

Tips on Avoiding Complications

{ Little Things make a
Big Difference

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Worrisome Access

A diver is silhouetted against a bright blue light source, likely the surface, underwater. The diver is positioned on the left side of the frame, facing right. Bubbles are rising from the diver's regulator, creating a trail of light-colored circles against the dark blue background. The overall scene is dimly lit, with the primary light source being the bright blue glow behind the diver.

Blue Hole @ Palau 2007

Enter 30' → Exit 120'

Access = Big Deal

& Commonest source of complications

⌘ Hematoma, false aneurysm, dissection, thrombosis, retroperitoneal bleeding, closure device occlusion, infection, embolization.

↑ Safety by ↓ entry hole.
using 0.018 Nitrex g.w.

4 Fr catheter

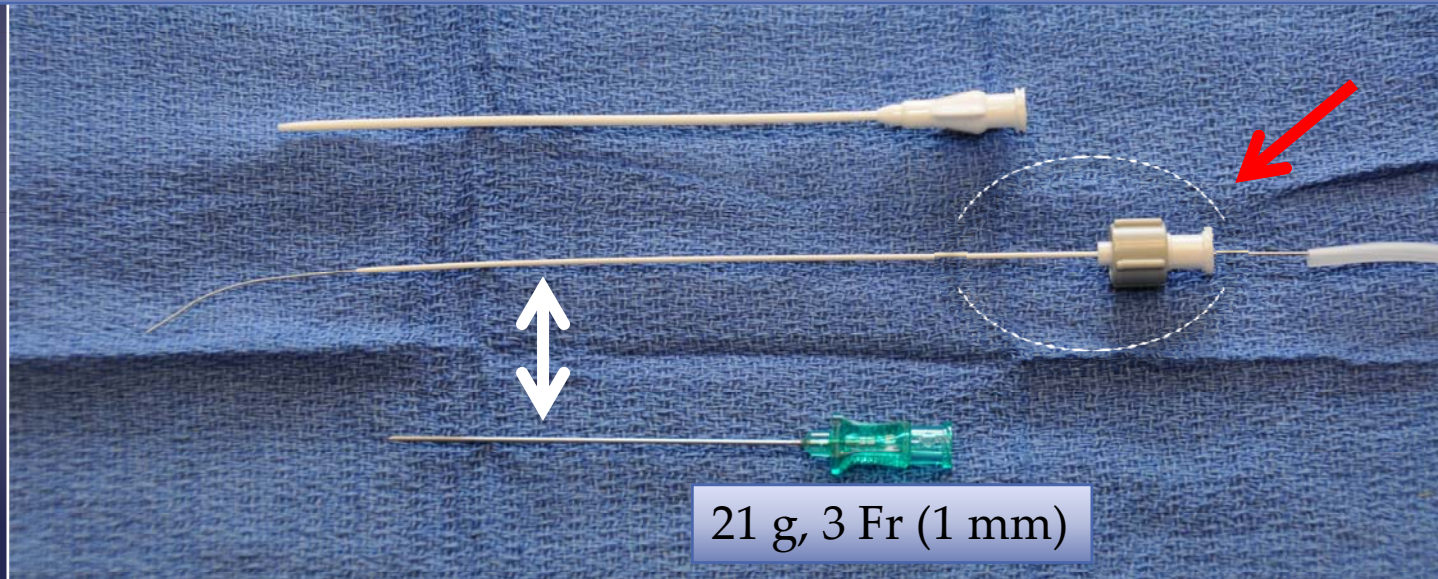
21 g needle

Substitute Nitrex
0.018 Nitinol gw.
Tip more visible,
won't kink, detach.



Tip to ↓ risk of bleeding, & check for accuracy of puncture if concerned.

Introduce only 3 Fr inner part & inject contrast to confirm accurate entry; only the size of the 21 g needle (1 mm).



If dangerous entry (eg = external iliac) pull & re-puncture. Same compression as required for needle.

Problem Groins

&FAT

- ∅ Cannot feel pulse.
- ∅ Usually puncture low
- ∅ Difficult to advance sheath through long tract
- ∅ Hard to compress after.

&Solution

- ∅ Thin out the panniculus adiposus.
 - ∅ Everything is easier!
 - ∅ Use traction, and gravity.

How to Thin the Panniculus (for retrograde or antegrade punctures)

Pull up & to other side & Tape Panniculus

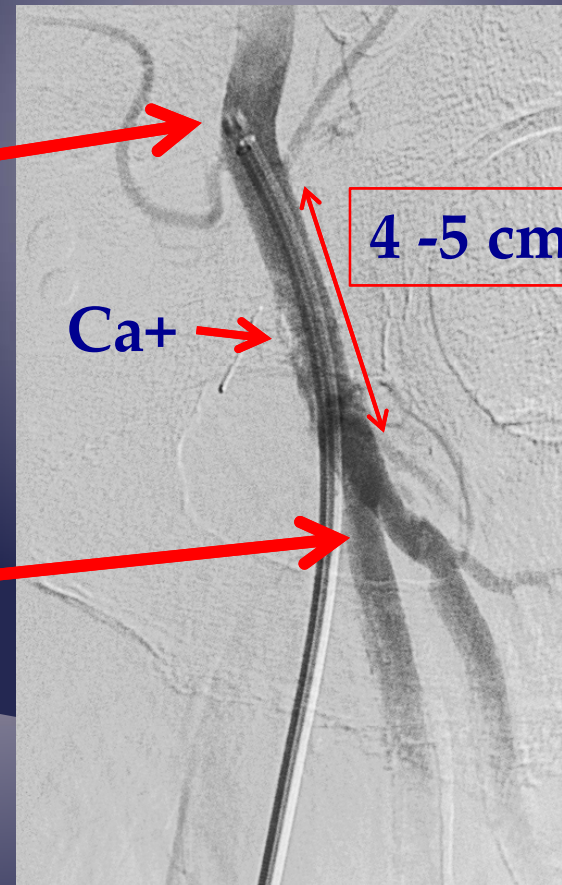


Elevate hip with pads. Gravity will flop panniculus toward other side.

Common femoral is short target (5 cm).
EZ to miss if fat or antegrade puncture

Too high (External Iliac → death)

Too low (SFA → thrombosis, hematoma)

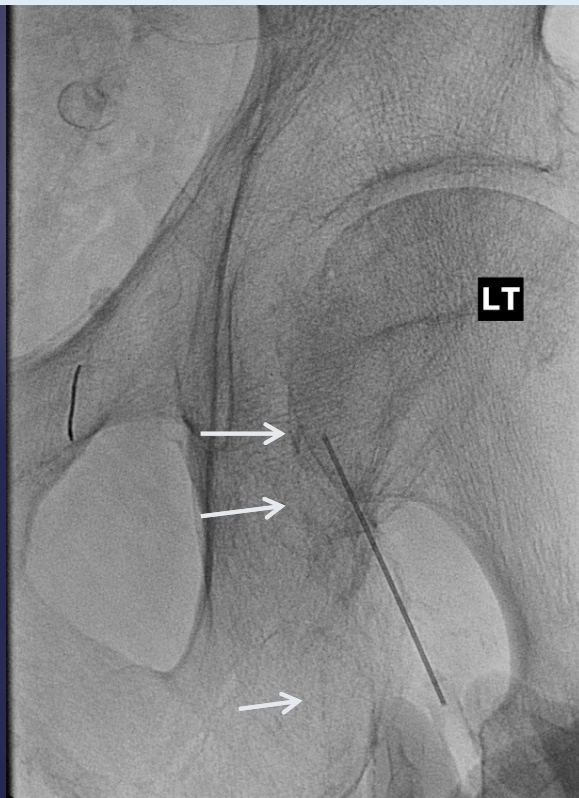


Common femoral is short target, 5 cm

- ⌘ Needle angle decreases accuracy
 - ⌘ Especially if fat &/or antegrade.
 - ⌘ Worse if add an oblique angle to avoid scar.
- ⌘ Puncture accuracy easiest with **visualization**
 - ⌘ Fluoro guidance (*use Ca+ as the target*)
 - ⌘ Ultrasound if no Ca+ (*add fluoro to avoid high stick*).

If obese, weak pulse, scar: Use fluoro to detect Ca⁺, & advance needle into it @ midfemoral head

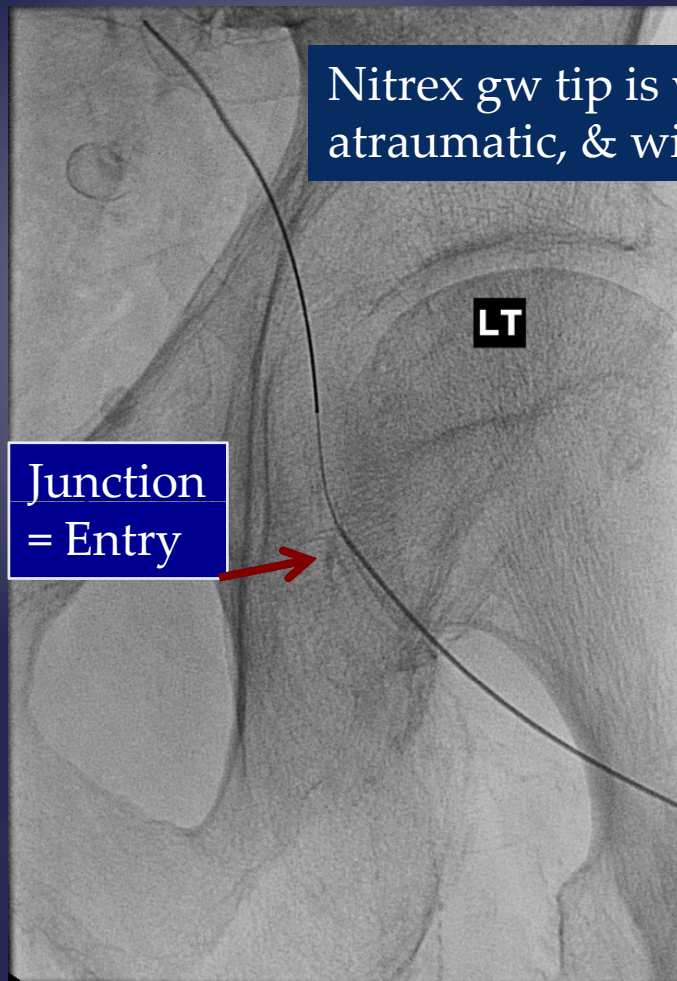
Rotate beam to be sure Ca⁺ is in cfa



Ca⁺ was in medial wall, but can direct gw into lumen.



AP projection: bend soft needle to show jct with gw = entry site, confirm it is @ mid-fem head. (Not too high, & Ok for manual compression.)



Nitrex gw tip is very dense, atraumatic, & will not detach.



Angio, Oblique = above SFA/profunda. Ok for closure device.

Antegrade access more difficult to be accurate. So, more dangerous.

⌘ Especially if fat.

⌘ Thin out panniculus.

⌘ Puncture accuracy easiest with visualization

⌘ Ultrasound & fluoroscopy.

⌘ Easiest/quickest/most accurate if use both.

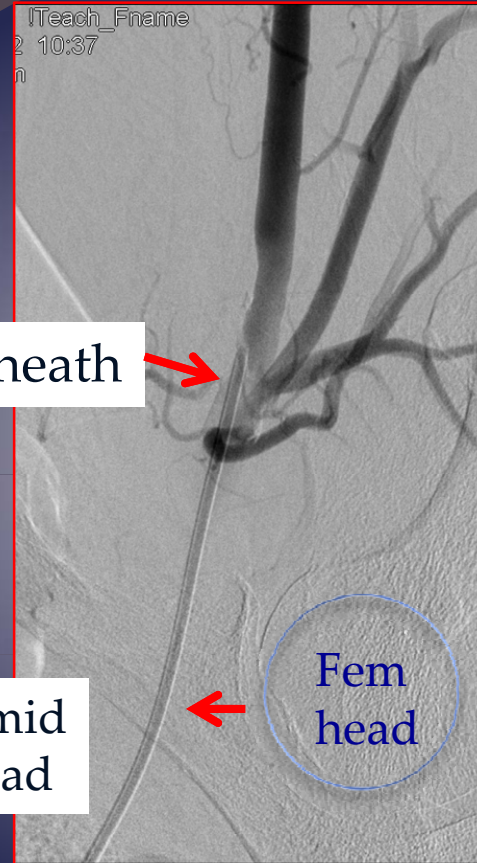
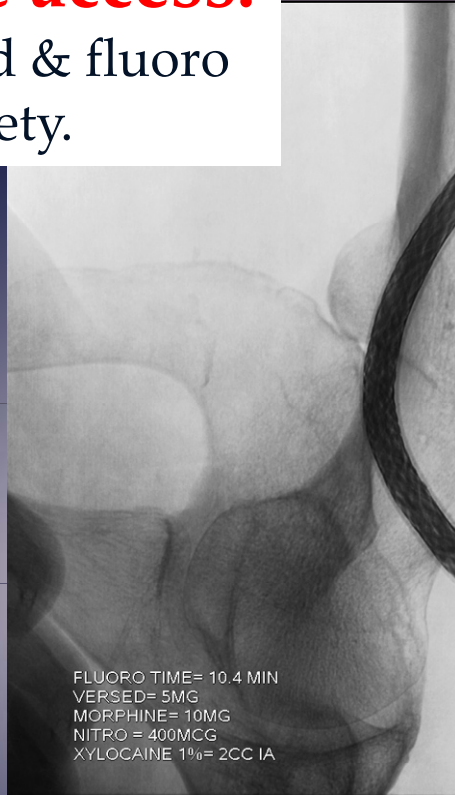
⌘ Oblique projection during antegrade can help

⌘ Separates SFA & Profunda.

⌘ Helps prevent g.w. entering profunda femoris.

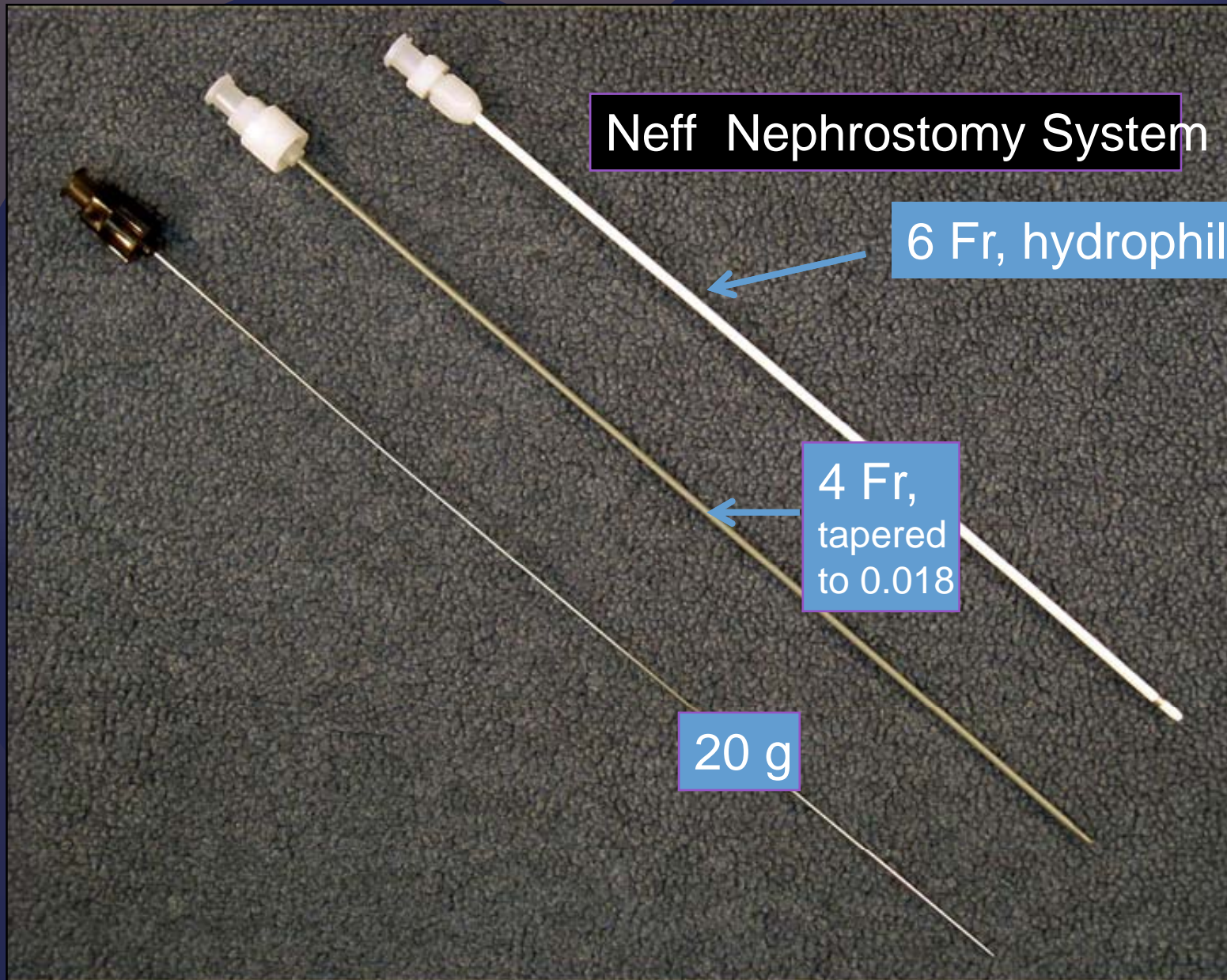
Antegrade access.

Use ultrasound & fluoro to improve safety.



Fluoro the transducer. Is it at mid-femoral head?
Also, see if needle tip is proximal or distal to transducer beam. Oblique fluoro to profile com. fem. bifurcation; can direct gw into SFA without contrast.

Tools for Antegrade & Densely Scarred Groins. Metal inner core. Long length is of benefit for antegrade.



Neff Nephrostomy System

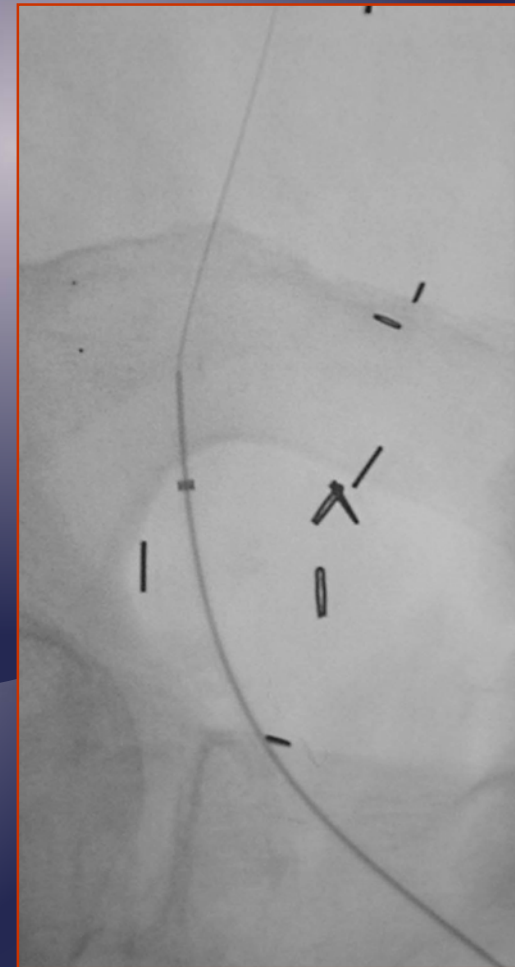
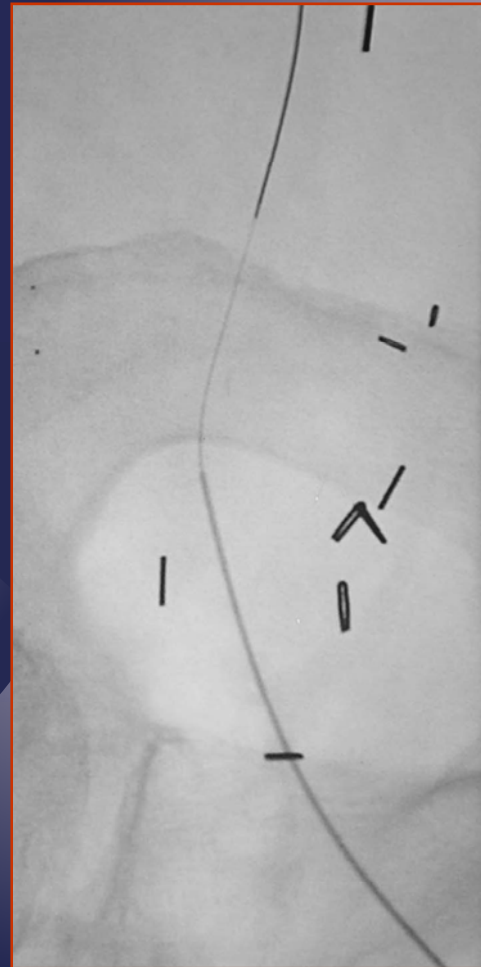
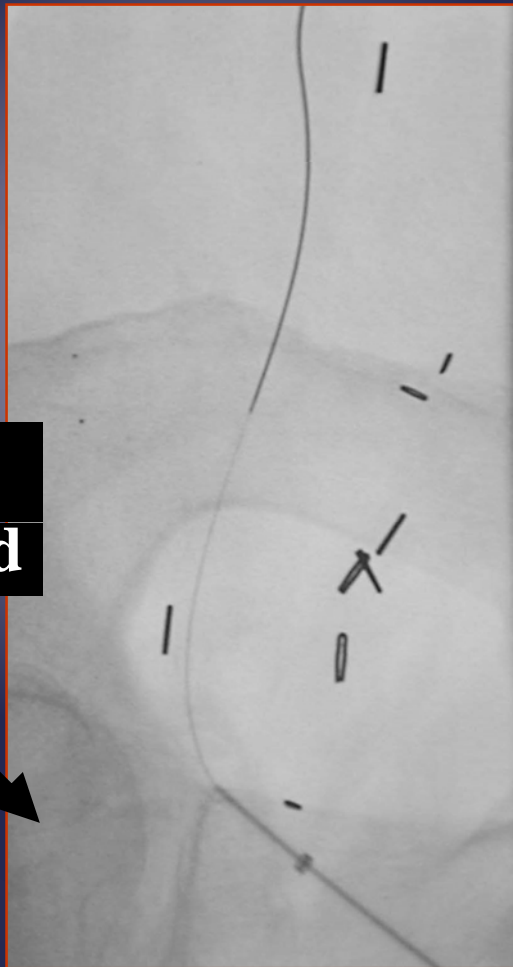
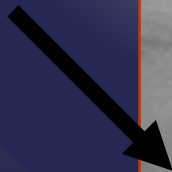
6 Fr, hydrophilic

4 Fr,
tapered
to 0.018

20 g

Antegrade: Consider fluoro with feet @ top of field.
Why ? Patient (image) Rt. & Lt. are your Rt. & Lt.
Flouro image matches your view of patient.

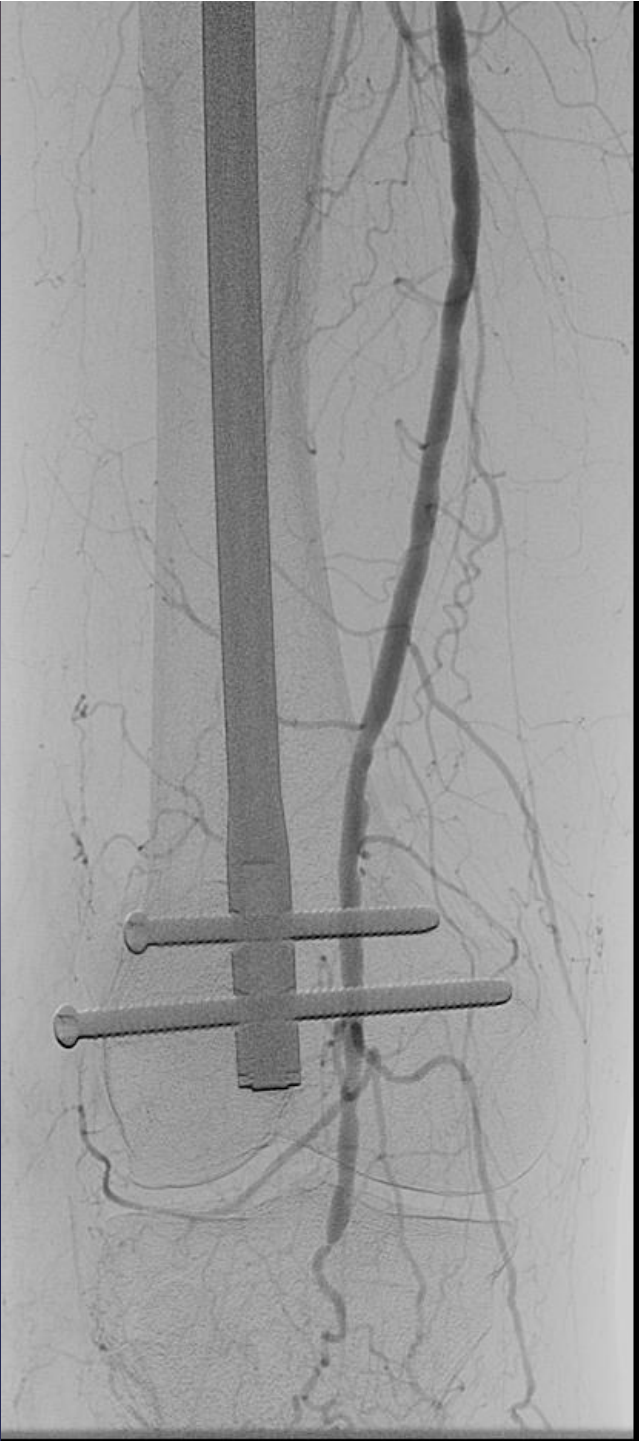
**Middle
Fem. head**



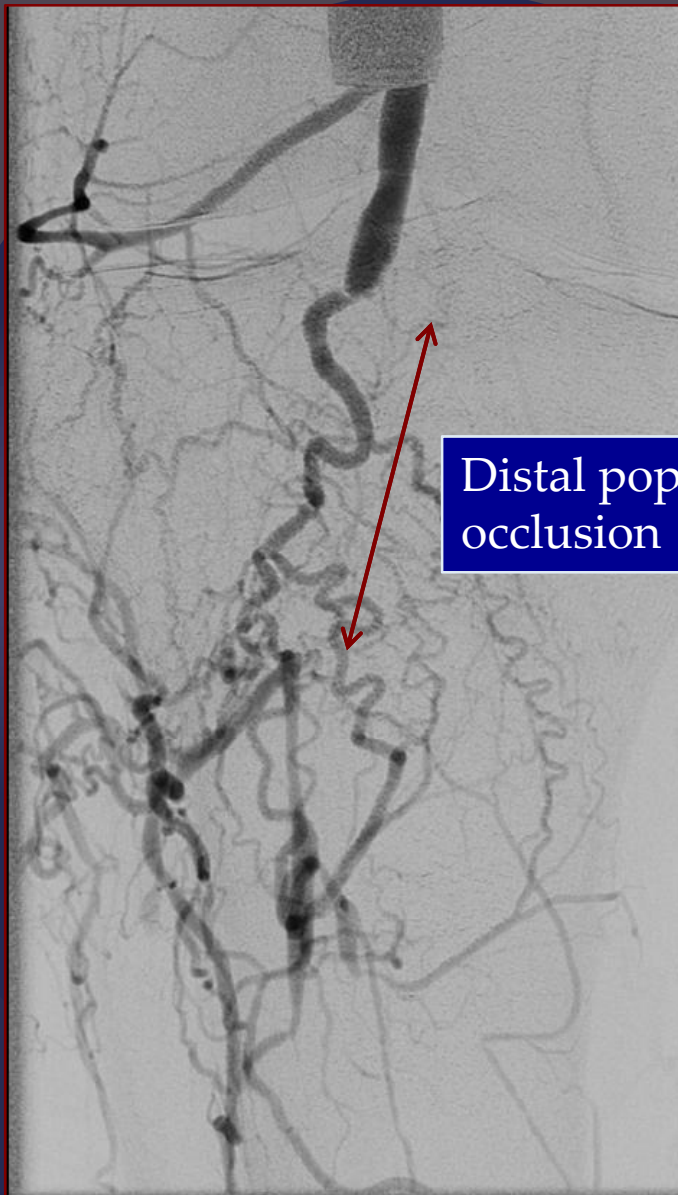
What else to avoid?

Occluding key collateral.

34 y/o diabetic male with h/o BKA
has infected, nonhealing stump.

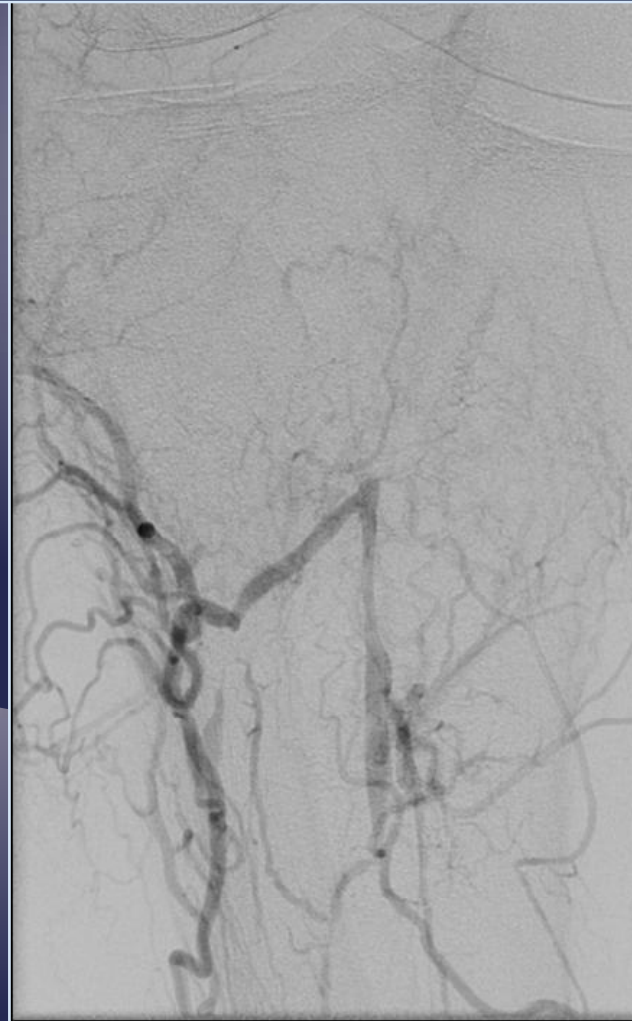


Excellent Collateral Flow

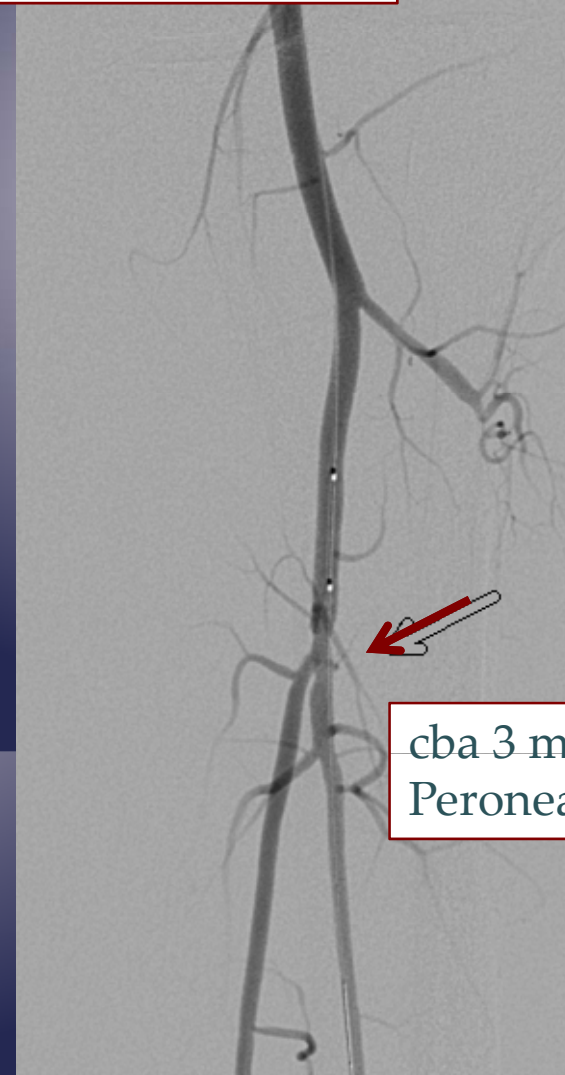
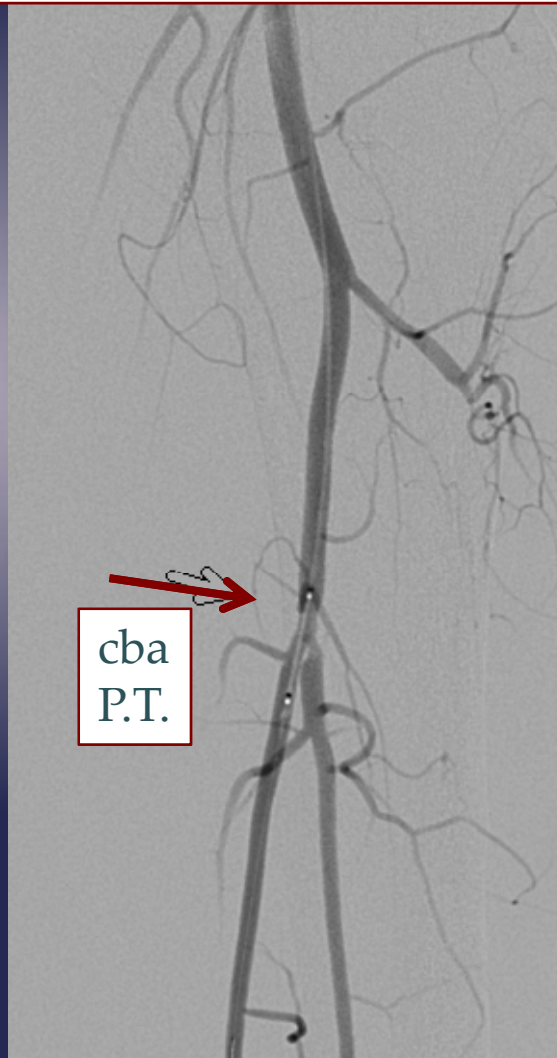
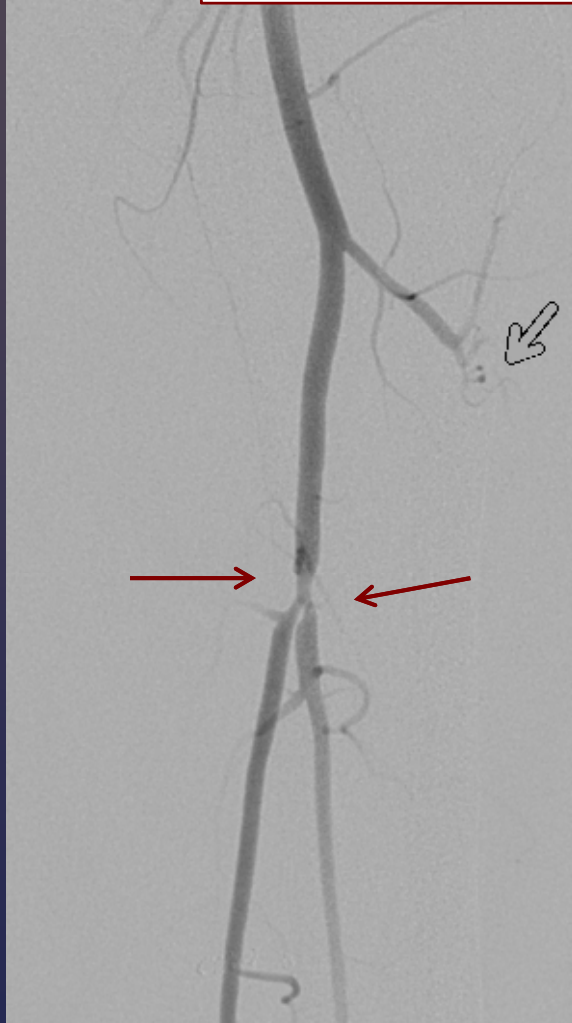


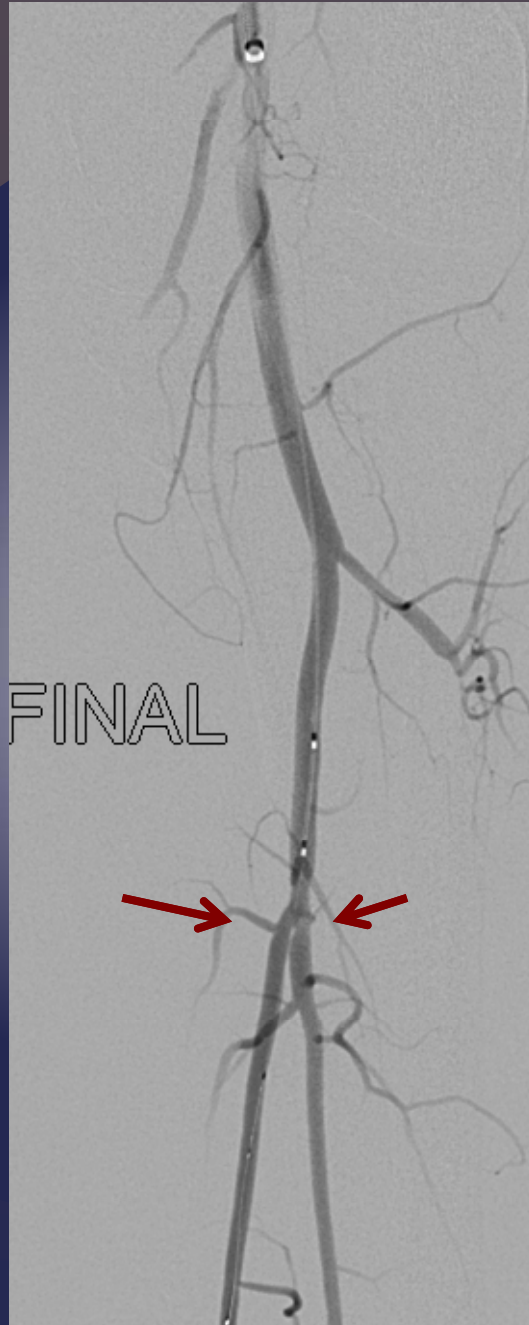
Distal popliteal
occlusion

Recanalization could occlude excellent collaterals & worsen ischemia (even if successful). So, not done & wound healed.



Cutting Balloon Minimizes Plaque Shift @ Bifurcation & Occlusion of Collaterals





No dissection
No plaque shift

When to STOP?!?!

- ⌘ When enuf.
- ⌘ If multilevel disease & claudicant
 - ⌘ Rx inflow & stop if distal is occluded.
 - ⌘ Might be enuf.
- ⌘ If Critical Limb Ischemia
 - ⌘ Harder to decide.
 - ⌘ If straight line flow into best pedal aa. Stop!
- ⌘ To Avoid complication
 - ⌘ Not always easy

Will show examples of embolization,
collateral occlusion as Case Presentation

Thank You



Questions, please

Access = Big Deal

& Commonest source of complications

⌘ Dissection, hematoma, false aneurysm, retroperitoneal bleeding, spontaneous thrombosis, closure device occlusion, infection.

& Micropuncture

⌘ Smaller arterial hole bleeds less, seals faster

⌘ Smaller problems (if puncture too high or too low)

& Particularly helpful if fat, scarring, graft.

