor of recurrent thrombosis and development of PTS

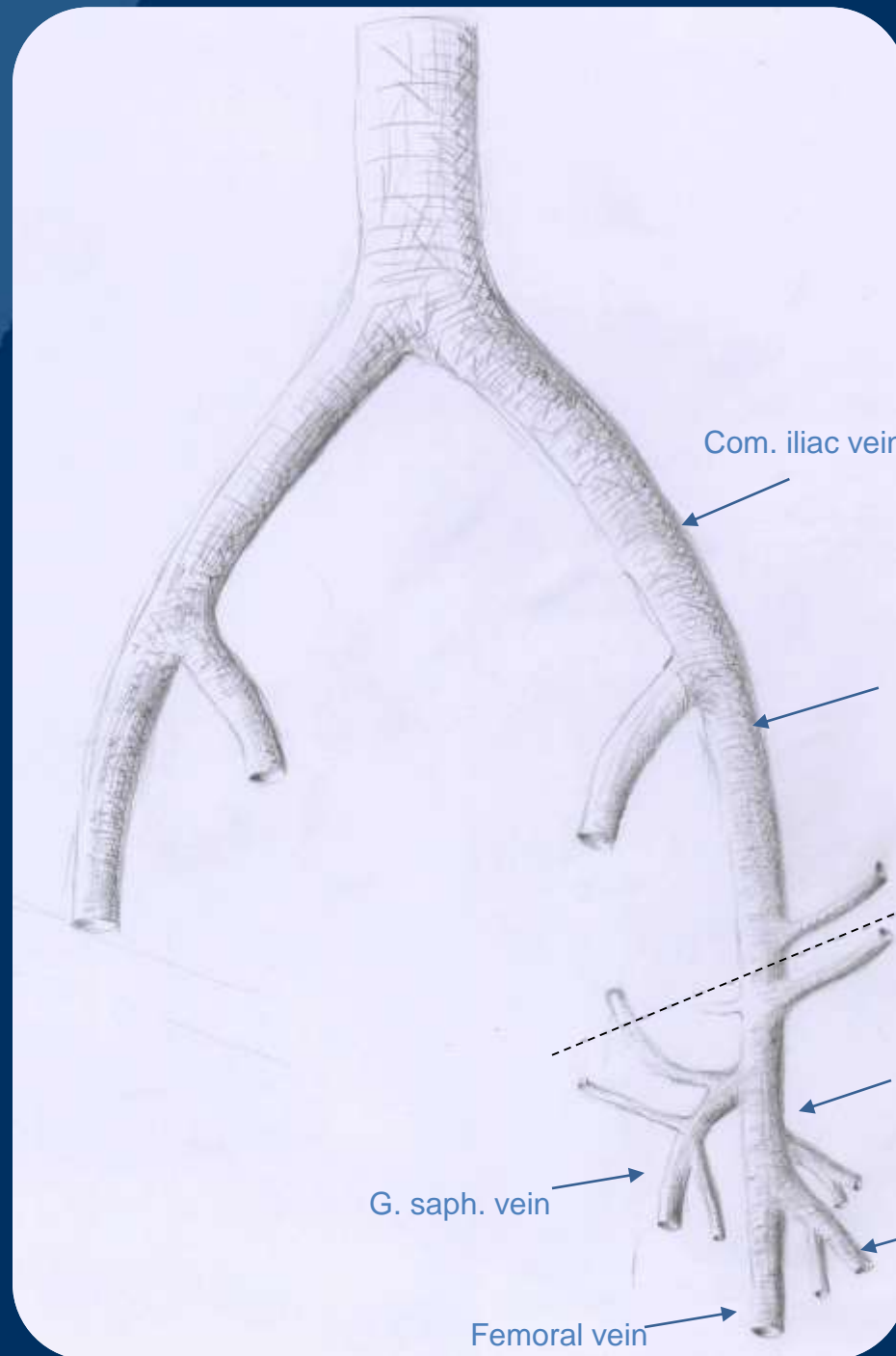
Introduction

- Reasons for early clot removal:
 - Relief of acute symptoms
 - Swelling
 - Pain
 - Edema
 - Risk reduction for rethrombosis and postthrombotic syndrome (PTS)
 - residual thrombus
 - residual venous obstruction
 - valve incompetence

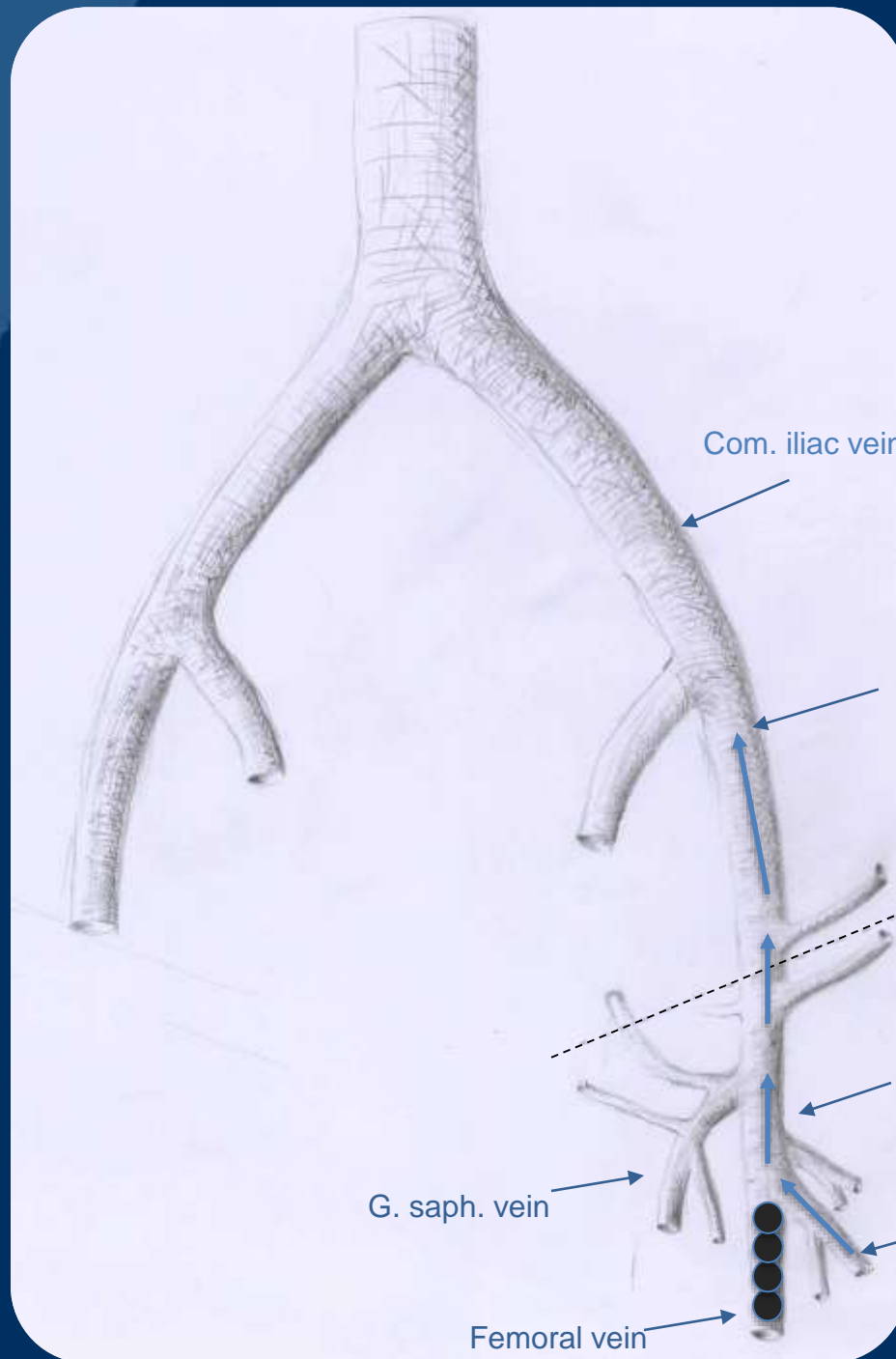
Indication

- Acute proximal iliofemoral and caval DVT without high risk of bleeding

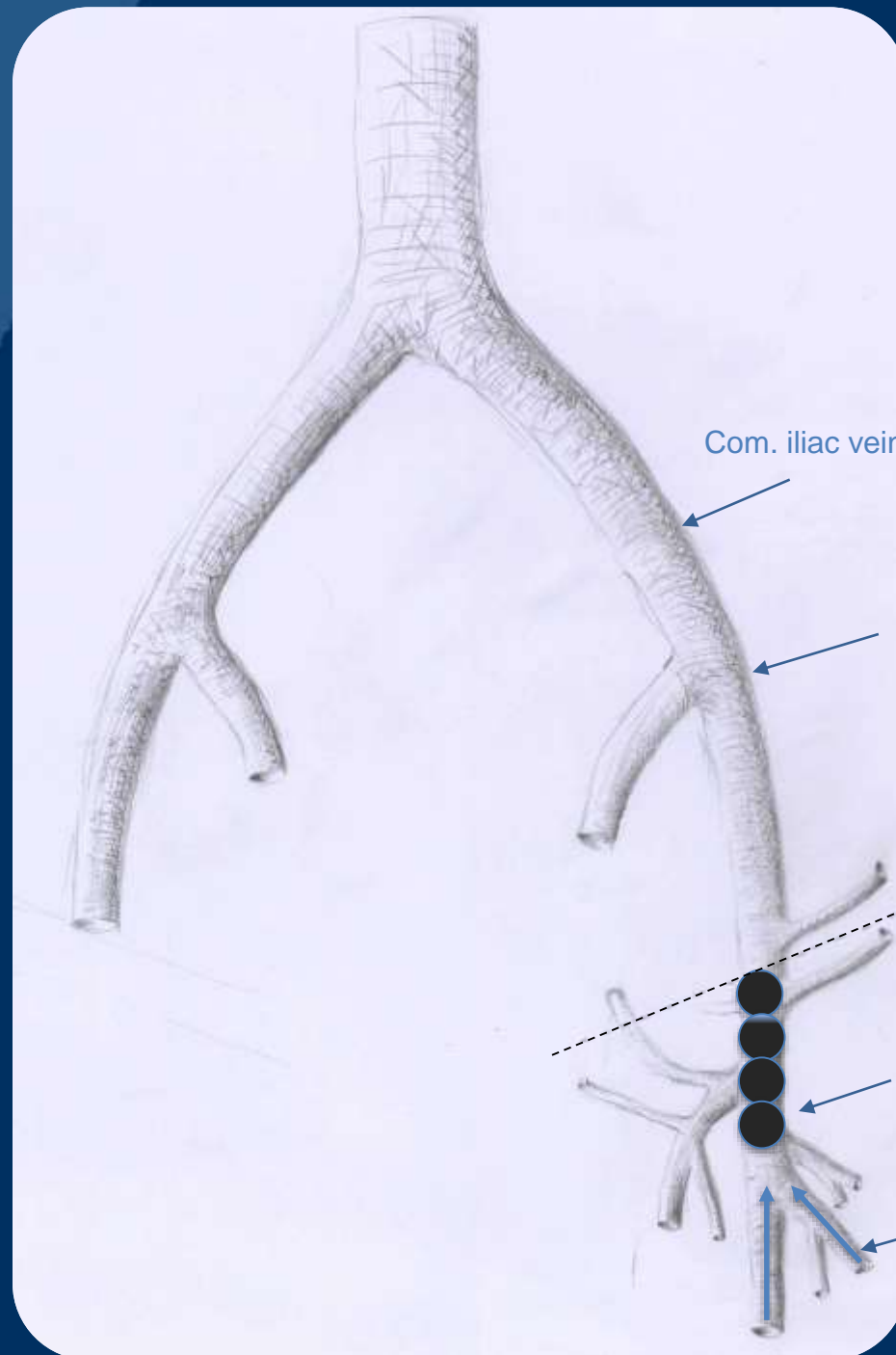
Anatomy



Anatomy

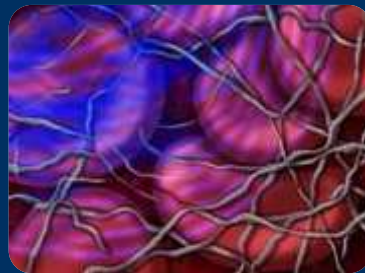
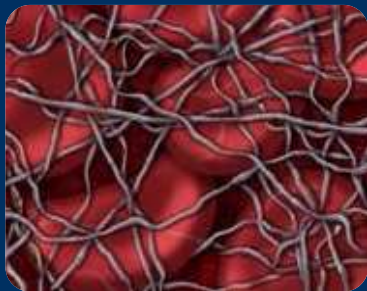


Anatomy



Device

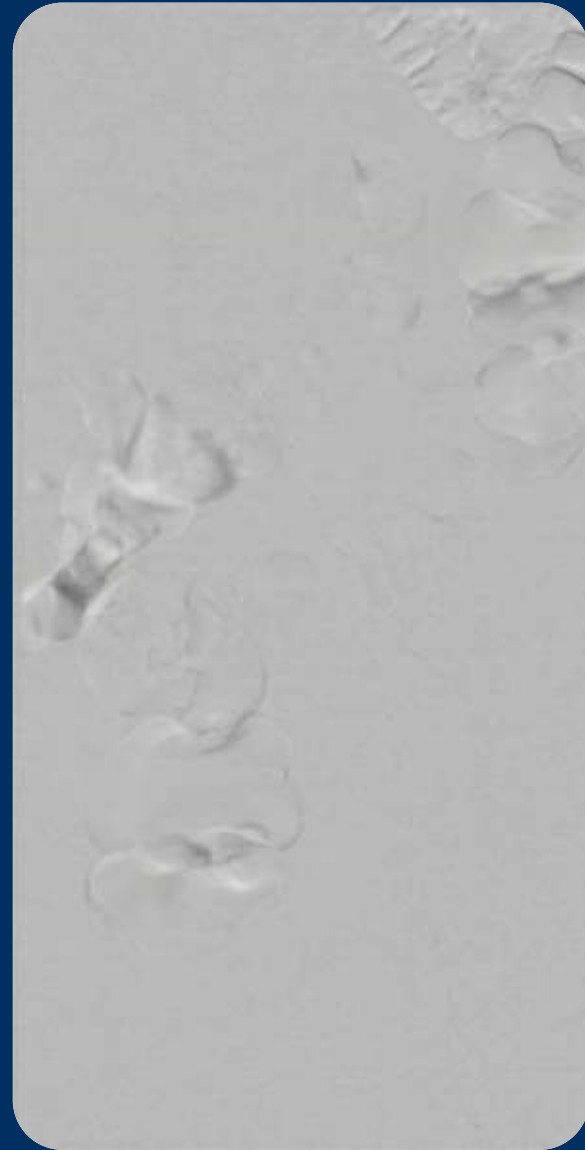
- EkoSonic[®] Endovascular System: ultrasound-accelerated catheter-directed thrombolysis (UACDT)
- Mechanical: high frequency, low energy ultrasound
- Drug: recombinant tissue plasminogen activator
 - Bolus 5mg, 1mg per hour
 - Heparin PTT 40-60 seconds



Case 1

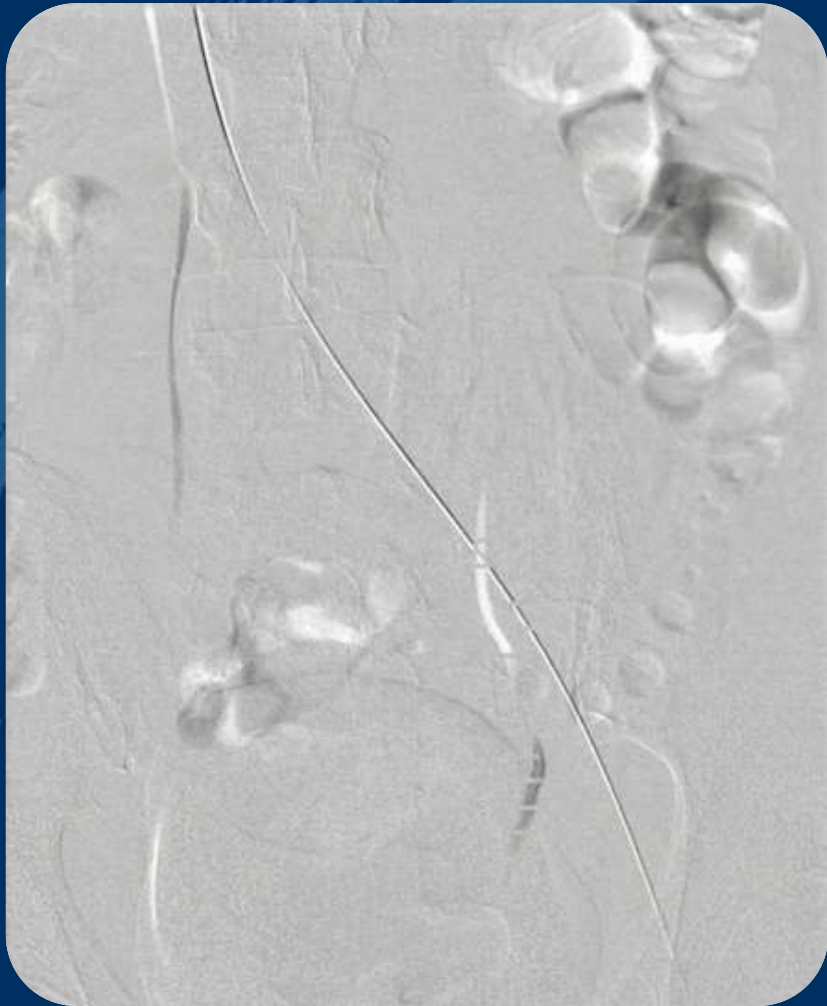


Initial angiogram



Day 1

Case 1

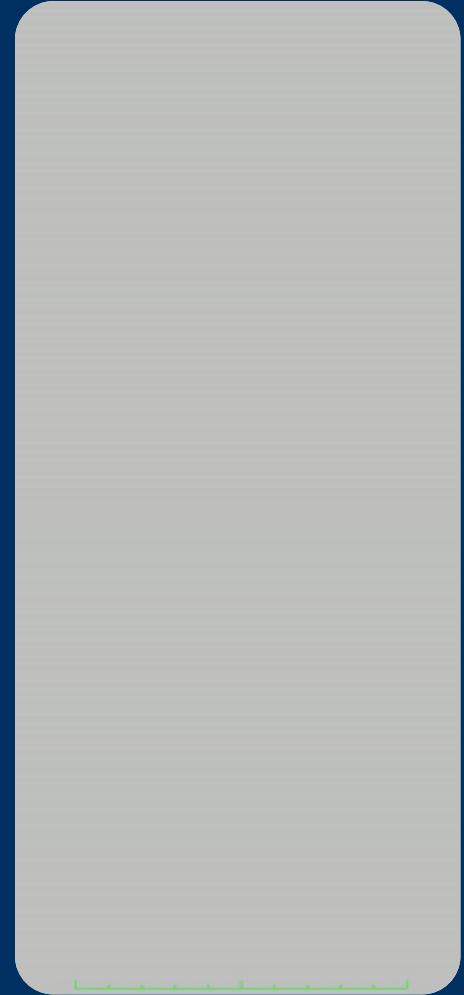


Day 2

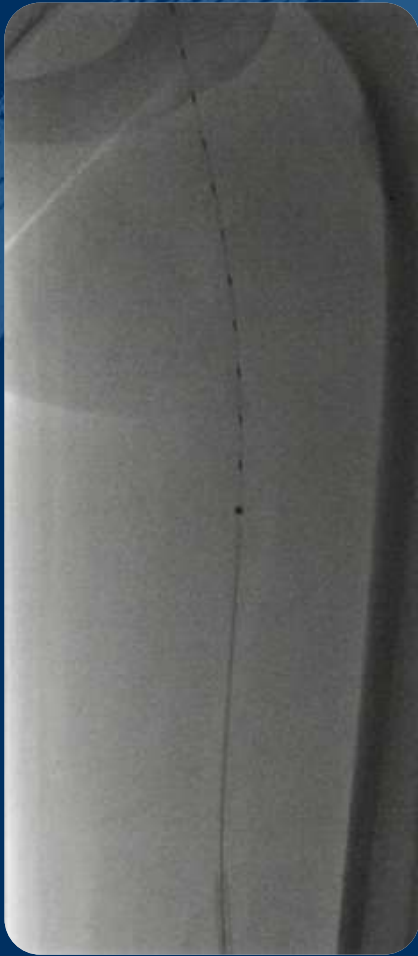


completion angiogram

Case 2



Case 2

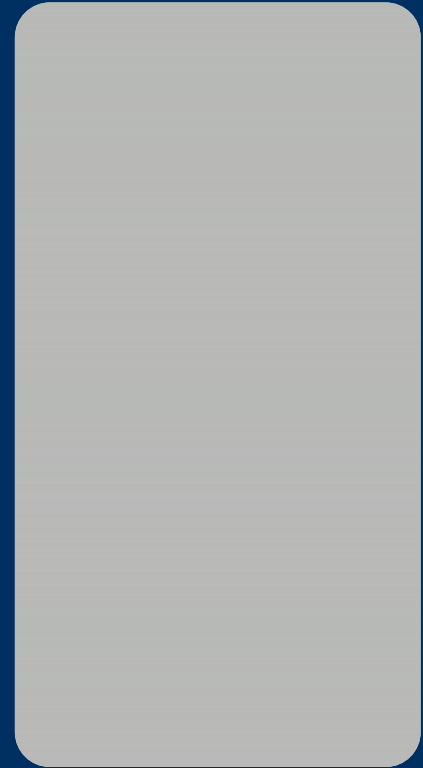


After ca. 24 h lysis



Predilatation

Case 2

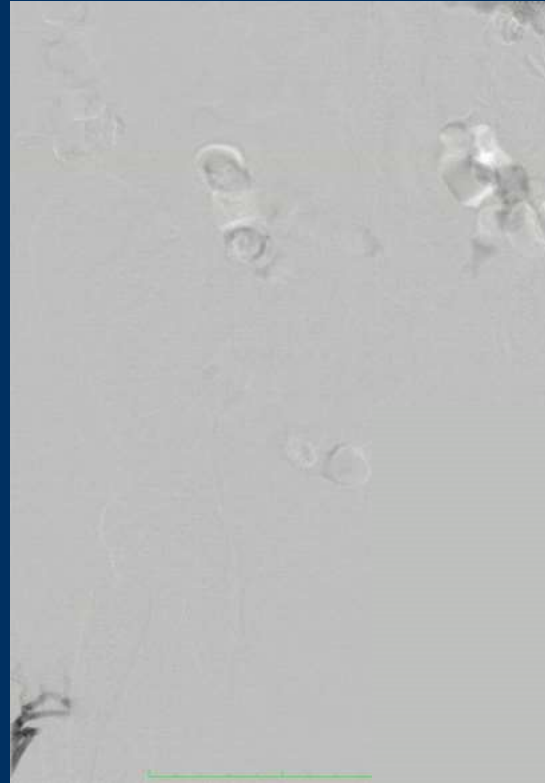
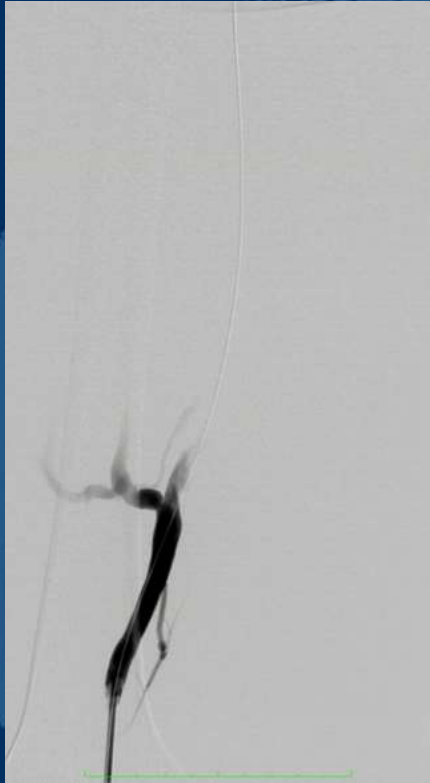


Stenting

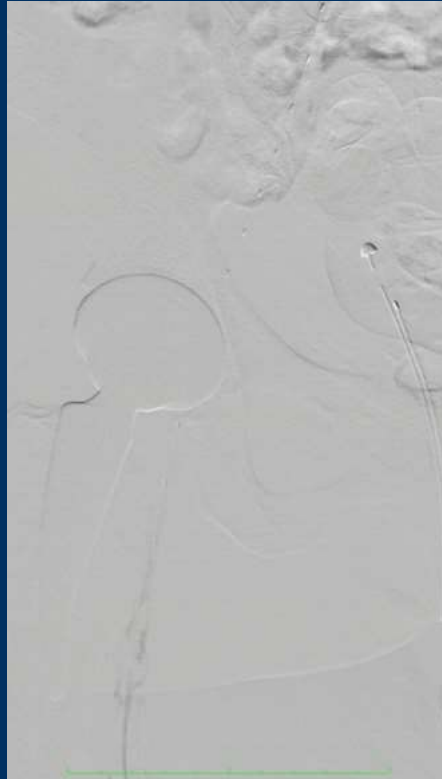
Case 3



Case 3

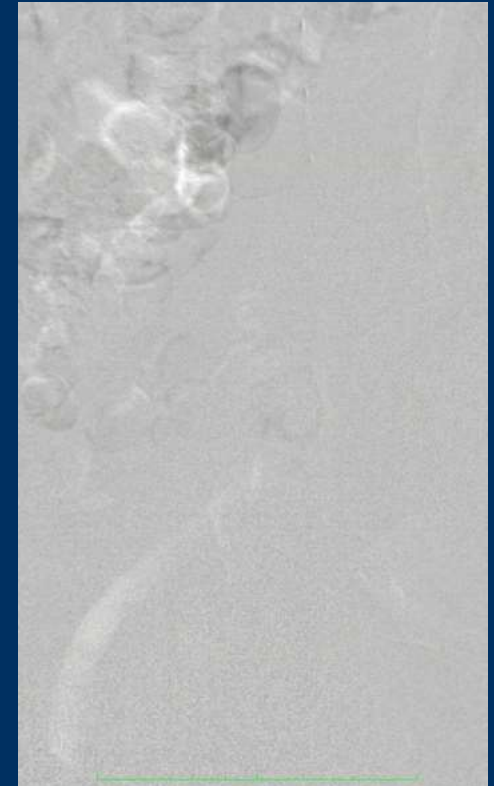
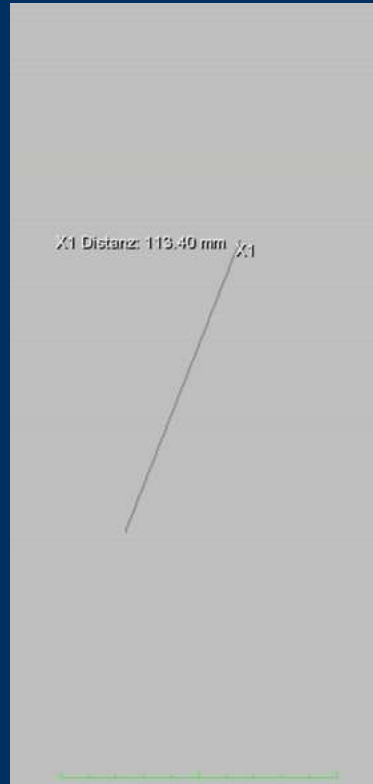


Case 3



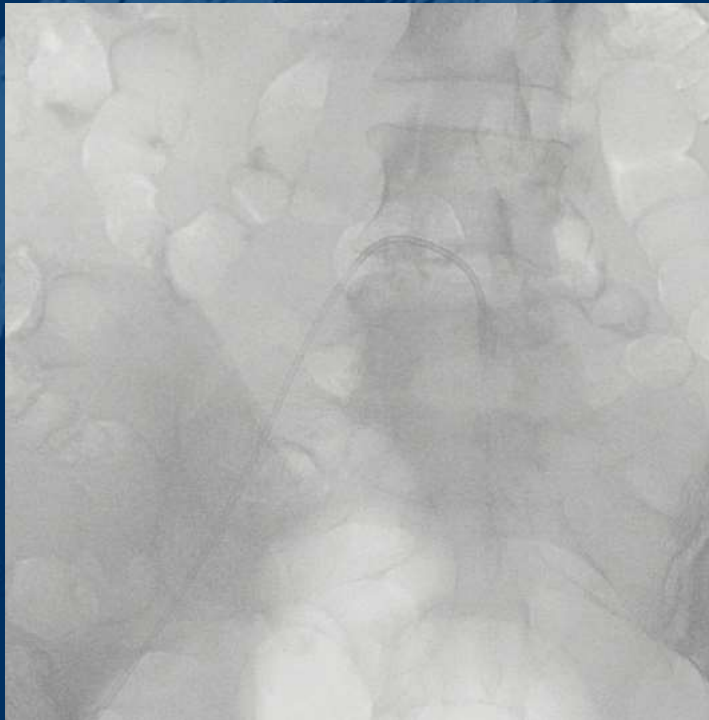
24 h lysis

Case 3



48 h lysis

Case 3



Stenting

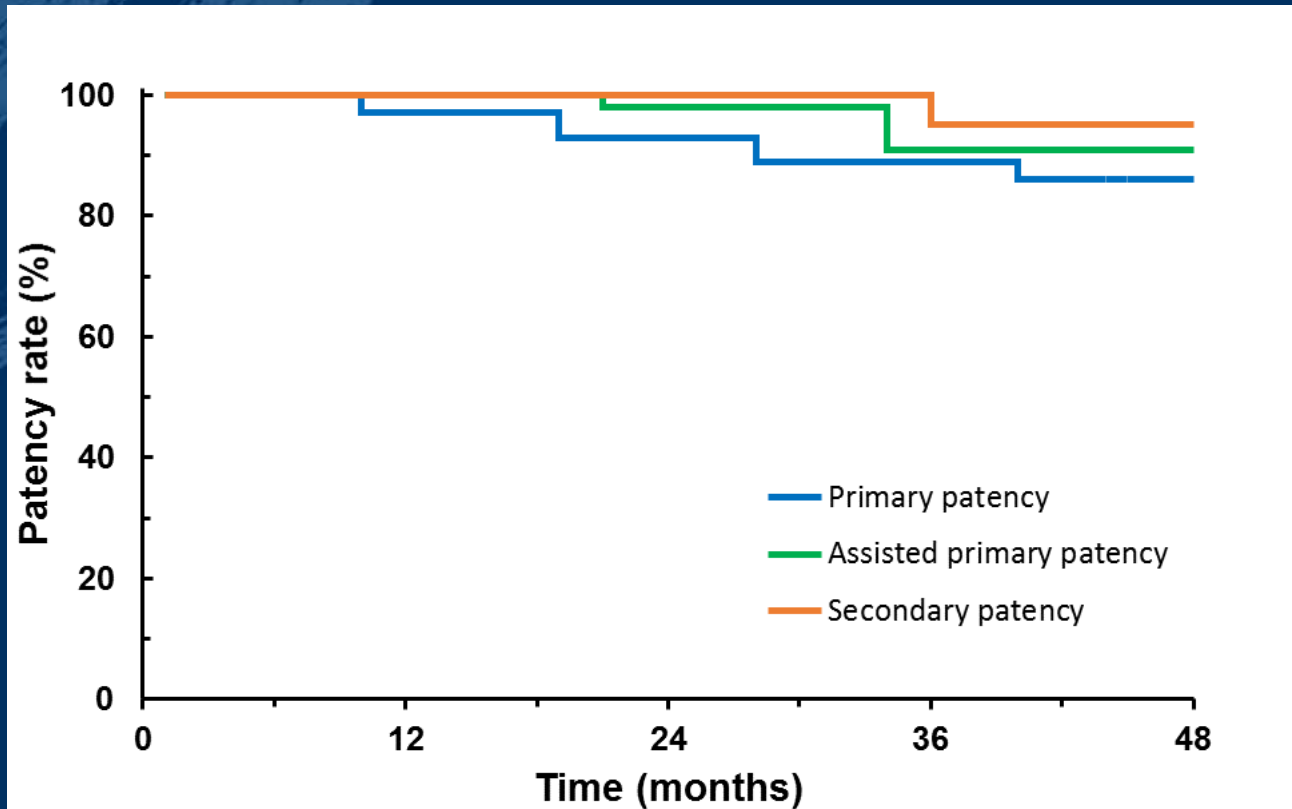
Demographics

No. of patients	107
Sex	72 (68%) female
Age	31 (16-73)
Thrombophilia	(39) 36,5%
MTS (assessed without IVUS)	40 (37,4%)
Oral contraceptiva	12 (11,2%)
Prolonged Immobilization	9 (8,4%)
Recurrent DVT	8 (7,5%)
Involvement of IVC	20 (18,7%)
Idiopathic	16 (15%)

Treatment aspects

Duration of lysis (h)	54 ±18
Successfull lysis	93 (86,9%)
Patients stented	82 out of 92 (88,2%)
Number of stents / patient	1,3
Follow up (m)	31,8 ±15,7
Type of anticoagulation	Vitamin K antagonist (28,3%) Rivaroxaban 67 (67,7%) Apixaban 4 (4%)

Patency rates



Complications

- Major bleeding 2 (1,9%)
- Minor bleeding (puncture side) 15 (14%)

Incidence of PTS (Villalta score)

- Succesfull treatment group (93) 71 (80%) free of PTS
- Unsuccessfull group (14) 6 (42%) free of PTS

- 0–4: No PTS
- 5–9: Mild PTS
- 10–14: Moderate PTS
- 15–33: Severe PTS

Conclusion

- UACDT is safe, feasible, and shows good patency rates
- Stentangioplasty is necessary in > 80% of cases
- UACDT does reduce the occurrence of PTS in patients with acute proximal DVT
- UACDT does reduce the severity of PTS in patients with acute proximal DVT
- Major bleeding still is a problem

Thank you very much

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