What I Can Do With 4-French

SOUTH FLORIDA VASCULAR ASSOCIATES

Leading Change in Vascular Care

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Disclosure

Cook/CSI Consultant and teach courses

SFVA

What I can do with 4-Fr. Access
Premise

- Access site issues are the leading cause of endovascular complications
- Any strategy to make access safer and reduce complications is worth considering
- This is important any setting but especially in an Office Interventional Suite

What I can do with 4-Fr. Access

Background

- 1991-1992: Almost never used US guidance
- 1992-1998: Used ultrasound guidance for access as needed. Usually only when could not get access using standard palpation and anatomic landmark
- 1998: Uniformly used real time ultrasound for all arterial access
- 1992-Present: Continued reduction of introducer sheath size
- 2018: About 80% of arterial access is with 4-Fr. (for all PAD)

4-Fr. Access

Potential Advantages

- Reduce access site complications such as bleeding, pseudoaneurysm, or thrombosis
- Sheaths track well
- Flow less affected by smaller sheath (i.e. larger sheath diameters result in reduced flow or even complete obstruction in smaller or narrowed vessels).
- ? Less vessel damage (such as in pedal access)

4-Fr. Access

What fits?

- Standard .014, .018, .035” wires
- Any ≤ 4Fr catheter including .014, .018, .035” crossing catheters
- Small vessel angioplasty balloons up to 8 mm
- Atherectomy: 0.9/1.4 mm Spectranetics laser, 1.25 mm CSI
- Coronary DES (used off label for tibials)
- Biotronik Nitinol self expanding stent

4 Fr. Sheath Compatible Balloons

Cook	
Monorail 0.14	*Monorail .018*
All sizes up to 4x20	None
OTW .014	*OTW .018*
All sizes up to 4x20	All sizes up to 5x20
	6x2 - 6x10
	7x2 - 7x10

Abbott	
OTW .014	*OTW .018*
All sizes up to 4x20	5x4 - 5x8

Note: All balloon lengths shown in centimeters

Boston Scientific	
Monorail 0.14	*Monorail .018*
All sizes up to 4x22	All sizes up to 4.5 x 4
	5x2 - 5x6
	5.5x2 - 5.5x4
	6x2 - 6.6
	6.5x2 - 6.5x4
	7x2 - 7x4
	8x2 - 8x4
OTW .014	*OTW .018*
All sizes up to 4x22	5x2 - 5x10
	6x2 - 6x6
	7x2 - 7x4
	8x2 - 8x4


1.25mm Peripheral Solid Crown Orbit Chart Results
Model DBP-125SOLID60
Lumen Diameter (mm)
3.75
3.25
2.75
2.25
1.75
1.25
0
2
4
6
8
10
12
14
16
18
20
Number of Passes
60k RPM - Low Speed
90k RPM - Medium Speed
140k RPM - High Speed

4-Fr. Access
Which Vessels Access?

- CFA/SFA/rare PFA (Usually 3-Fr. with separate access for balloon tamponade)
- Pedal (proximal usually 3-Fr.)
- Radial (but low threshold for Terumo R2P)
- Brachial

4-Fr. Access
Limitations

- Iliac stents
- Traditional nitinol self-expanding stents or interwoven nitinol stents
- Specialty balloons: Cutting, Chocolate, drug-coated, Kevlar, some larger balloons
- Lack of adequate support to cross resistant lesion (especially with contralateral access - not so bad with ipsilateral access)
- Sometimes difficult for sheath injection or to get accurate arterial pressure when device fits snuggly.
- May need to upsize sheath in these situations (20% in our practice)

Case Study

70

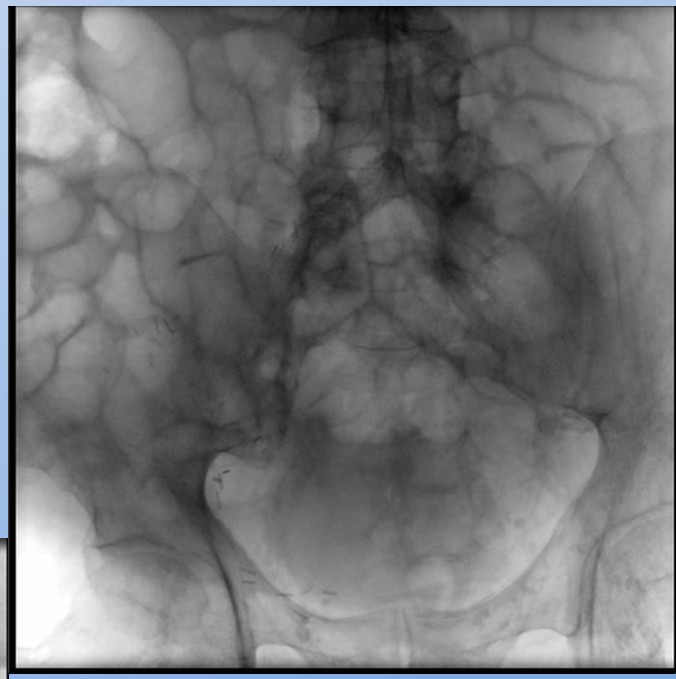
stu

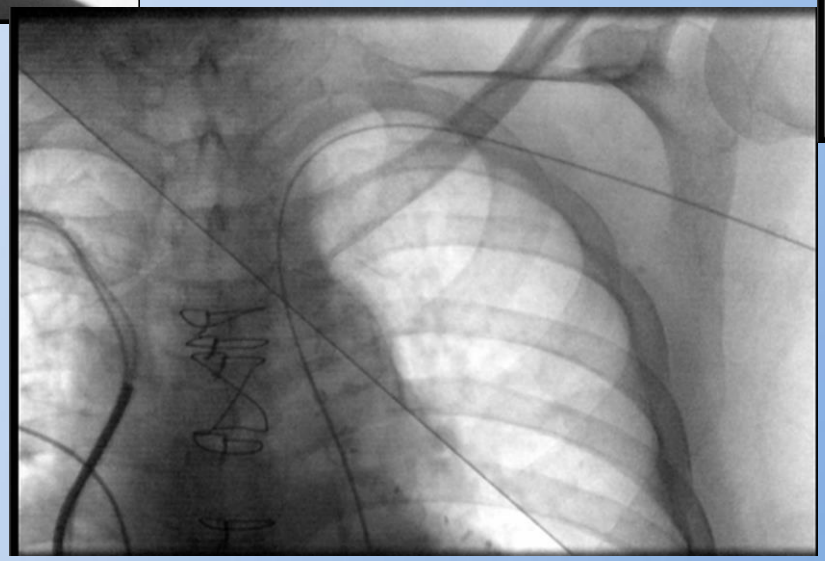
has

var

PM

pre





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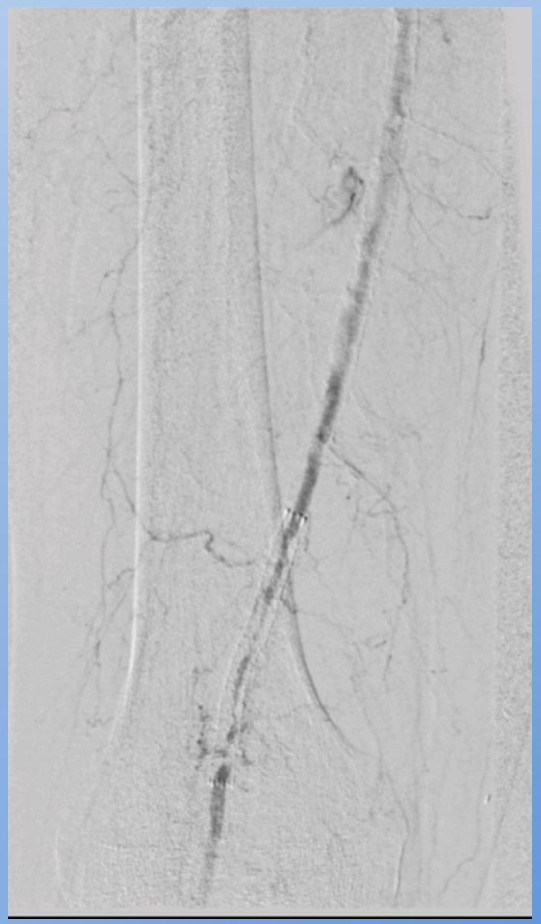

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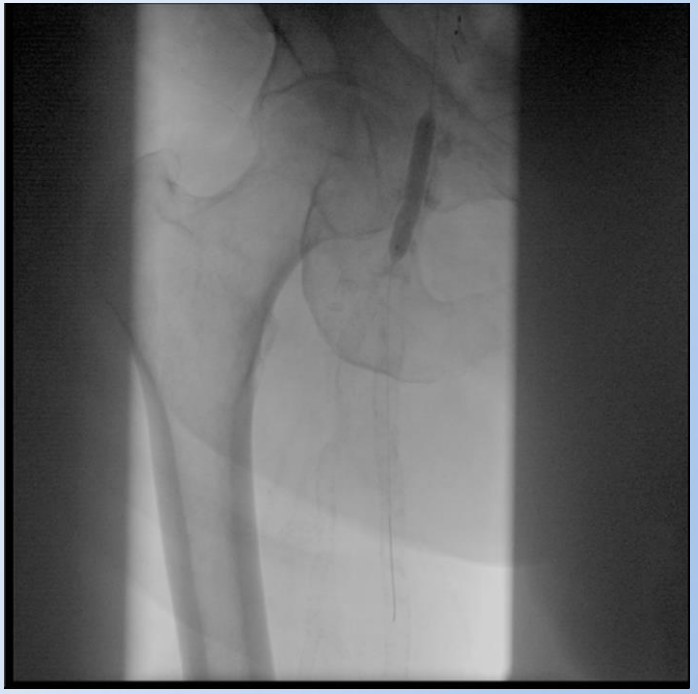

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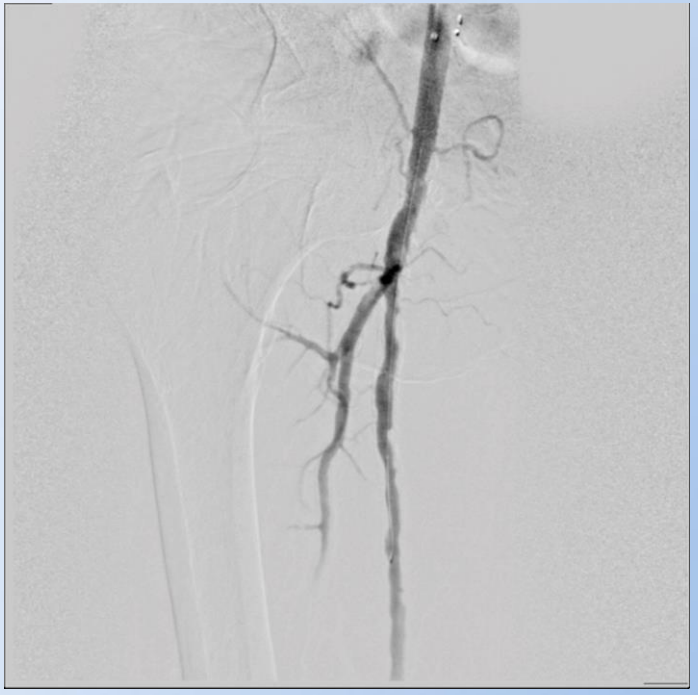

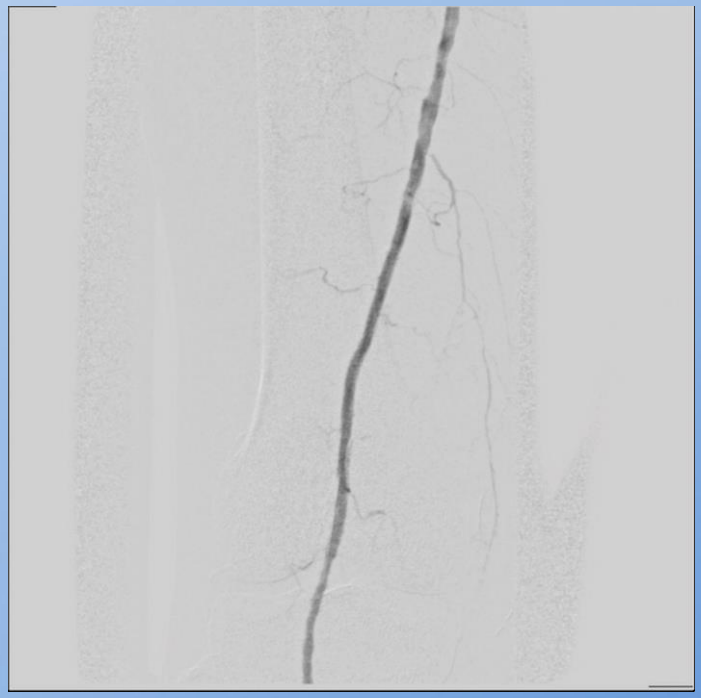

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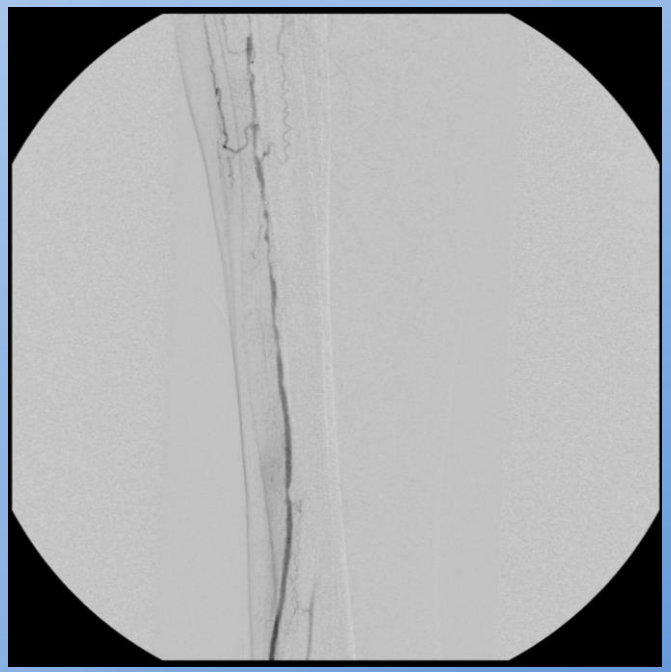

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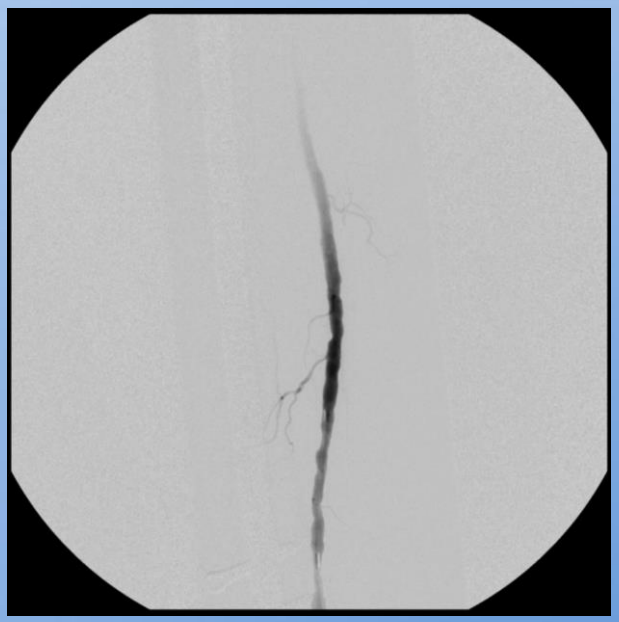

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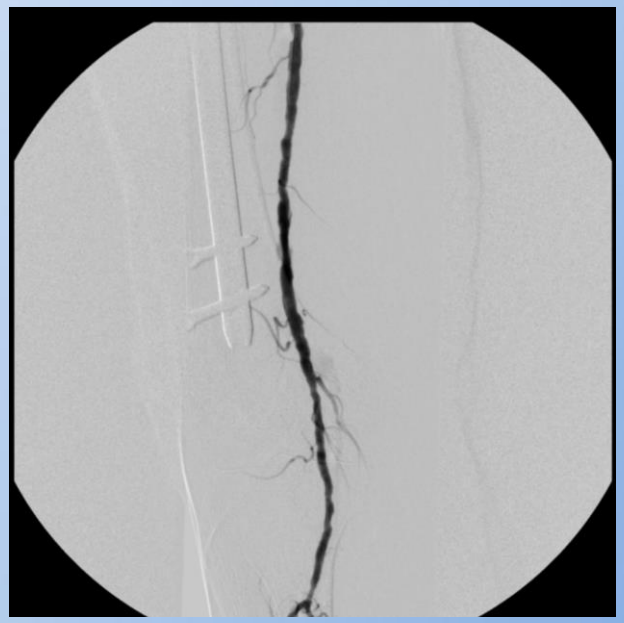
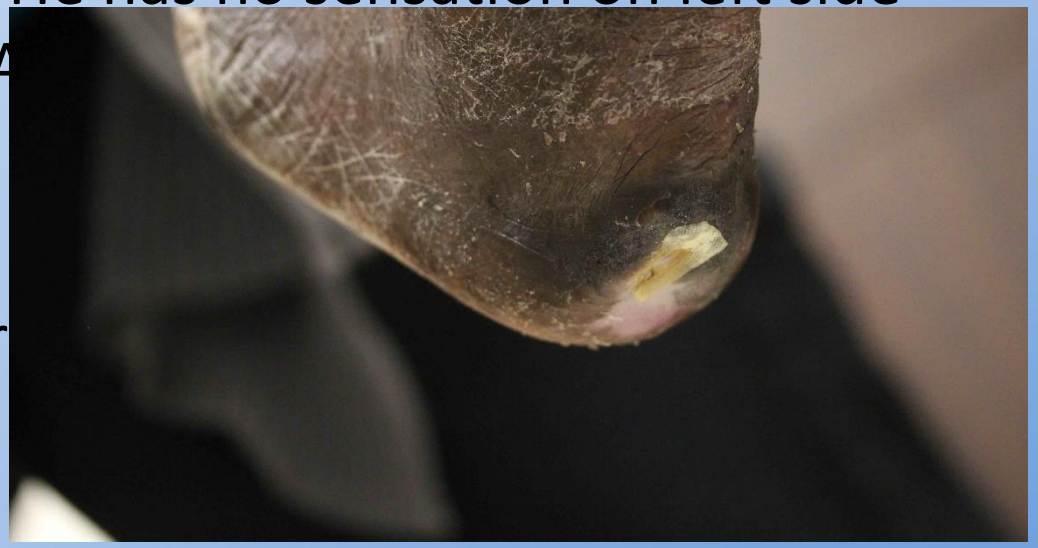


LW

Case Study #5

- 68 y/o male with 4 month history of left heel wound
s. He has no sensation on left side
VA
er



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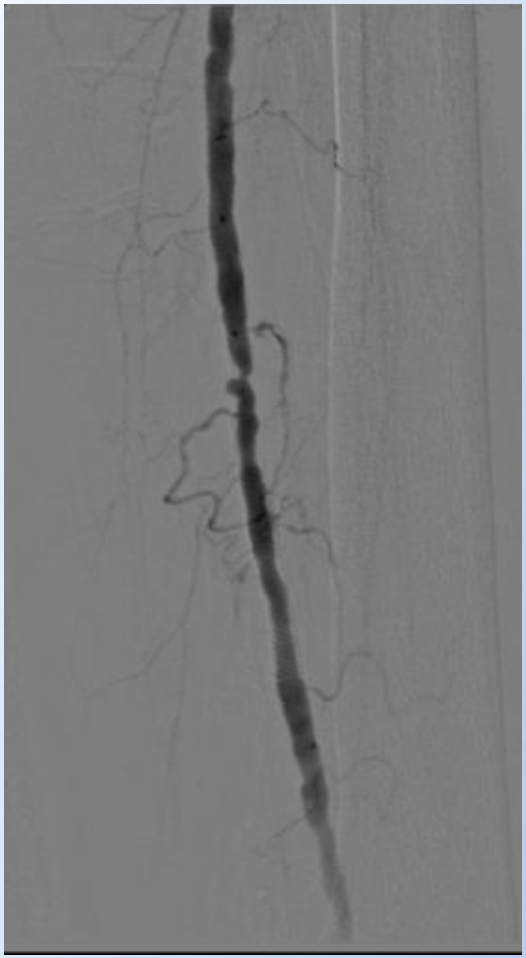

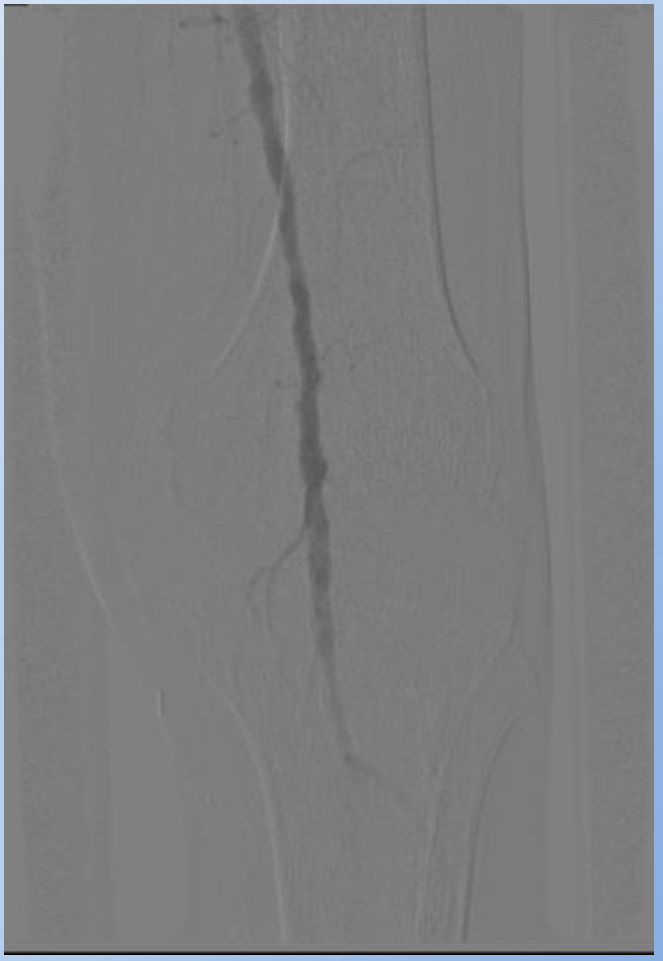

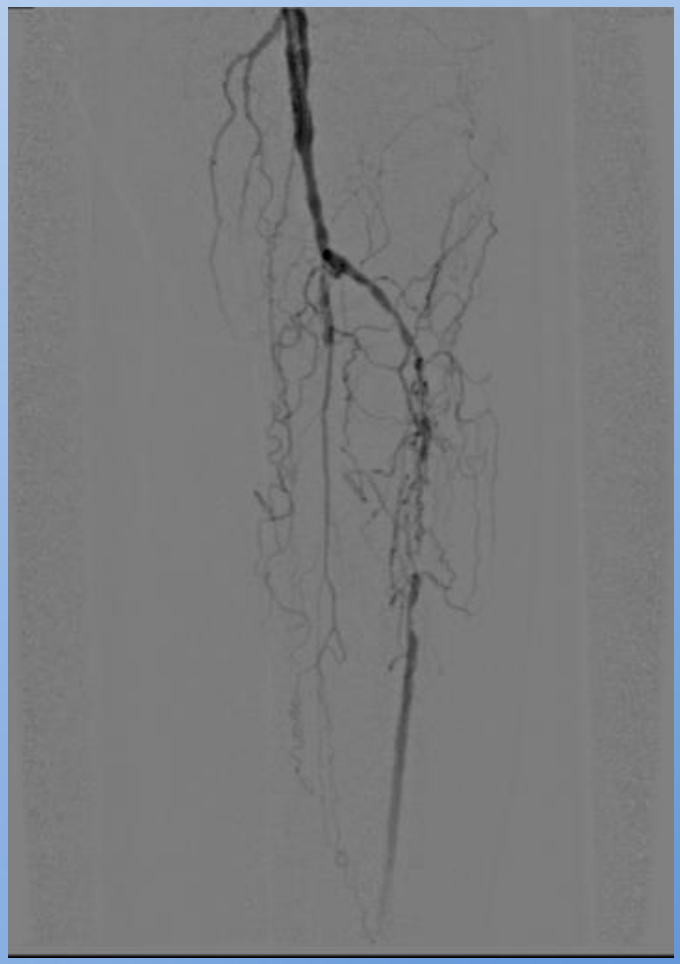

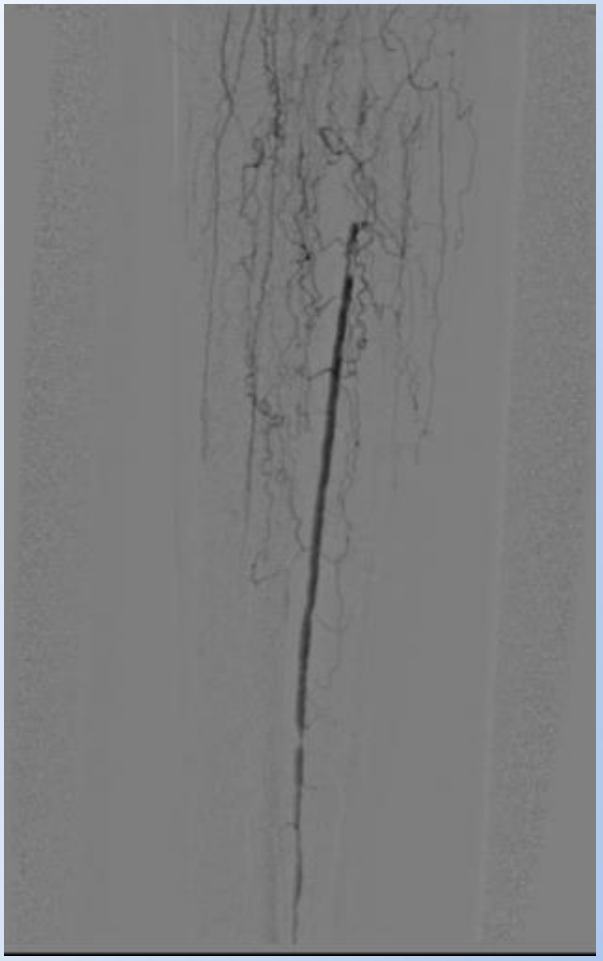

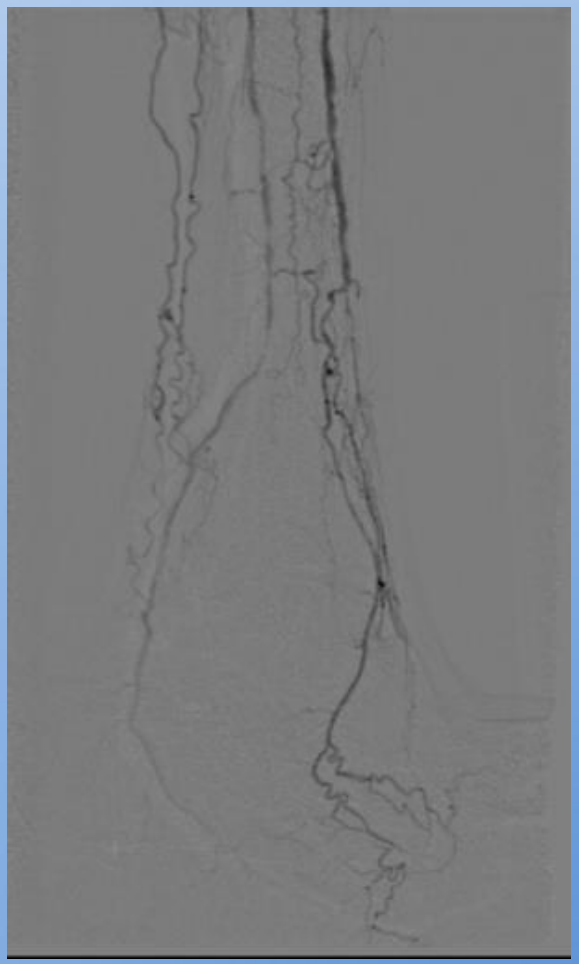

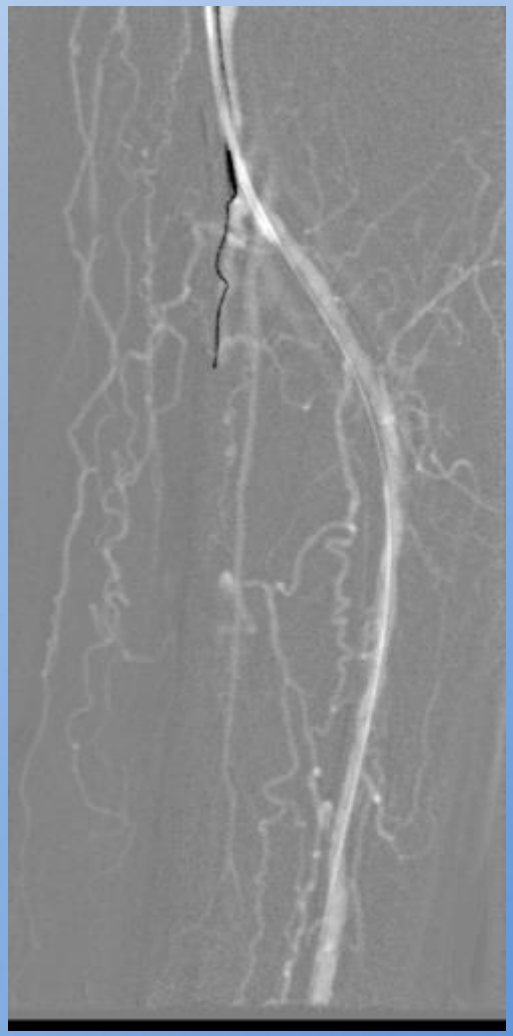

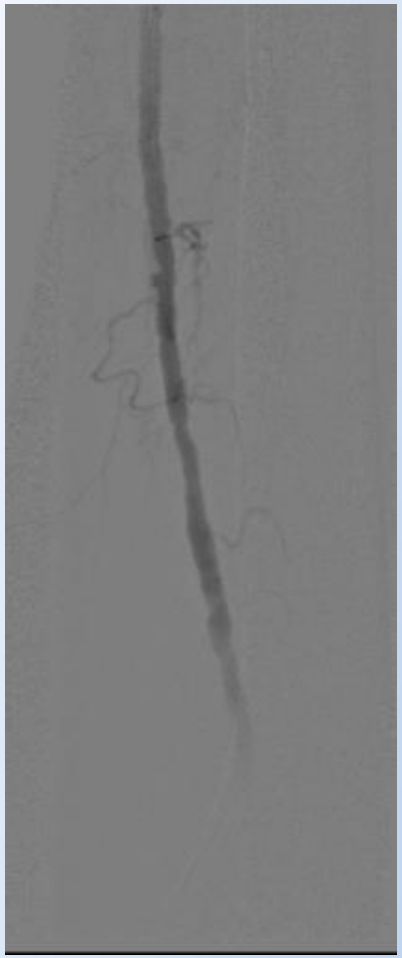
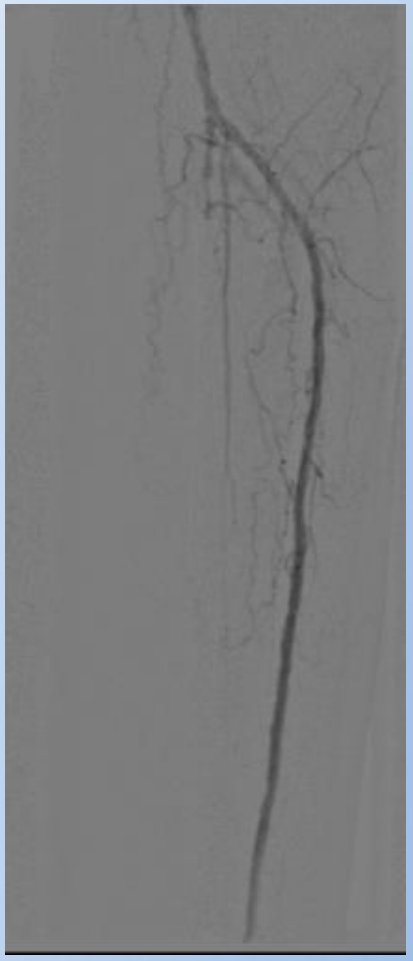
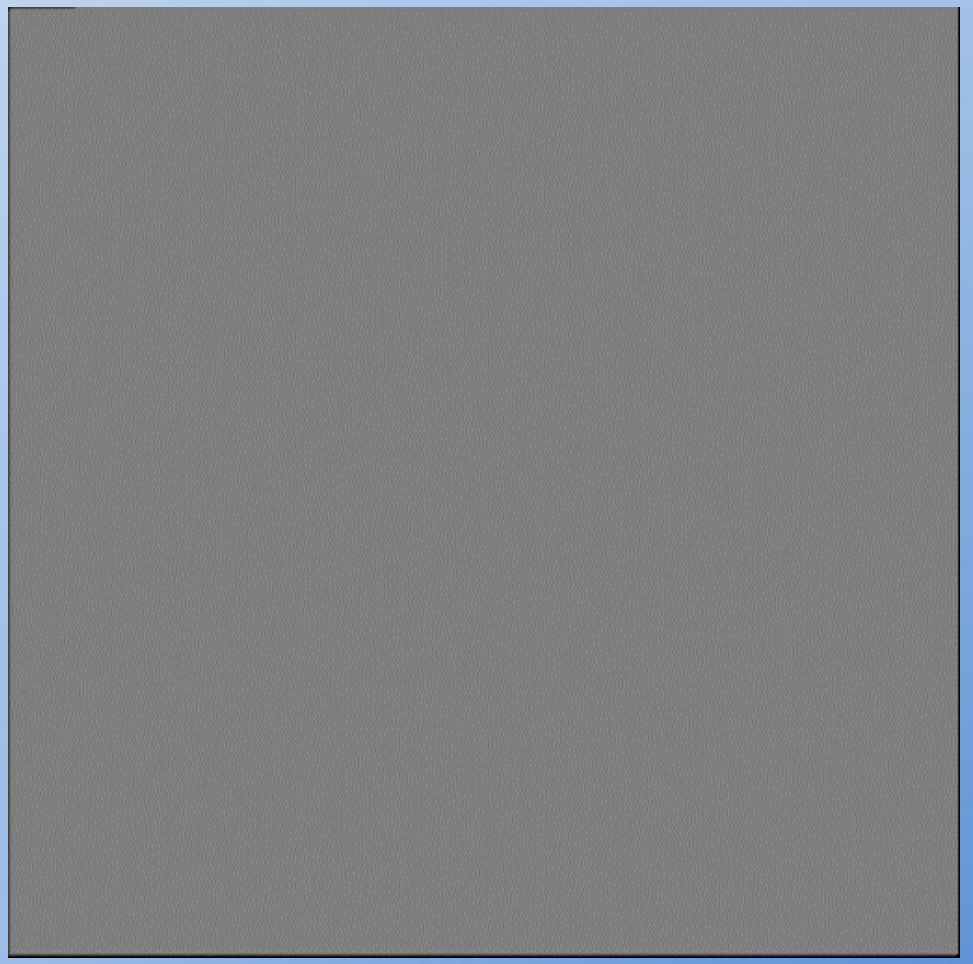

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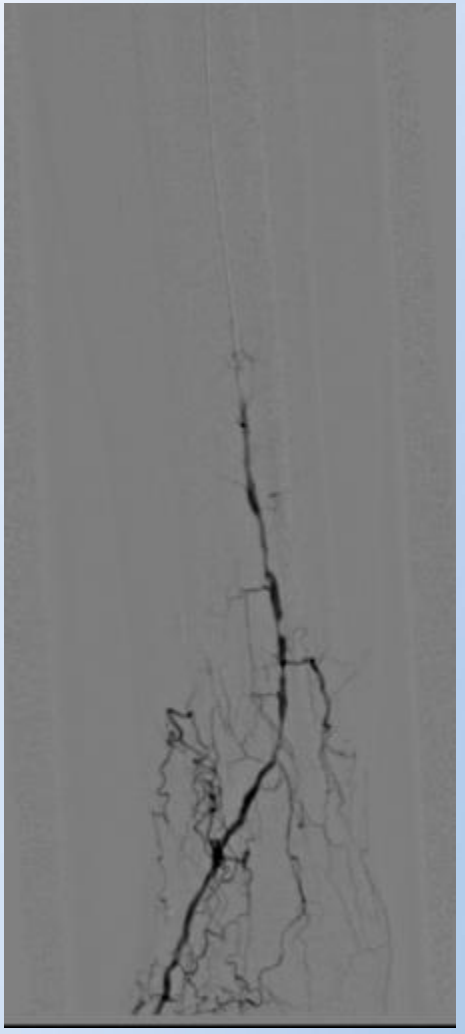

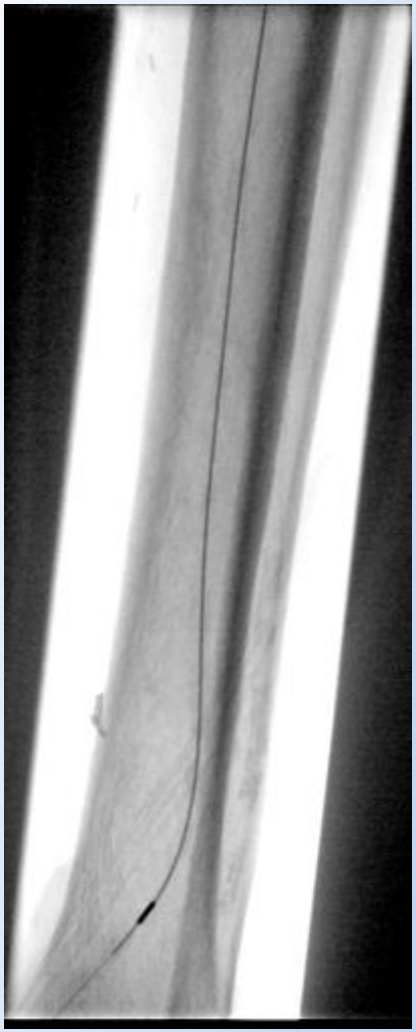

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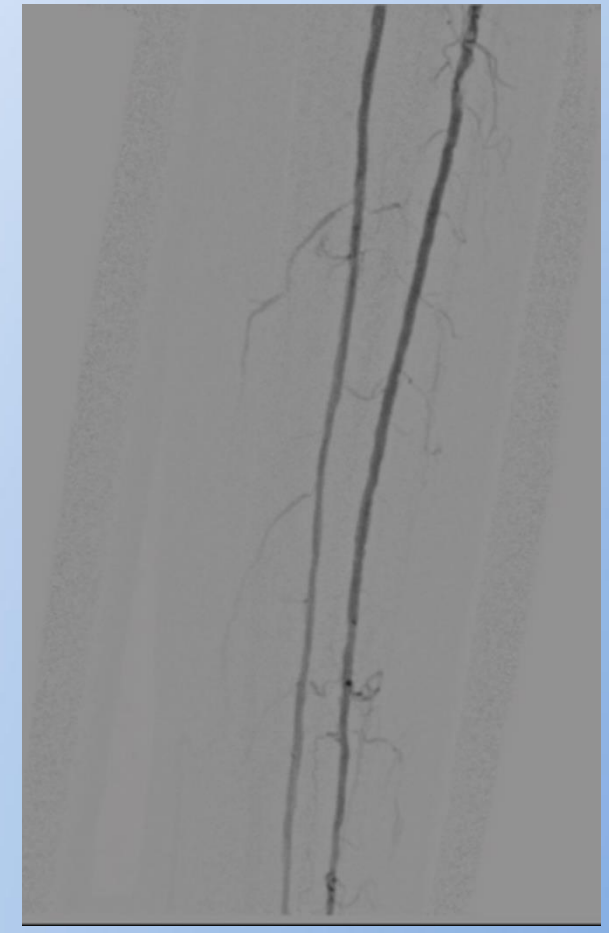

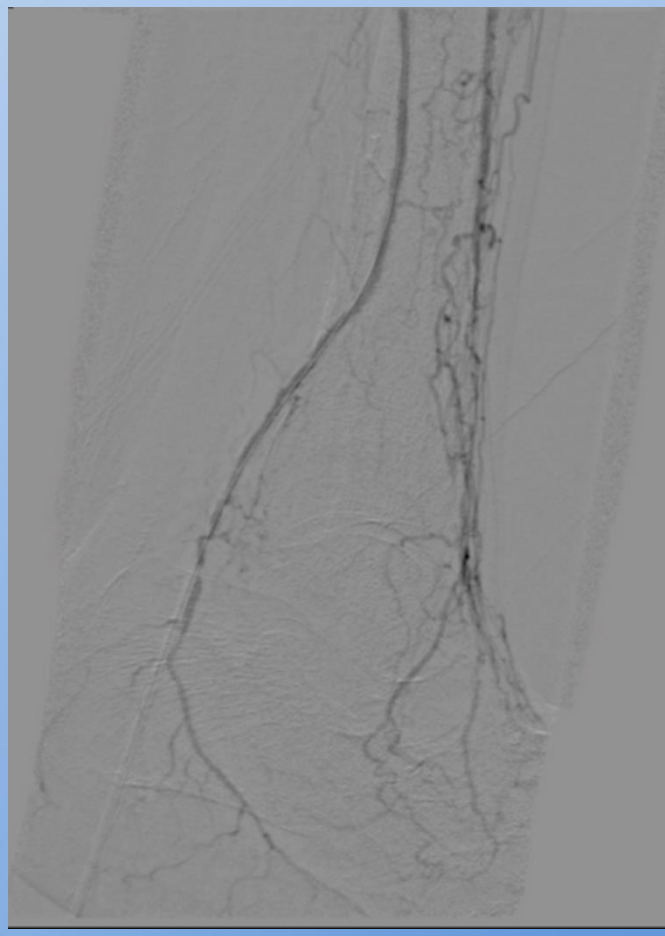

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Conclusion

- 4 Fr access can be used for most lower extremity EVR; this could result in fewer access related issues
- Industry needs to continue developing thinner, better sheaths and smaller devices
- Further data collection is needed

"There has never been a retroperitoneal bleed caused by pedal access"

"God did not make the pedal vessels to access for angiography"

VS/IR luminaries

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