Single Session Pharmaco-Mechanical Venous Thrombectomy- How to do it!

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As with most vascular procedures, much of the skill is in separating the “winners” from the “losers”- those likely to benefit from a properly performed procedure compared to those not- we use this every day in vascular procedures; for instance: size of AAA; % stenosis in ICA etc etc

So how do you do this for single session pharmaco-mechanical venous thrombectomy?
Two viewpoints are better than one..

- Each patient with an IF DVT is seen jointly by a Consultant Haematologist and a Consultant Interventional Radiologist both with a special interest in venous thrombosis- we learn from each other and benefit from each others opinion and experience
My ground rules for consideration for endovascular treatment:

- MUST MUST MUST MUST INVOLVE the ILIO-FEMORAL SEGMENT
- Truly acute ("when was the last time your leg felt perfectly normal?" - if more than 3 weeks then just say NO!!)
- Truly symptomatic (painful, leg swollen particularly from the groin)
- Truly active before this acute event
The last three patients we have treated in Galway in 2018........
Typical case:
68 year old lady
Swollen left leg
Definite history of 11 days
Clear CTPA
Game plan:

- No need IVC filter
- Prone, popliteal venous puncture, 10F sheath,
- 5000u IV Heparin
- Lace length of thrombus with 10mg tPa using a spinning Pigtail- (poor mans Trellis)
- Device to clear thrombus (AngioJet/Aspirex/CAT 8)
- Limited venography
- Large diameter, high pressure balloon to diameter of stent
- Large diameter stent
- Large diameter, high pressure balloon to diameter of stent
- IVUS (Volcano/Philips) to confirm full expansion
- Class 2 thigh high compression stockings x 3 months
- Pneumatic compression boots x 24 h
- US day 1 to confirm patency
- Therapeutic level low molecular weight heparin x 1/52
- Transition to Warfarin- aim INR 2.5-3.5
Penumbra CAT 8
Following thrombectomy the underlying chronic lesion is revealed

Possibly some persistent thrombus in L CIV

This is fine- it will be macerated by balloon and then covered by stent
Despite this being an “acute” DVT, there is often a chronic component as here - a chronic L CIV occlusion.

This requires standard probing techniques; angled wire - here a “Roadrunner” (Cook Medical) and angled catheter.

Note wire being manoeuvred down opposite R CIV - this provides a simple method to identify landing zone for the stent to follow.
Pre dilatation:

16mm high pressure CIV

14mm high pressure EIV CFV

Pre dilatation prior to Stent implantation is ESSENTIAL
Post dilatation to high pressure at the same diameter as the stent is also essential.
I made a technical error here and landed the stent too far

My mistake

Potentially might increase risk of contralateral venous thrombosis

Factors Associated with Contralateral Deep Venous Thrombosis after Iliocaval Venous Stenting
Khairy, S.A. et al.
EJVES, Vol 54:6, 745 - 751
For single session to work, it just has to look like this at the end:

- Rapid in line flow
- No collaterals
- No doubts

Veins are binary:
1 = open
0 = closed

If not “1” at the end, it will soon be “0”
IVUS has now become an essential part of venous intervention in Galway

(different patient- apologies)
If calf veins involved:

For posterior tibial vein access I prefer AngioJet Omni/Proxi or Penumbra CAT 6
Or criss cross technique - criss cross is harder as a single session
Post thrombus removal ESSENTIALS!!!!!!

- Overnight pneumatic compression boots
- Class II thigh high compression stockings
- Anticoagulation for 3 months
- Aim INR 2.5-3.5
- Colour Doppler US day one post op- ALWAYS! If CDUS is patent then boots off, stockings stay on; YOU walk patient to ward
- US at 30/90/180 days (ideally)
Contra-indications to CDT probably do not apply to PMT....

So we will treat patients with:
Cancer
Recent Surgery
Recent Trauma etc etc
Applying these ground rules, and using these techniques, we can safely treat over 90% of IF DVTs in less than 2 hours skin to skin.
Thank you for your attention
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