TIPS AND TRICKS: Percutaneous access

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Disclosures

Giovanni Pratesi, M.D.

I have the following potential conflicts of interest to report:

- ☑ *Consulting: Abbott, Cook, Cordis, Medtronic, WL Gore & Associates*
- ☐ *Employment in industry*
- ☐ *Stockholder of a healthcare company*
- ☐ *Owner of a healthcare company*
- ☐ *Other(s)*
- ☐ *I do not have any potential conflict of interest*

Disclosures

Stephan Haulon, M.D.

I have the following potential conflicts of interest to report:

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- ☐ *Employment in industry*
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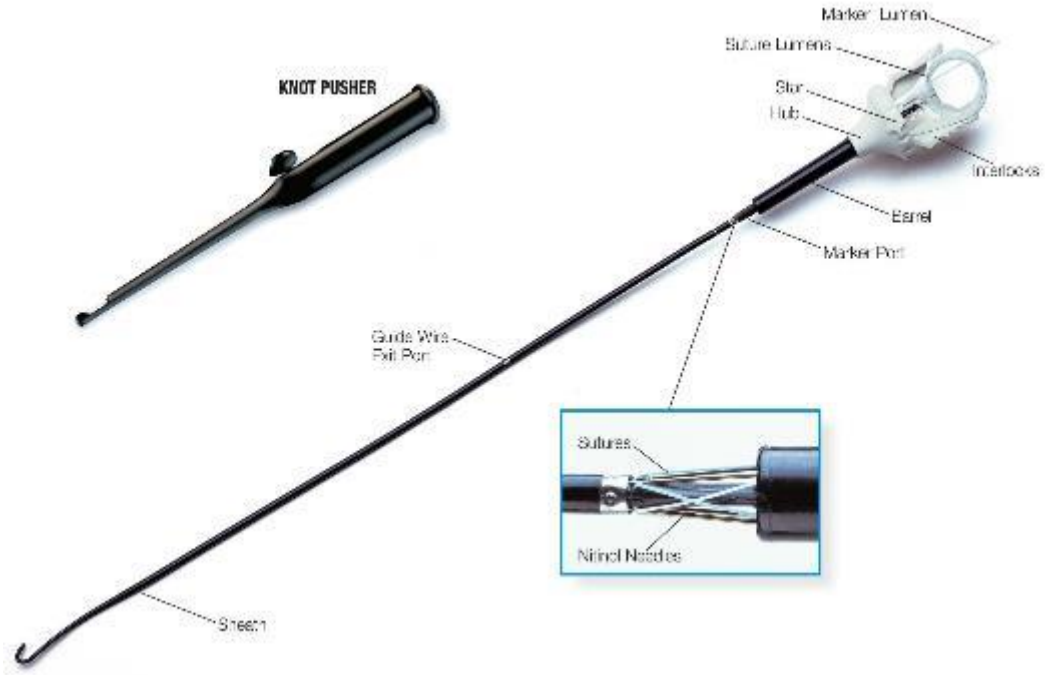
- ☐ *I do not have any potential conflict of interest*

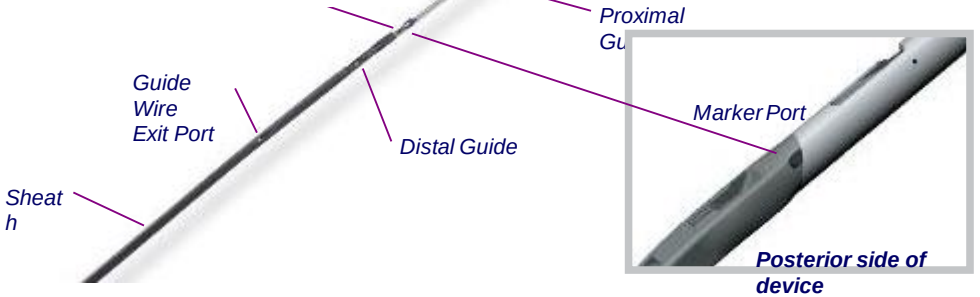
EVAR and percutaneous access: an ideal combination

- Rapid, safe and effective
- Local anesthesia
- Lower risk of wound-related complications (eg, seroma, infection, nerve injury)
- Reduced discomfort for the patient
- Early ambulation, shorter hospitalization

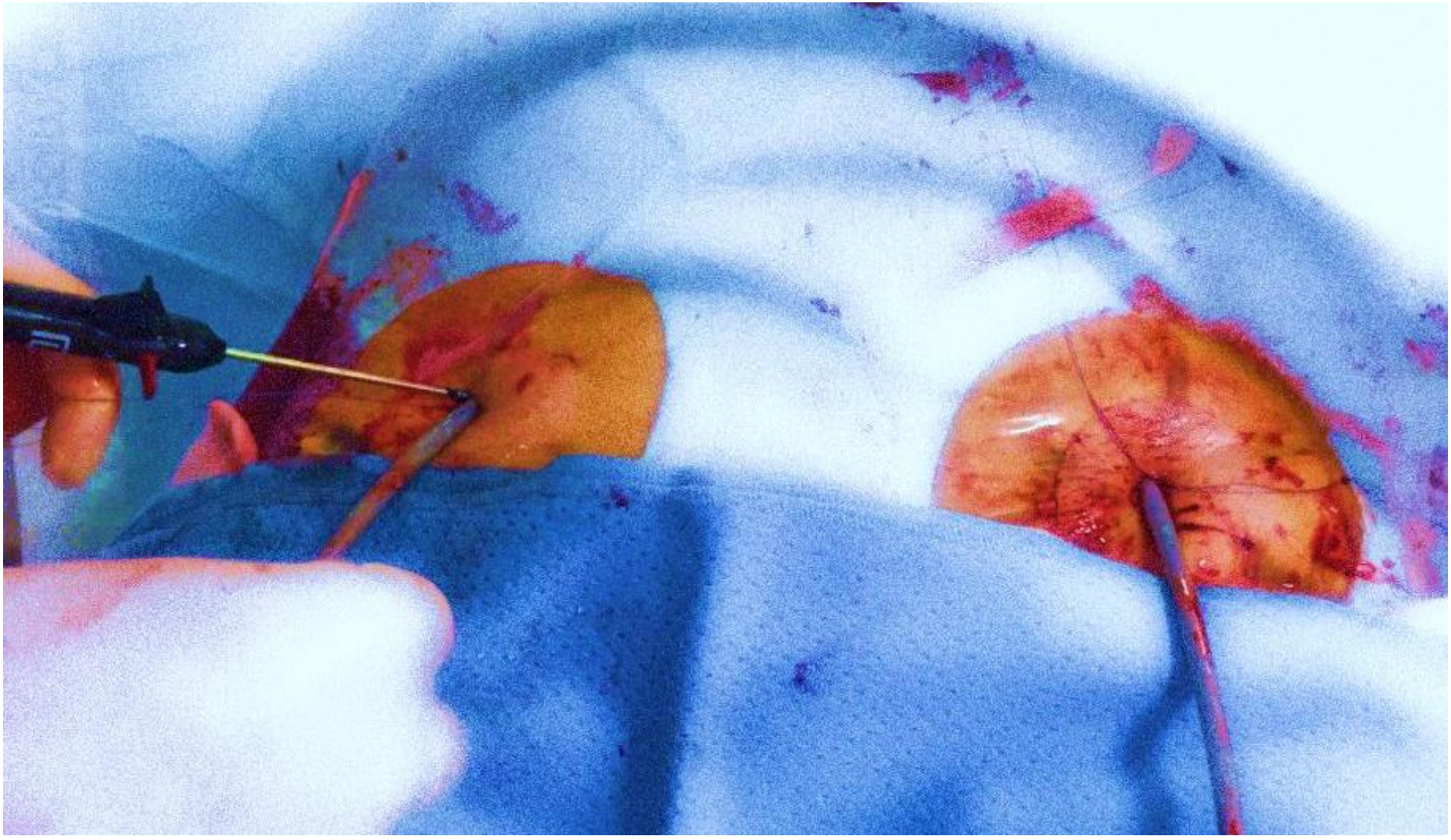
- *Totally endovascular, minimally invasive procedure*

Suture mediated closure devices: Prostar XL & Proglide

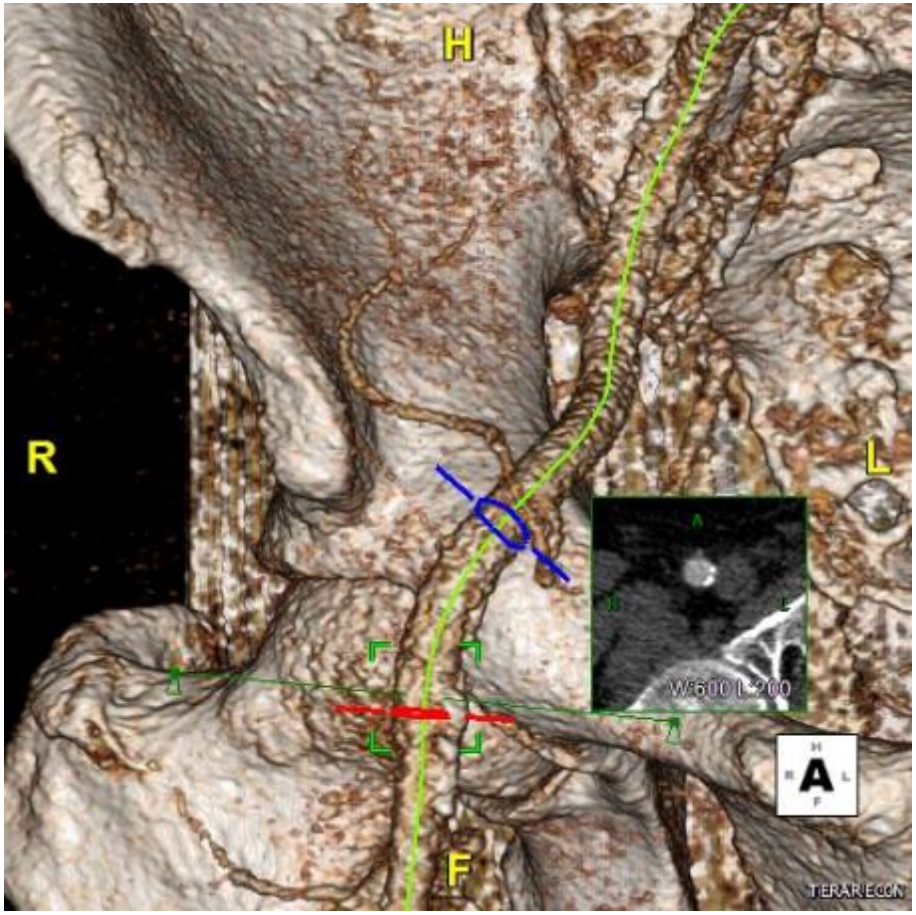


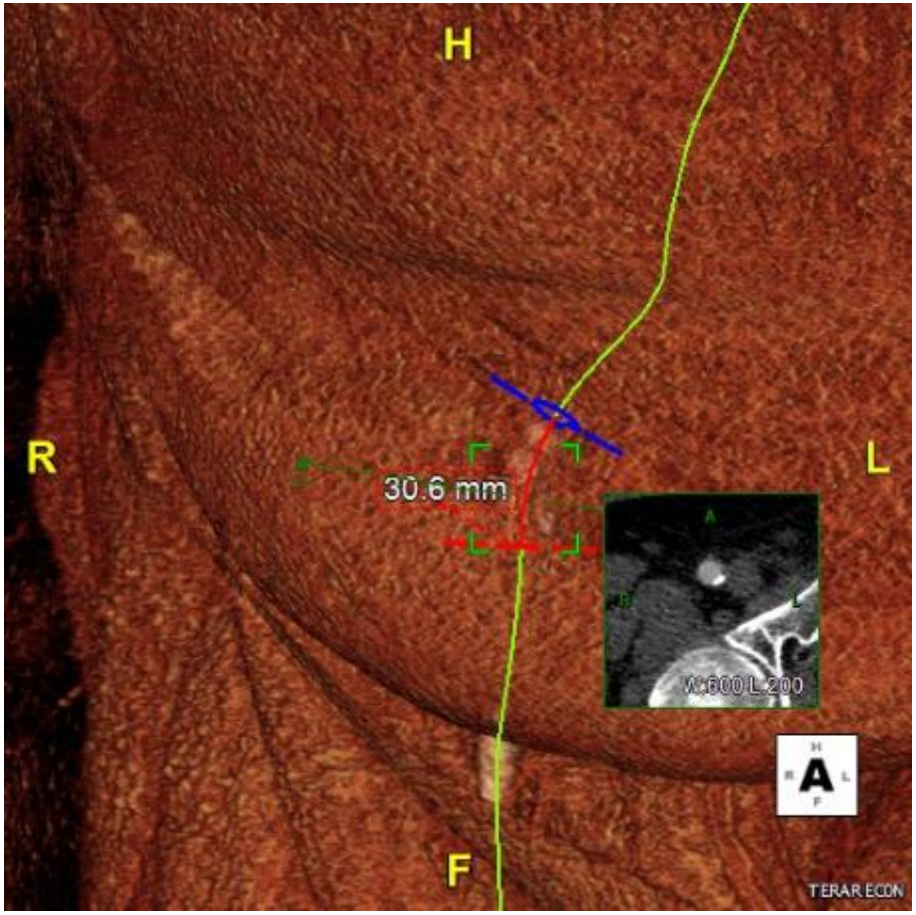


Learning curve in percutaneous access: a multifactorial strategy



1. Preoperative evaluation





2. Ultrasound guided puncture

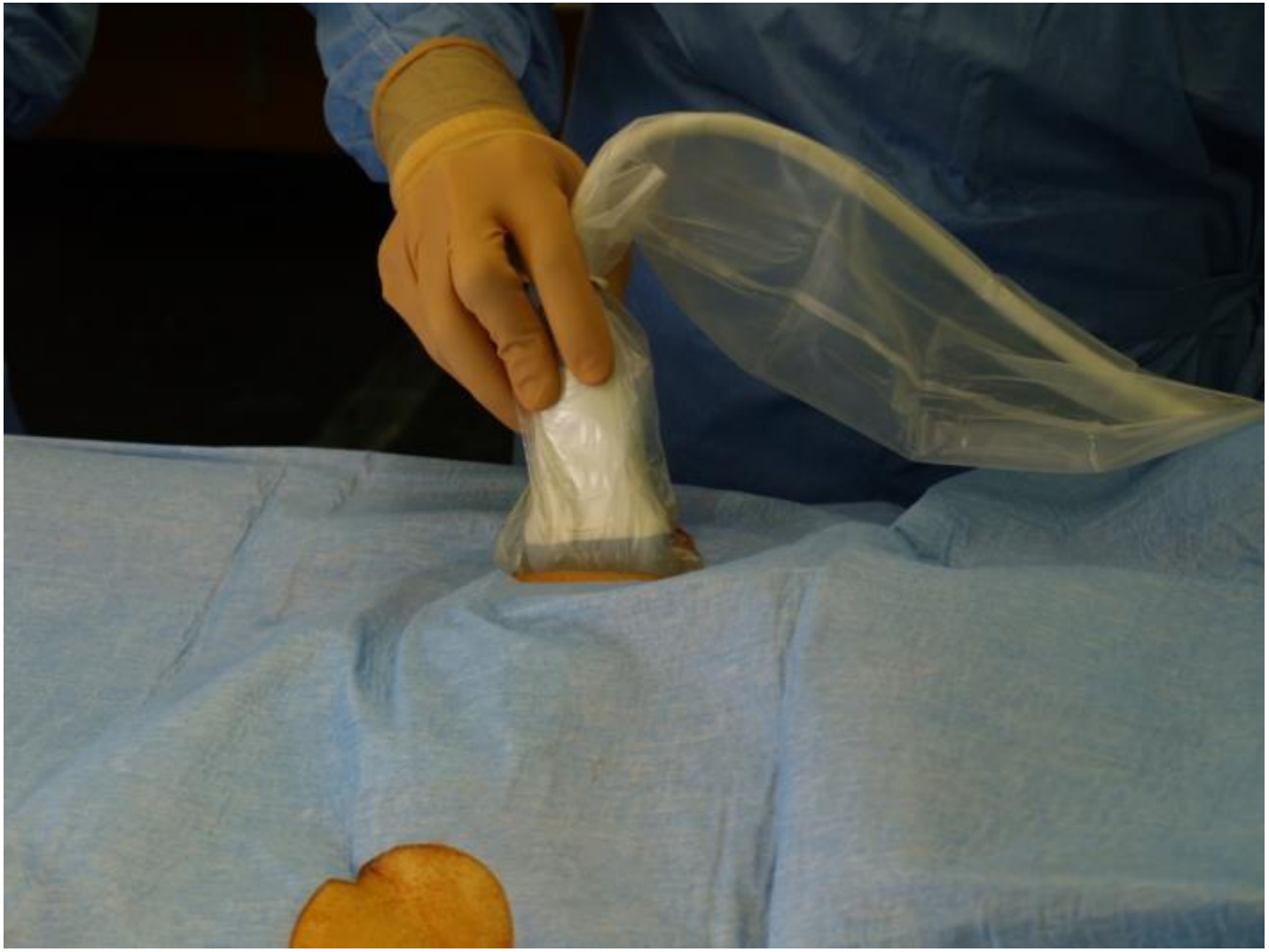
incathlab
THE INTERACTIVE CARDIOVASCULAR CHANNEL

What do I need for pEVAR?

Effect of Preinterventional Ultrasound Examination on Frequency of Procedure-Related Vascular Complications in Percutaneous Coronary Interventions With Transfemoral Approach

Emilia Stegemann, MD[a,*], Berthold Stegemann, PhD[a], Nikolaus Marx, MD[a], Thomas Lauer, MD[b], and Rainer Hoffmann, MD[a]

Vascular complications are the most frequent adverse events associated with percutaneous coronary interventions (PCIs) leading to an increase in morbidity and mortality. Puncture of the common femoral artery in its middle segment is proved to decrease the risk of procedure-related vascular complications. Real-time ultrasound-guided puncture of the vessel is effective to decrease access site-related vascular complications but complex to perform. We evaluated whether an ultrasonic preinterventional examination of the femoral puncture site and skin marking of anatomic structures and specific vascular characteristics results in a decrease of access site-related vascular complications in PCIs with transfemoral access. Over a period of 12 months we prospectively examined all puncture sites before elective PCIs with transfemoral access (n = 848) using ultrasound. Presence, extent, and location of plaques and stenoses and exact location of bifurcation of the femoral artery were marked by a sonographer on the skin to guide the interventionists in vascular puncture. Postinterventional access site ultrasound was performed to determine possible access site-related complications. Frequency of vascular access site complications was compared to a control cohort (n = 1,027) that did not undergo ultrasound examination before intervention. With ultrasonic vascular access site management the rate of access site-related vascular complications was decreased from 4.2% to 1.9% (odds ratio 0.44, 0.23 to 0.80, p = 0.005). In conclusion, preinterventional ultrasonic access site examination and skin marking decreases the risk of vascular complications in elective PCI with femoral access. (Am J Cardiol 2011;108:1203–1206)

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Vascular
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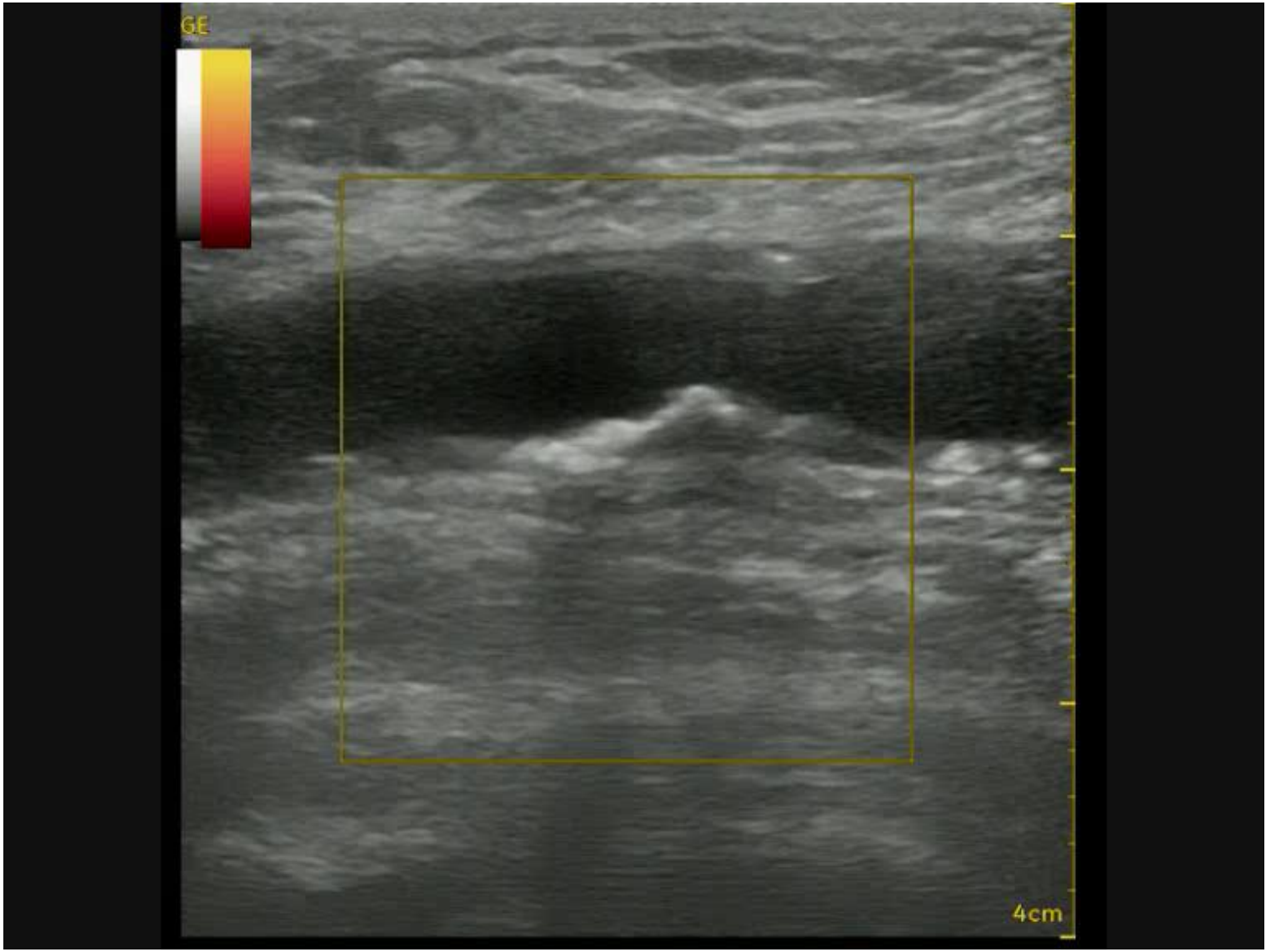
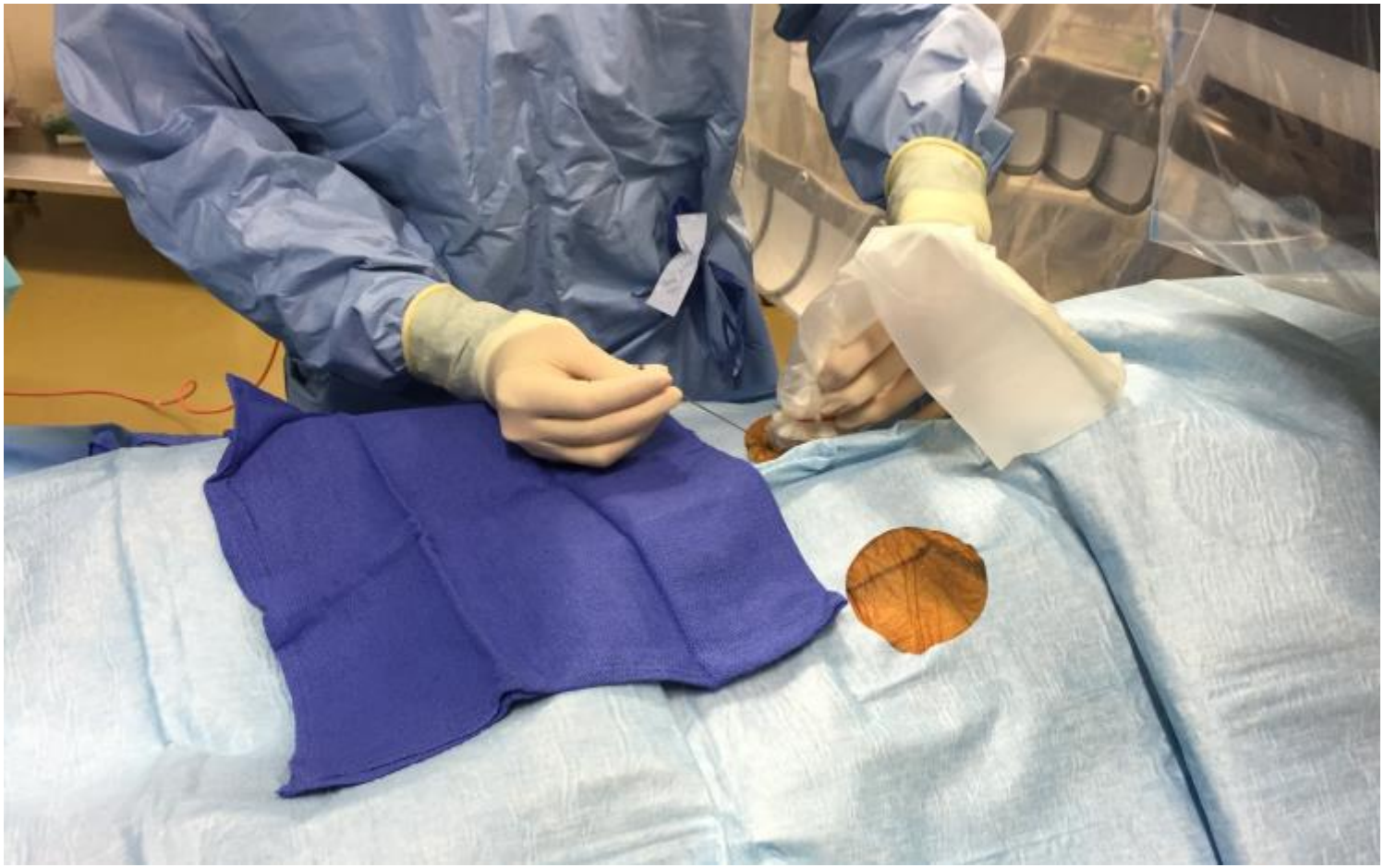

GE
4cm

Arterial puncture at 45°

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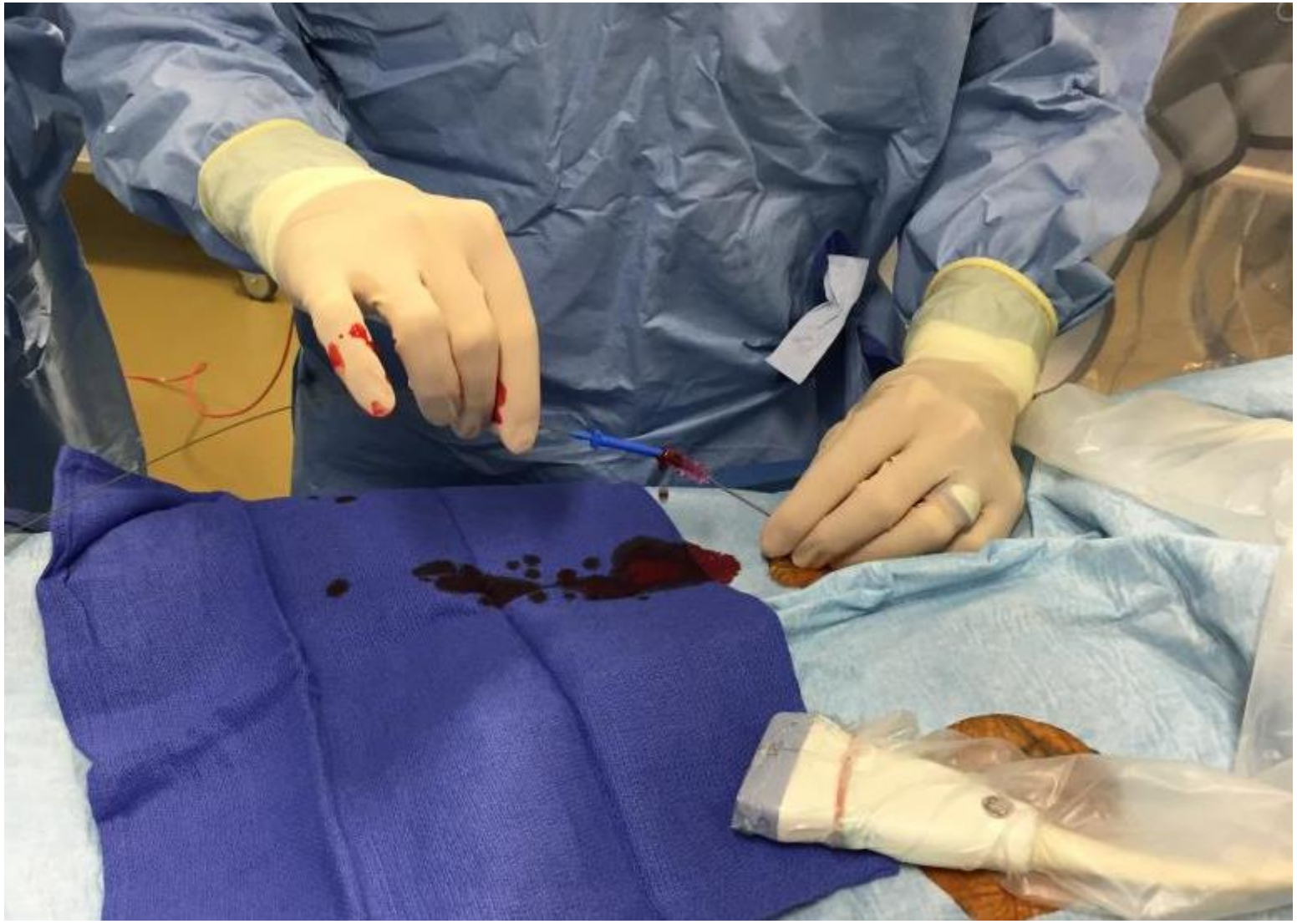
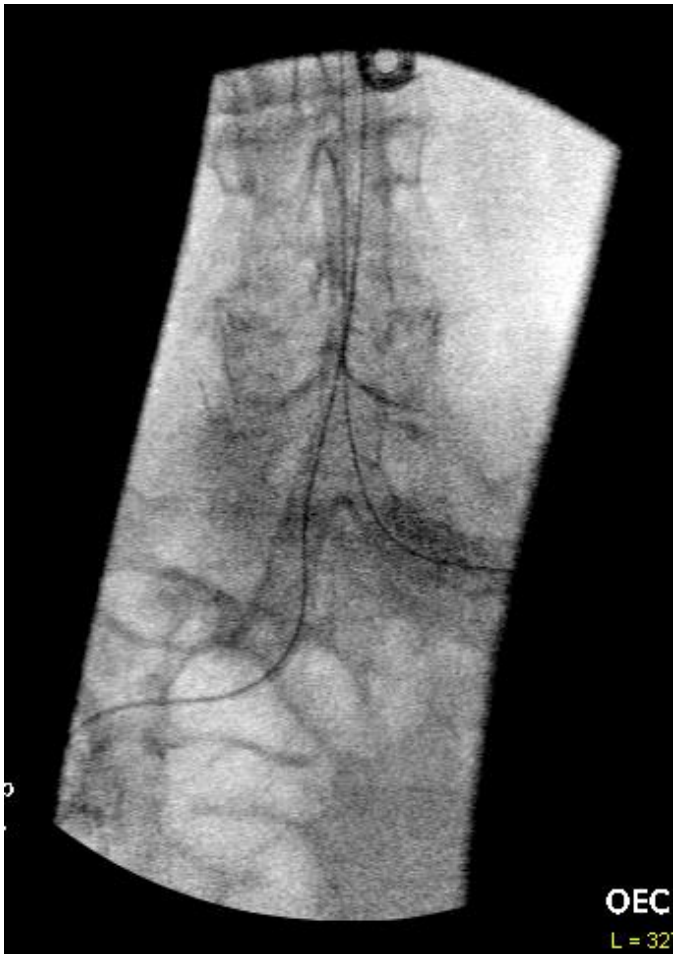
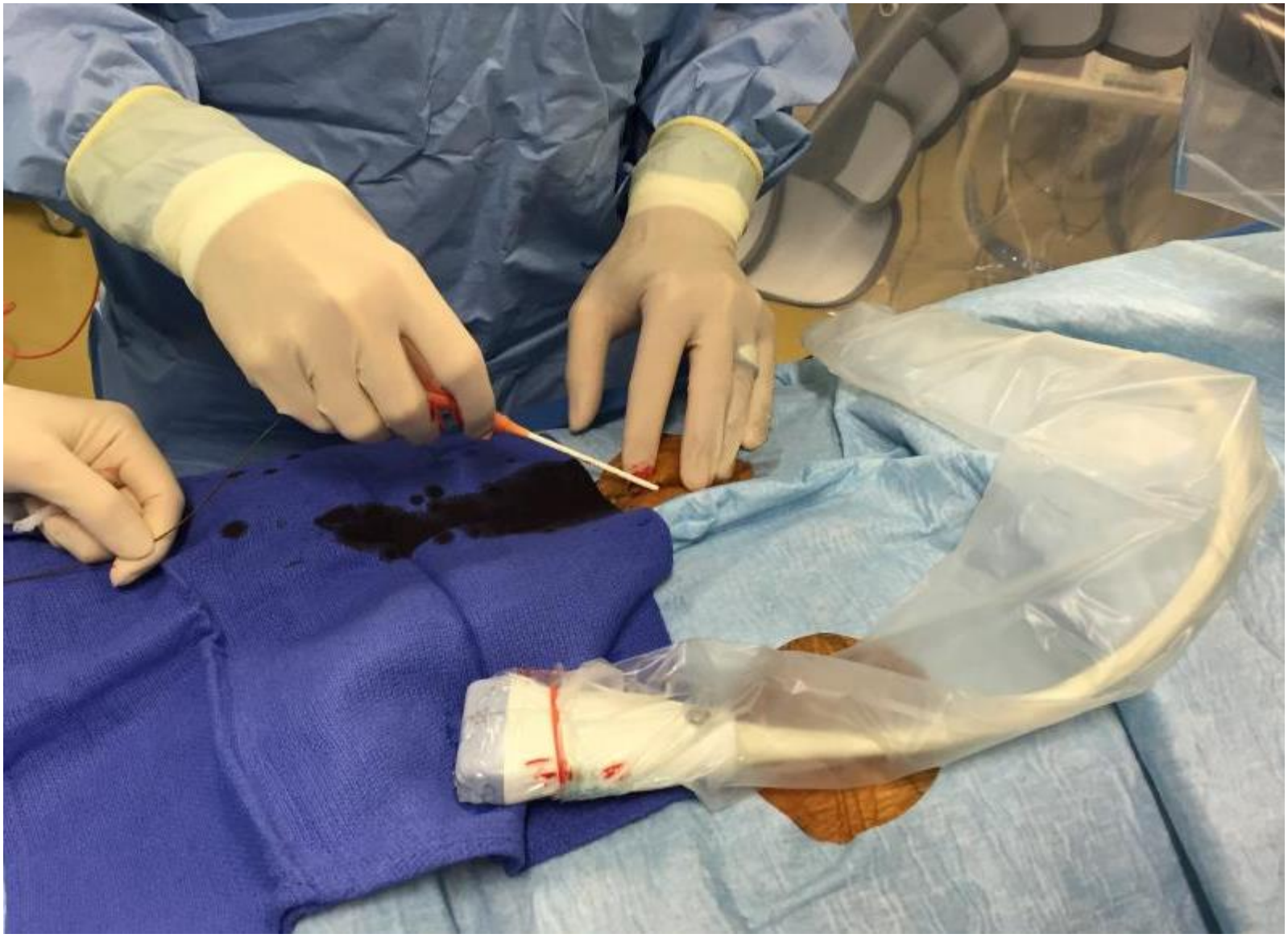
Use preferably an angled .035’’ starter guidewire



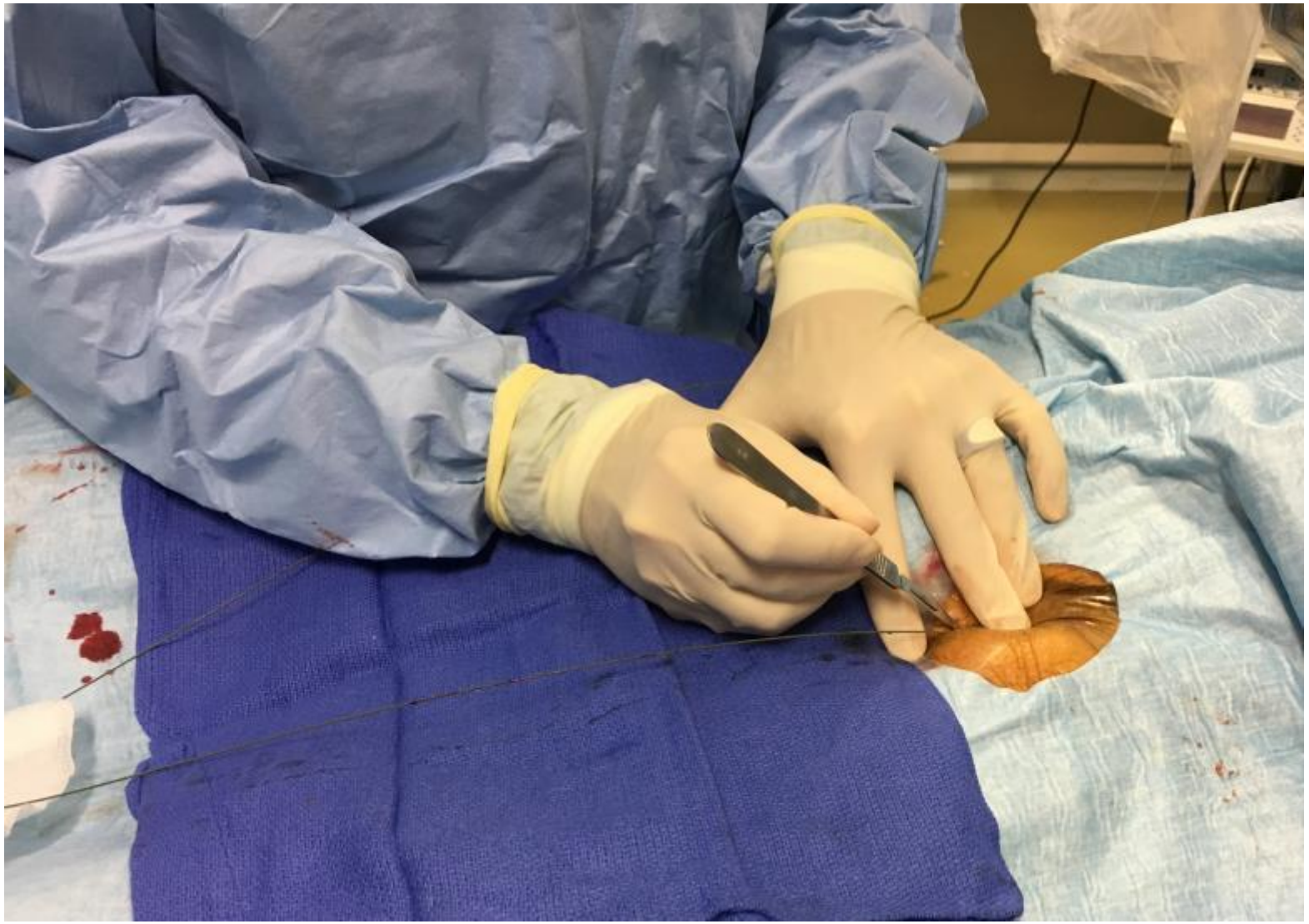
Control Progression under US / X-ray



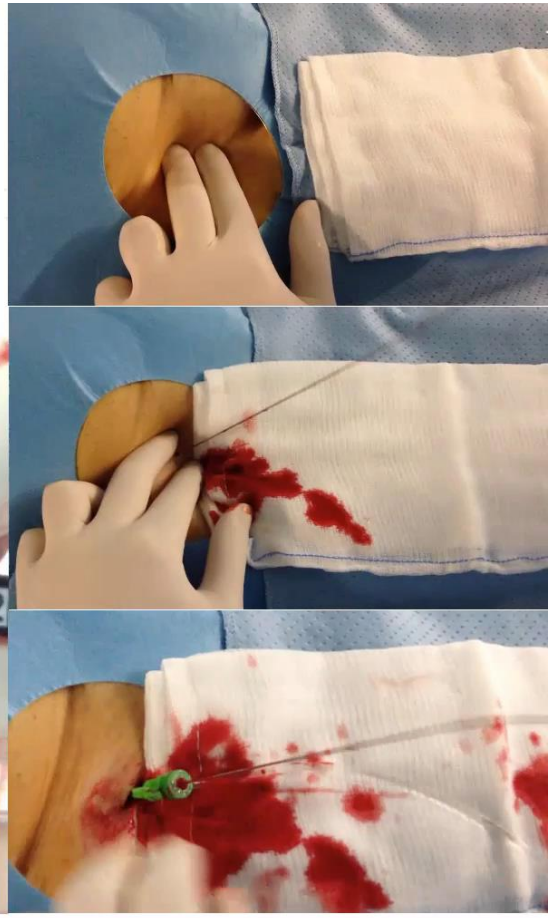
Pre-closing: first insert 7fr introducer sheath



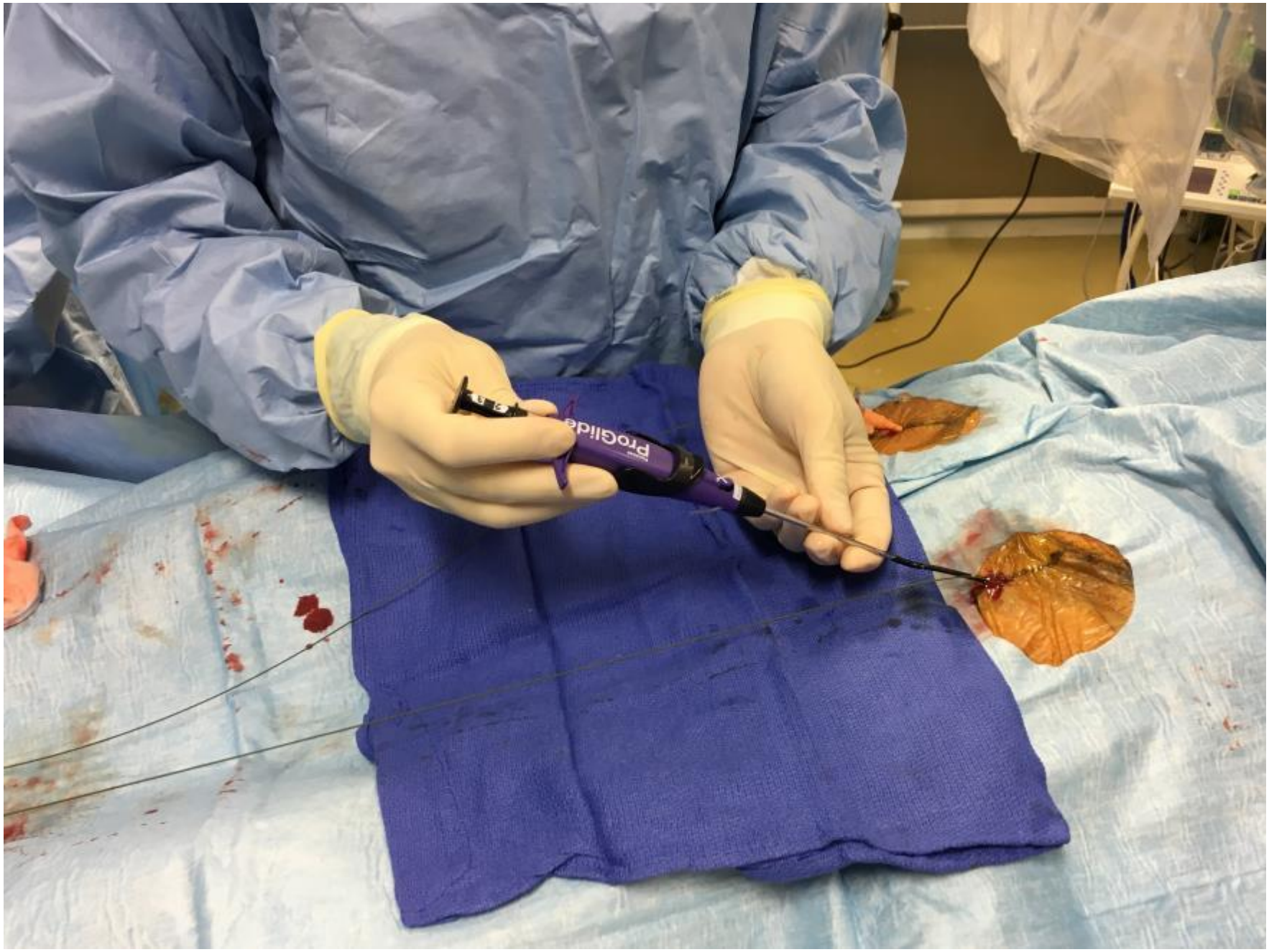
Skin incision (Stent-Graft OD)

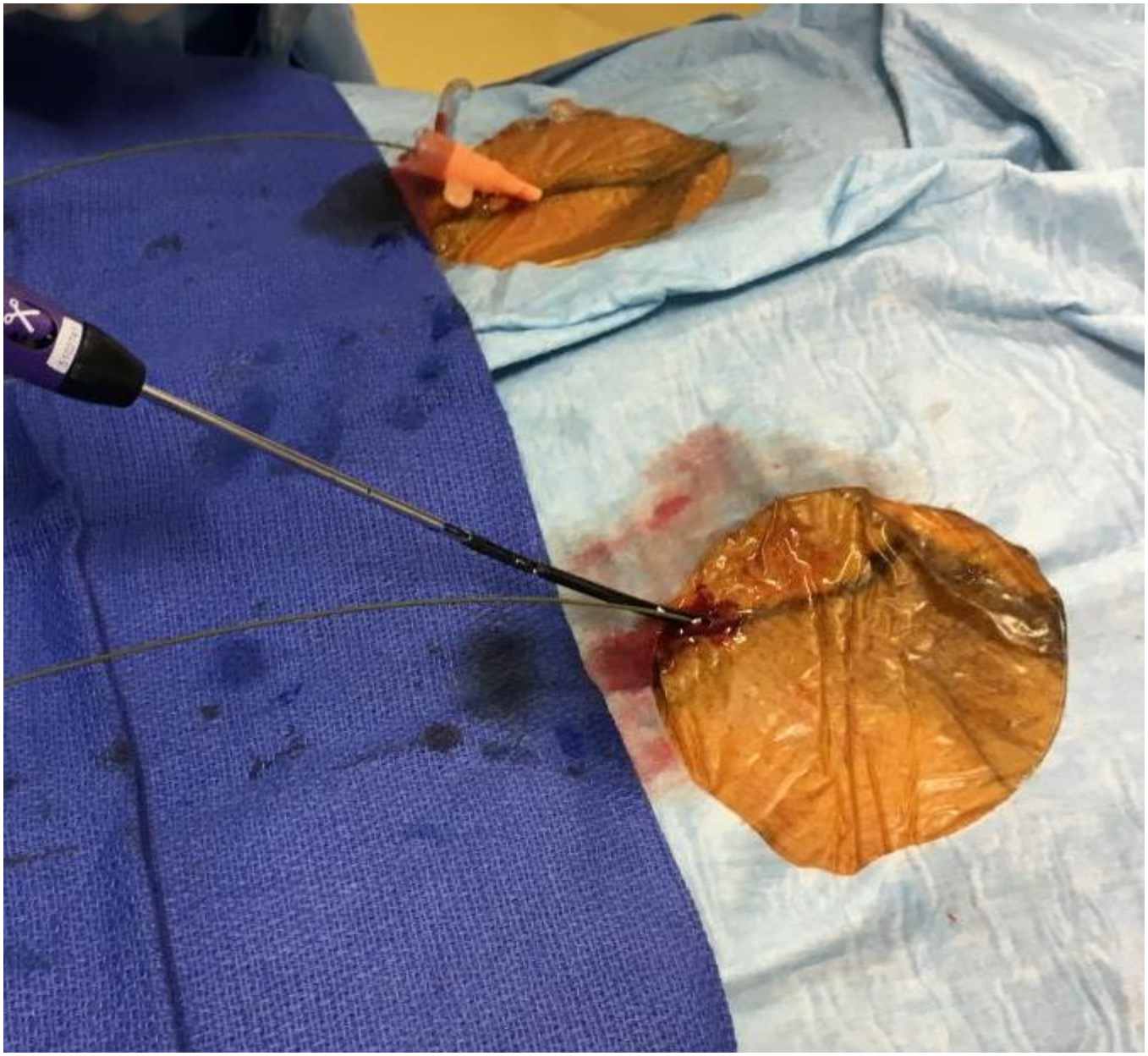


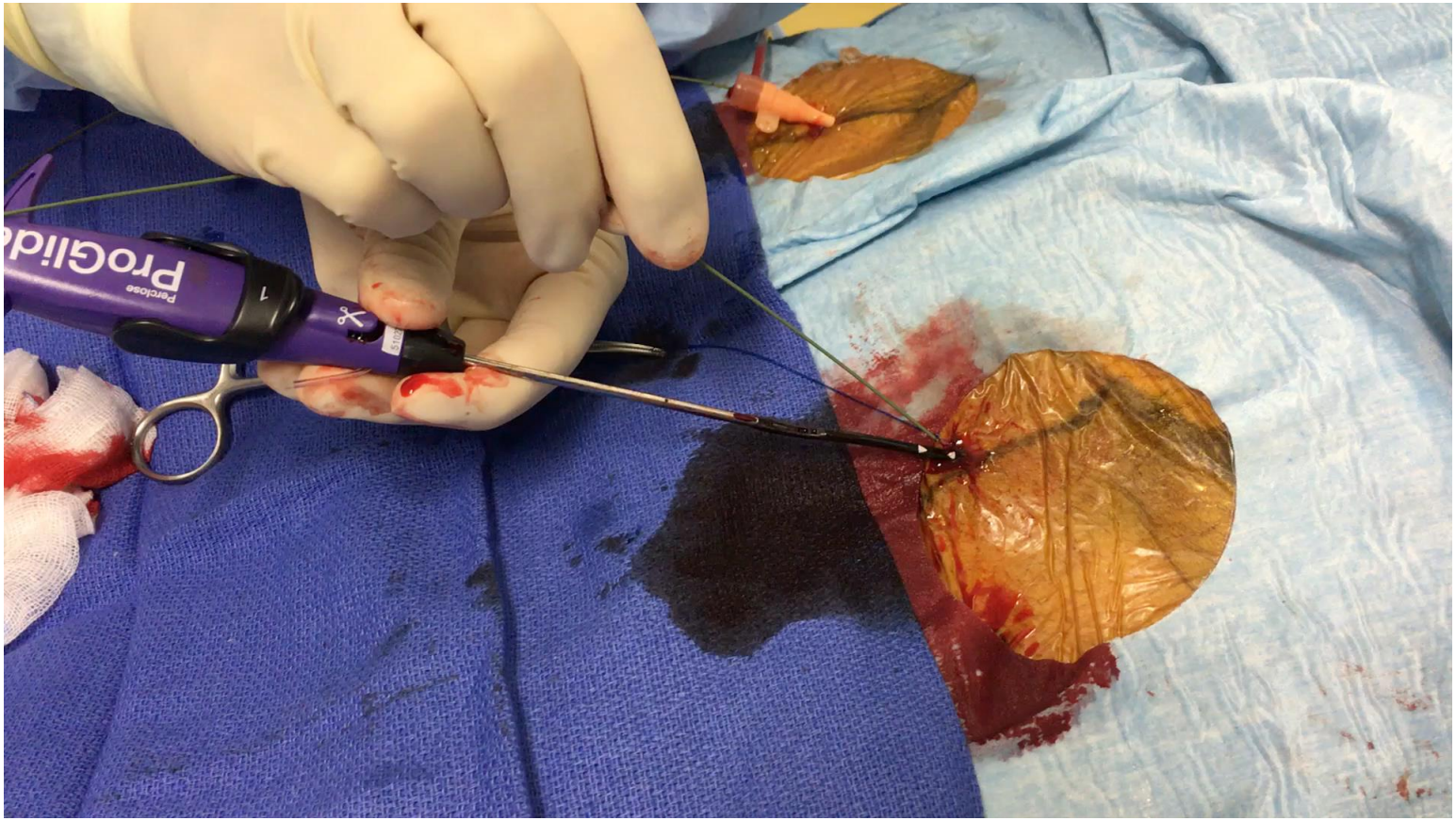
3. Double Proglide technique

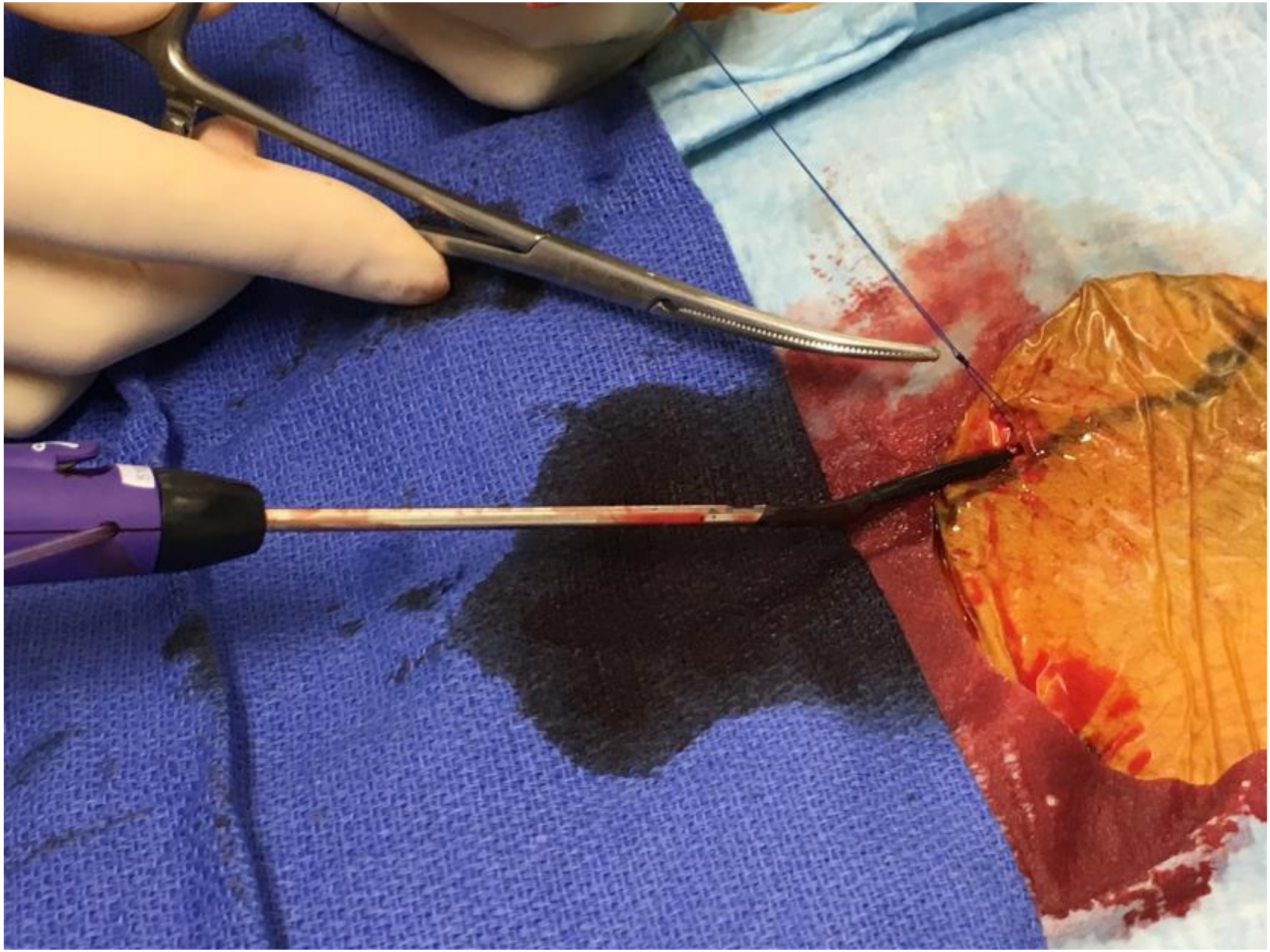


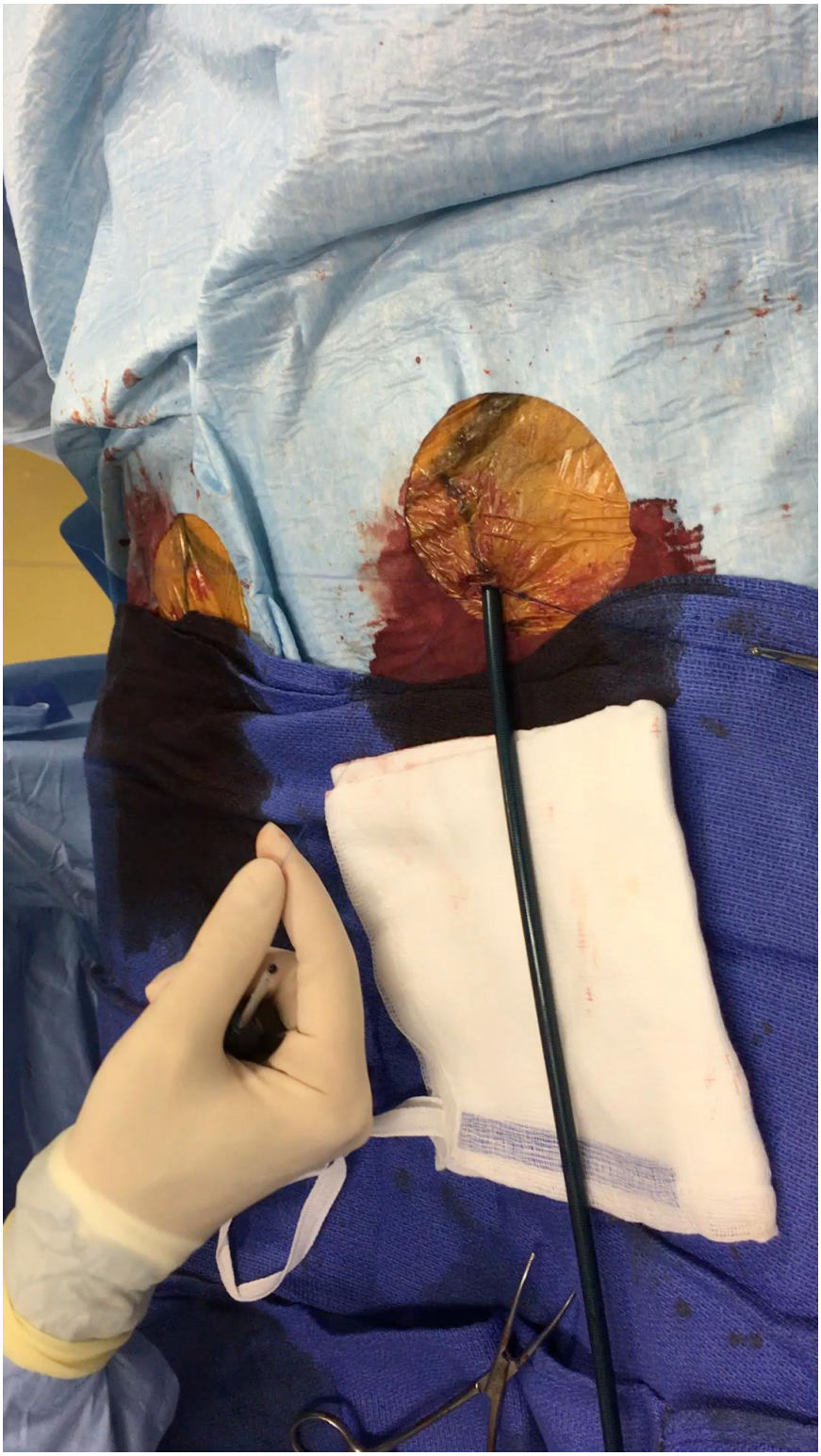
Approved for large bore sheath up to 21 Fr

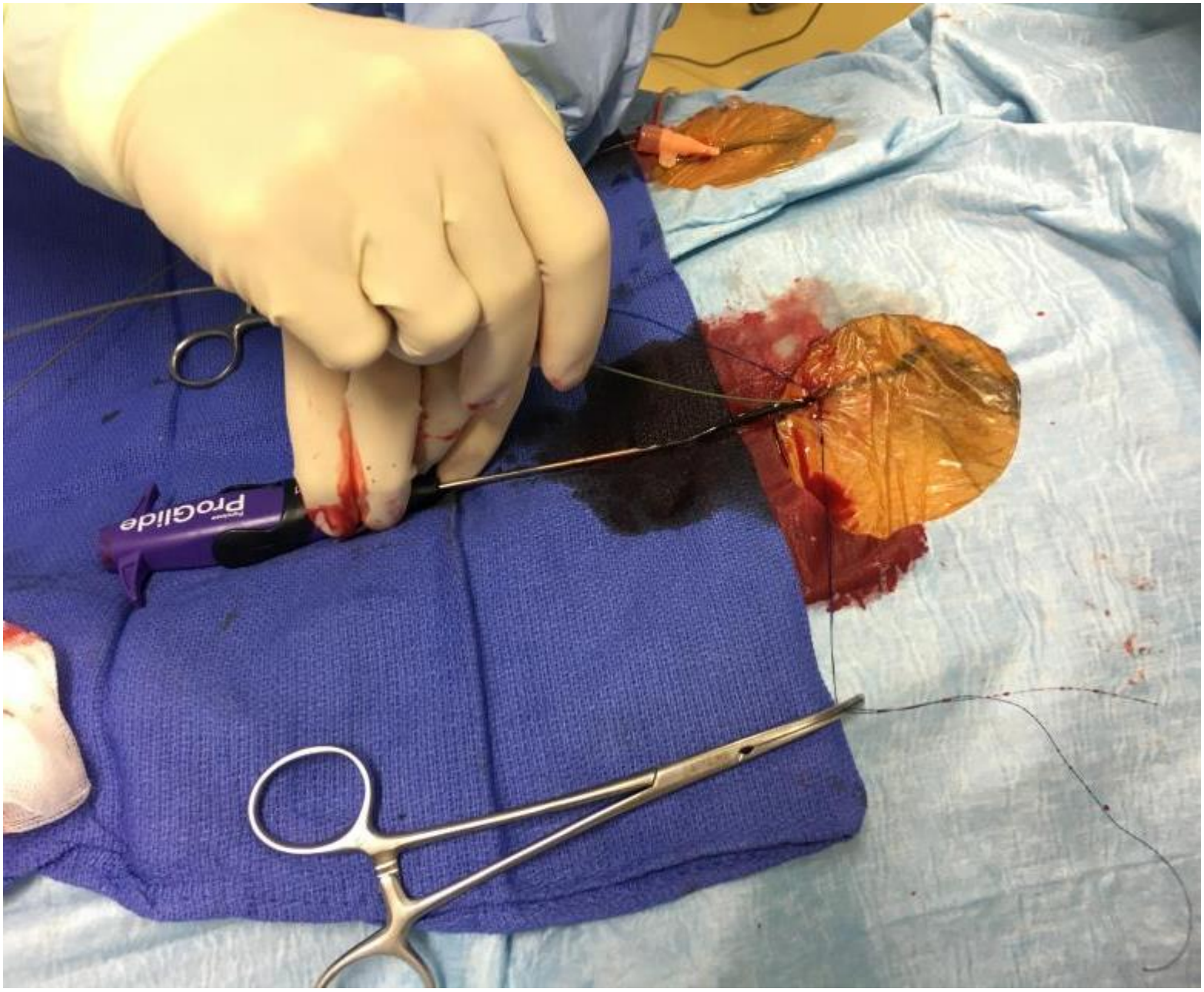


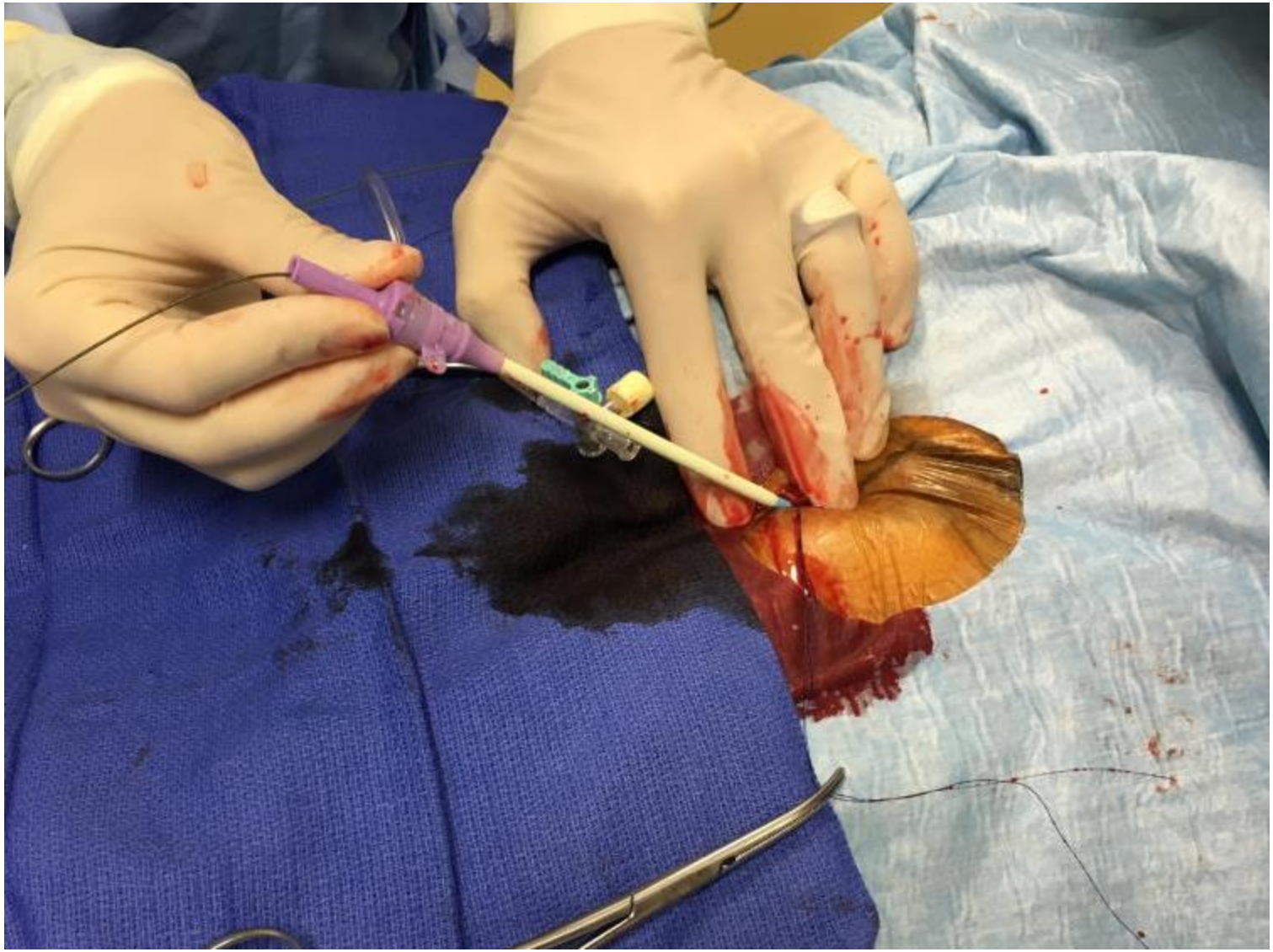


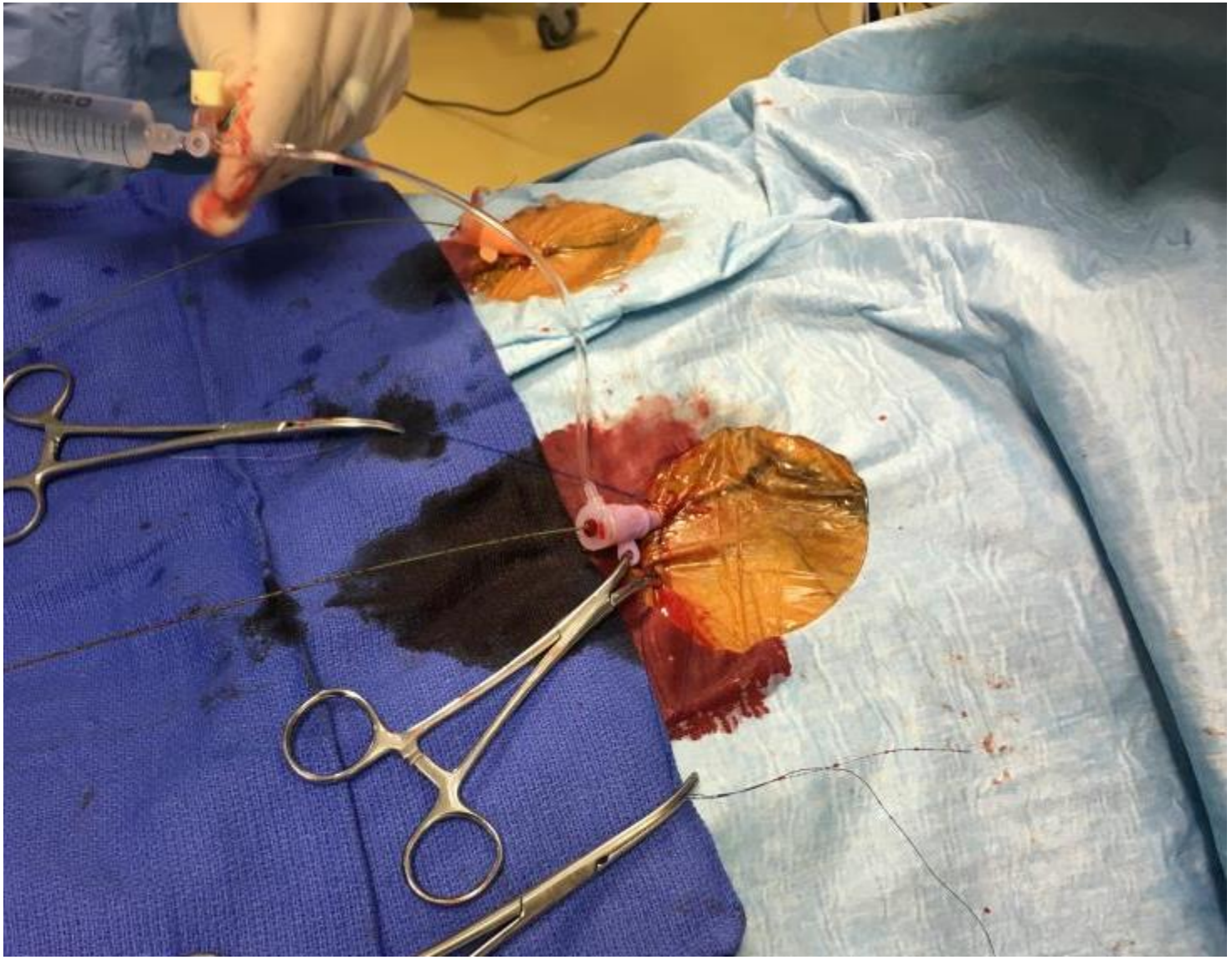

Petrlose
ProGlide

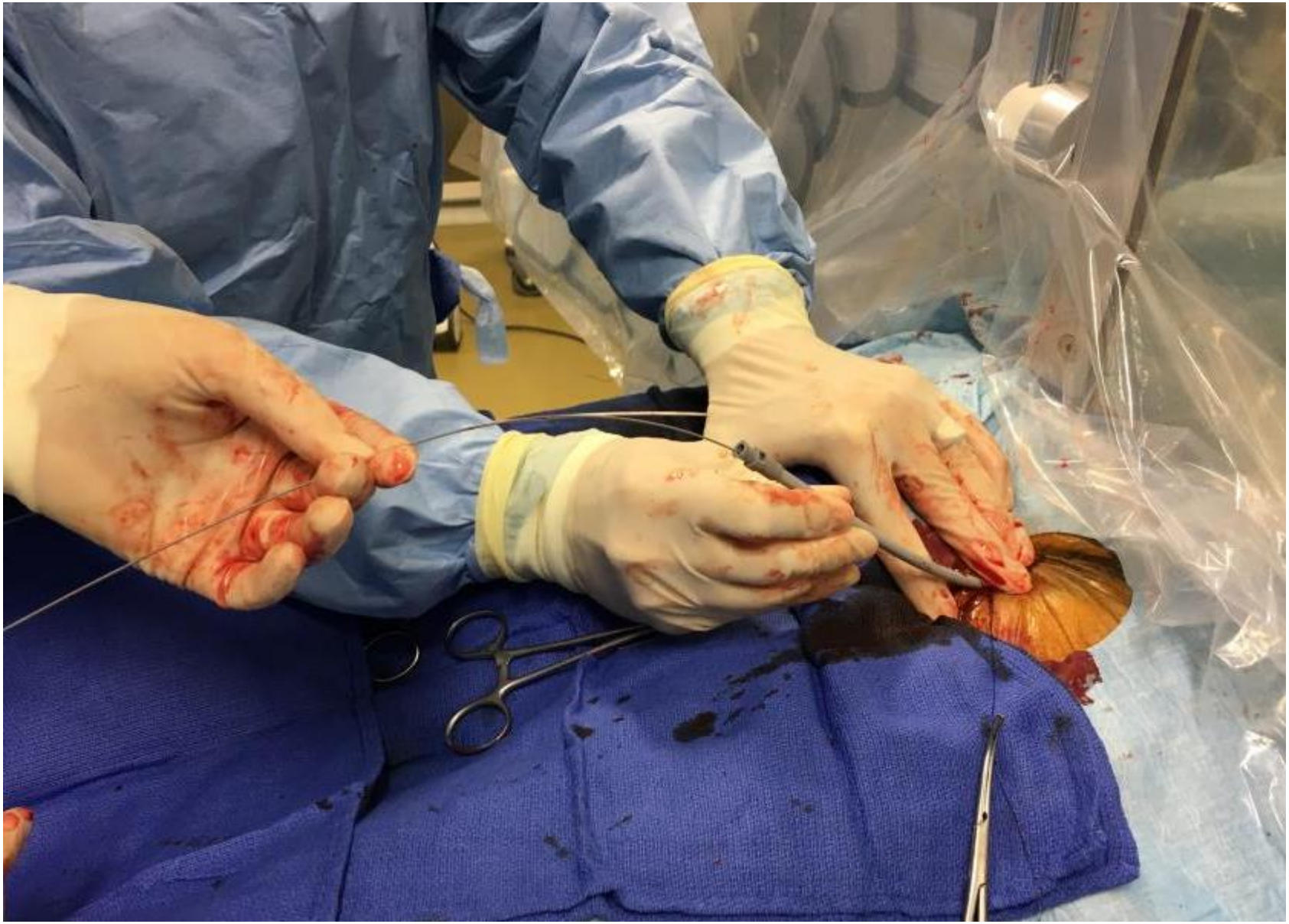


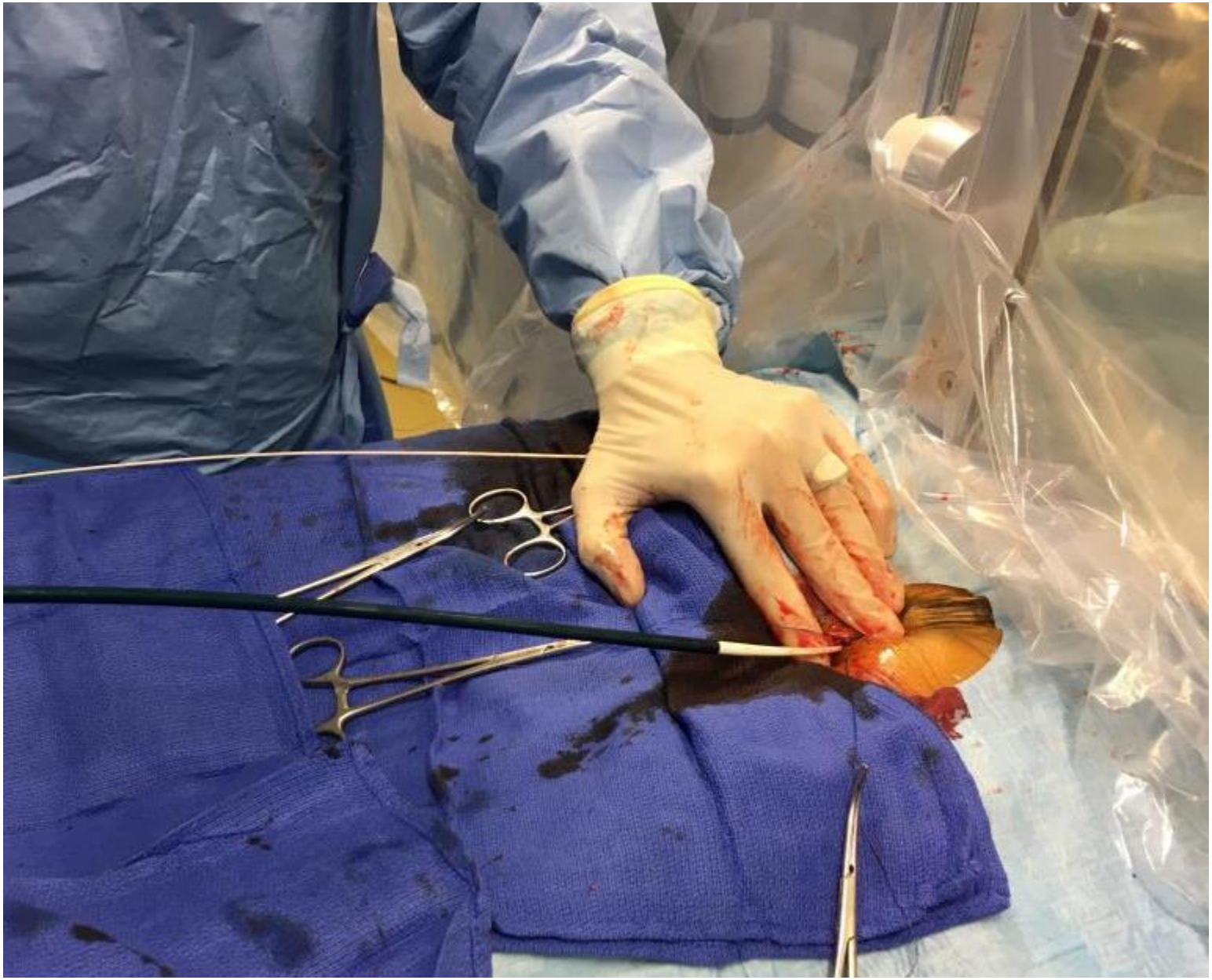


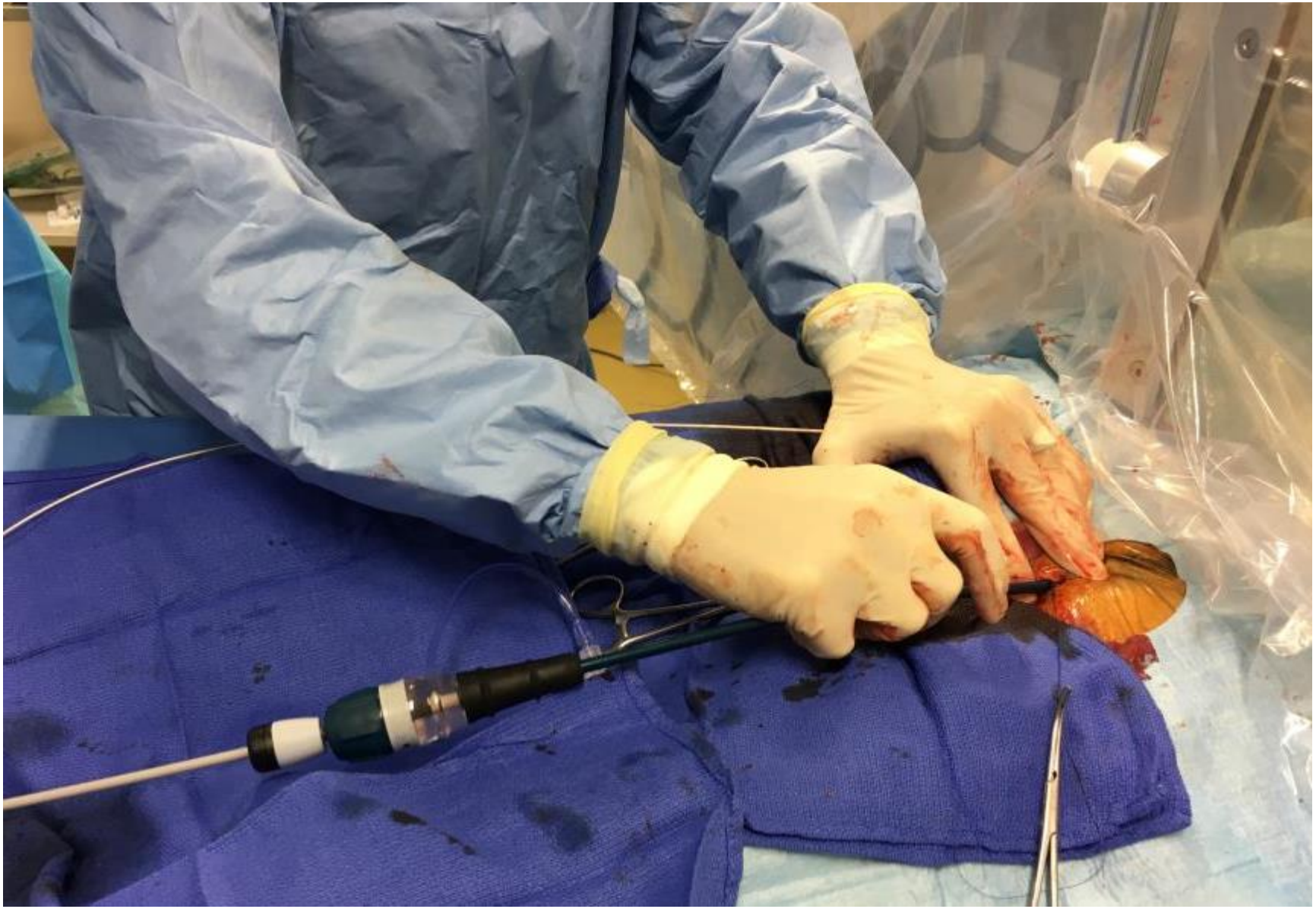

ProGlide

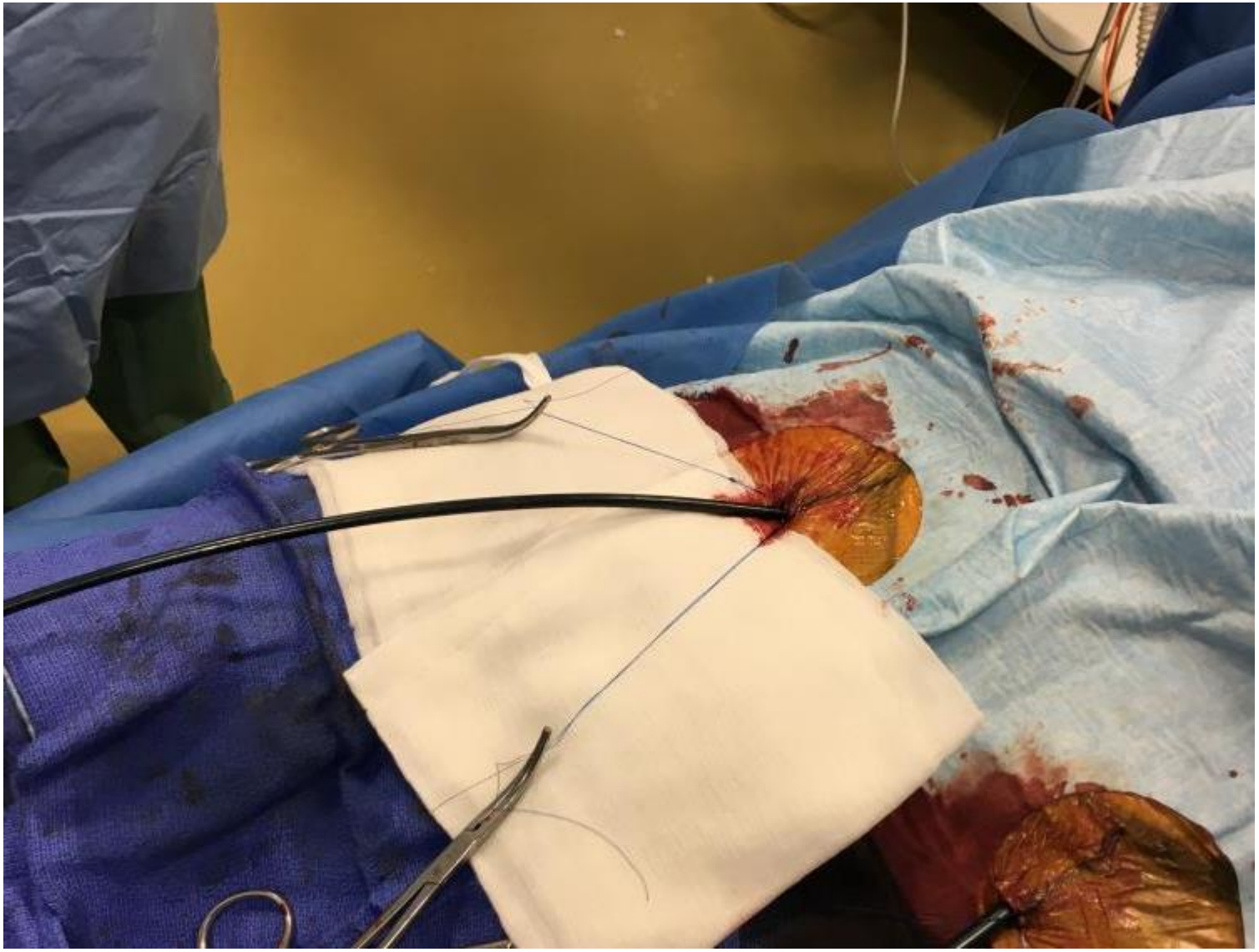


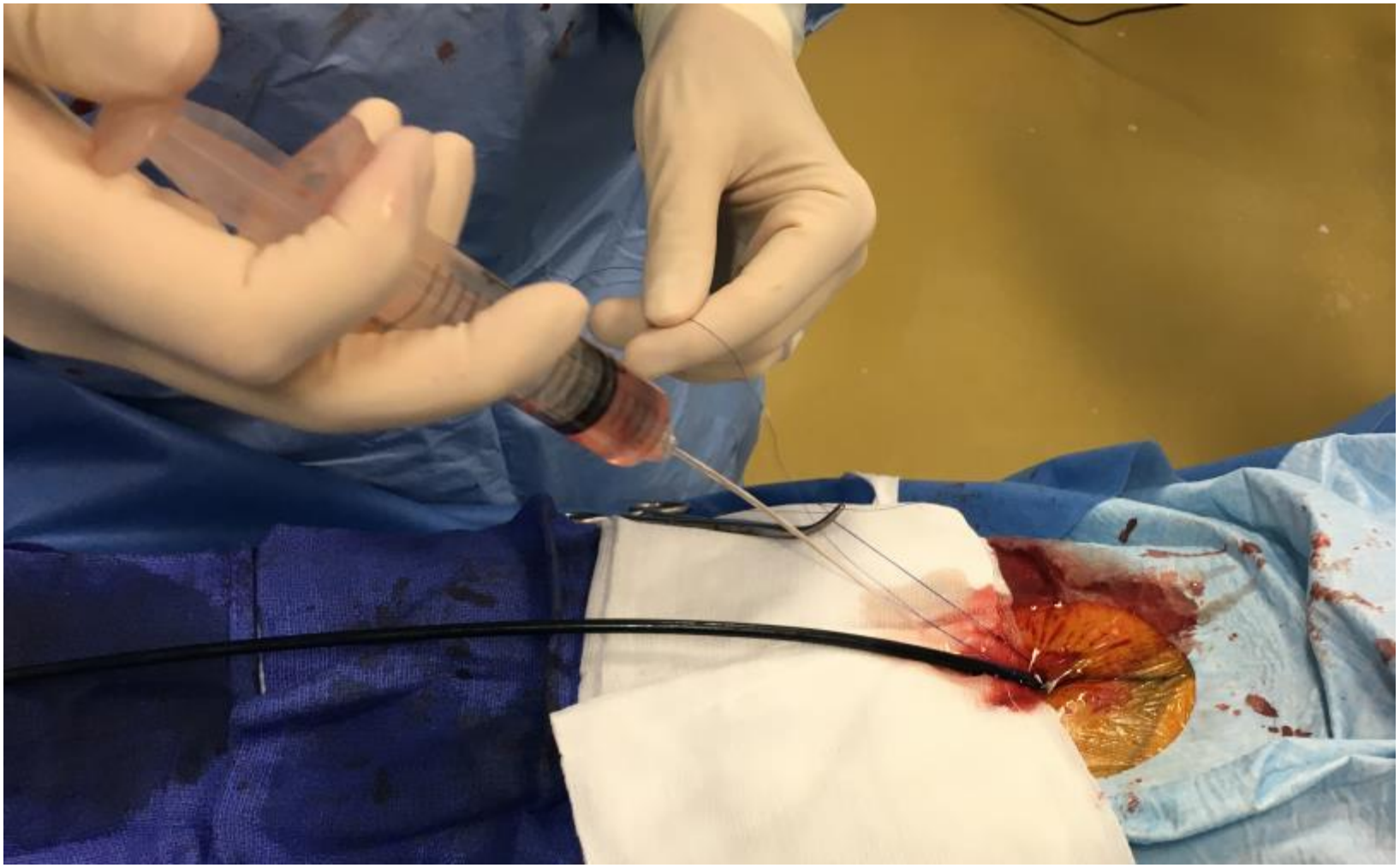


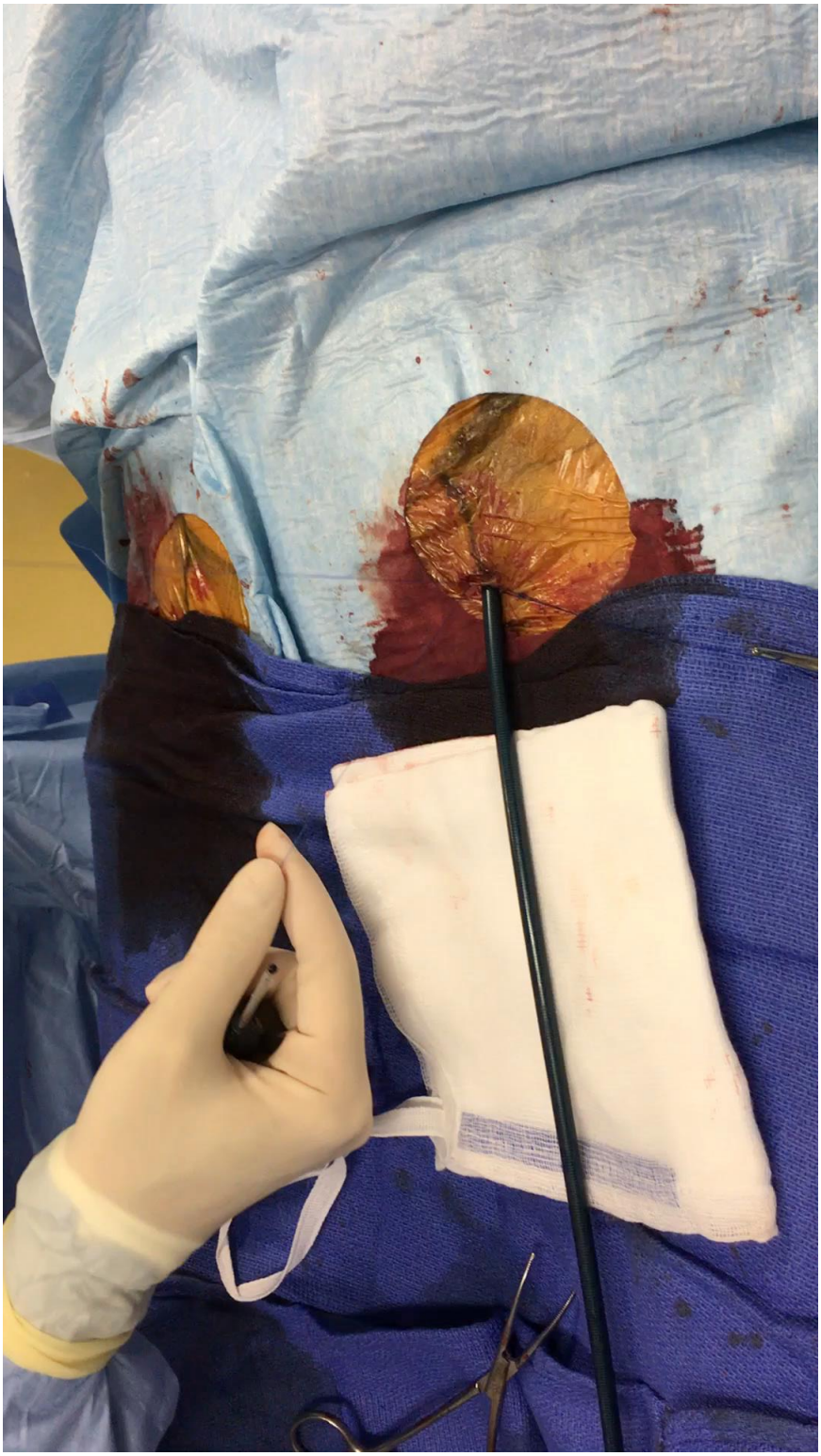




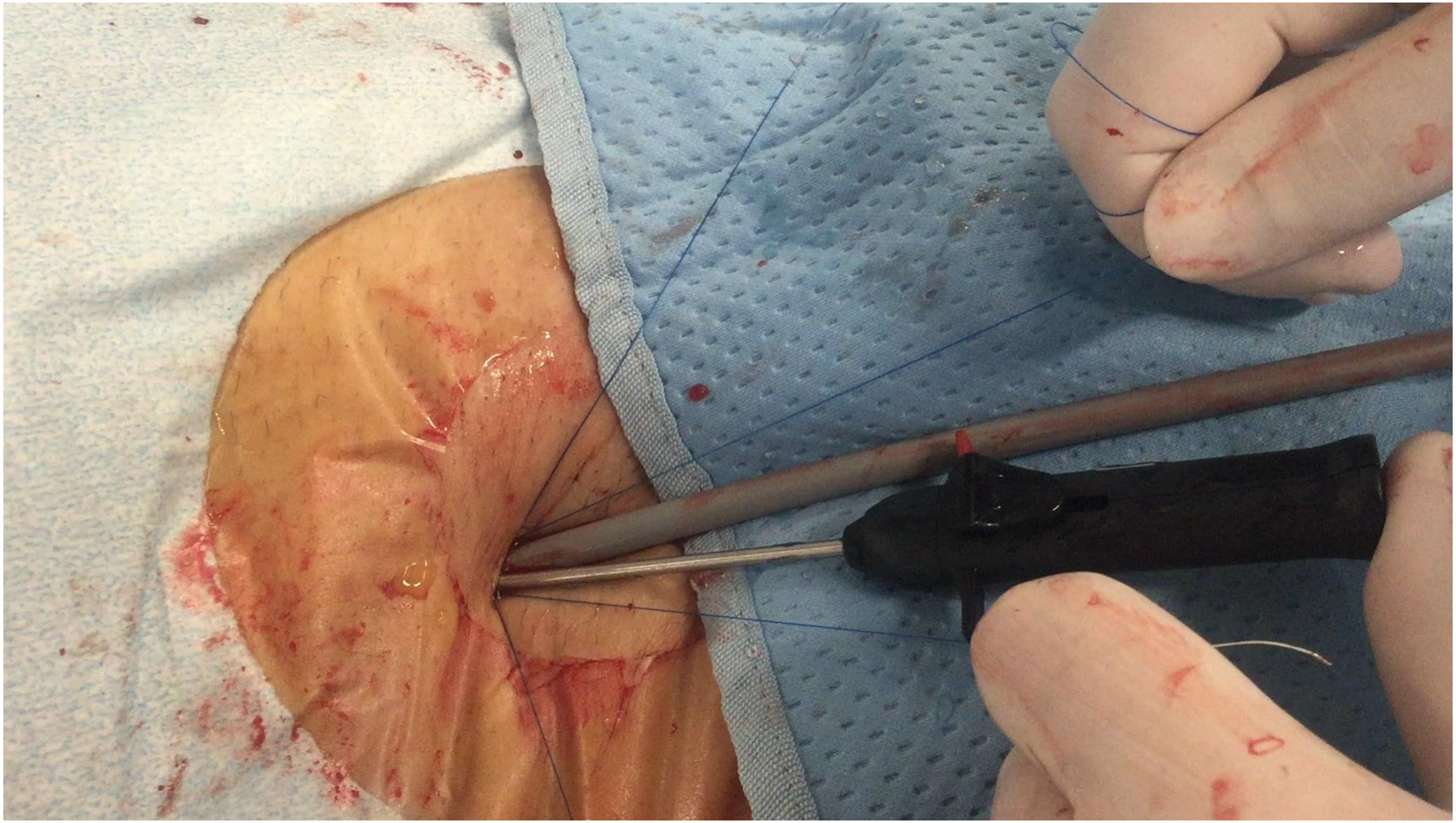








4. Progressive closure



5. Post-closure duplex and CT follow-up access sites examination

A Systematic Literature Review of the Efficacy and Safety of the Prostar XL Device for the Closure of Large Femoral Arterial Access Sites in Patients Undergoing Percutaneous Endovascular Aortic Procedures CME

Outcome	Effect measure	Absolute rate, *n*/N OR total patient number	Pooled result, effect size (95% CI) — random-effects model	Pooled result, effect size (95% CI) — fixed-effects model
Absolute rate of procedural success (access sites)	Average success rate with Prostar XL	624/692	91% (87%–95%)	92% (91–94%)
Absolute rate of procedural success (patients)	Average success rate with Prostar XL	426/481	89% (84%–94%)	92% (90–95%)
Total procedural time	Difference in procedural time between Prostar XL and surgical cut-down (weighted mean)	$N = 193$	62.4 (27.8–97.1) min	66.1 (57.7–74.4)
Complication rate	Risk ratio for complications (risk with Prostar XL 10 vs. Risk with surgical cut-down)	$N = 189$	0.87 (0.41–1.88)	0.94 (0.51–1.72)

The Prostar XL is an effective and safe device for use in percutaneous closure of large femoral artery sites, comparable to open surgical femoral artery cut-down

Haulon S et al., Eur J Vasc Endovasc Surg 2011

Outcomes of total percutaneous endovascular aortic repair for thoracic, fenestrated, and branched endografts

2009-2014: 102 pts; total percutaneous closure was performed using two Perclose devices in 170 femoral arteries with ≥20F-diameter sheaths in 163 (96%)

- *Technical success: 95%*
- *3 thrombosis, 1 retrop hematoma, 1 pseudoaneurysm*
- *No access-related complications >30 days*

Table II. Aneurysm extent and sheath size in 102 patients treated by thoracic, fenestrated, and branched stent grafts using percutaneous closure

Variable	*No. (%)*
Type of repair	
Pararenal	48 (47)
Thoracoabdominal	27 (26)
Thoracic	19 (19)
Aortoiliac	8 (8)
Sheath size (by artery)	
<20F	7 (4)
≥20F	163 (96)

The rate of access related complications (5%) is similar to that reported for PEVAR of infrarenal AAAs using smaller-profile devices.

De Souza LR et al., J Vasc Surg 2015

Italian Percutaneous EVAR (IPER) Registry: outcomes of 2381 percutaneous femoral access sites' closure for aortic stent-graft

G. PRATESI [1], M. BARBANTE [1], R. PULLI [2], A. FARGION [2], W. DORIGO [2]
R. BISCEGLIE [1], A. IPPOLITI [1], C. PRATESI [2] on behalf of IPER Registry Collaborators

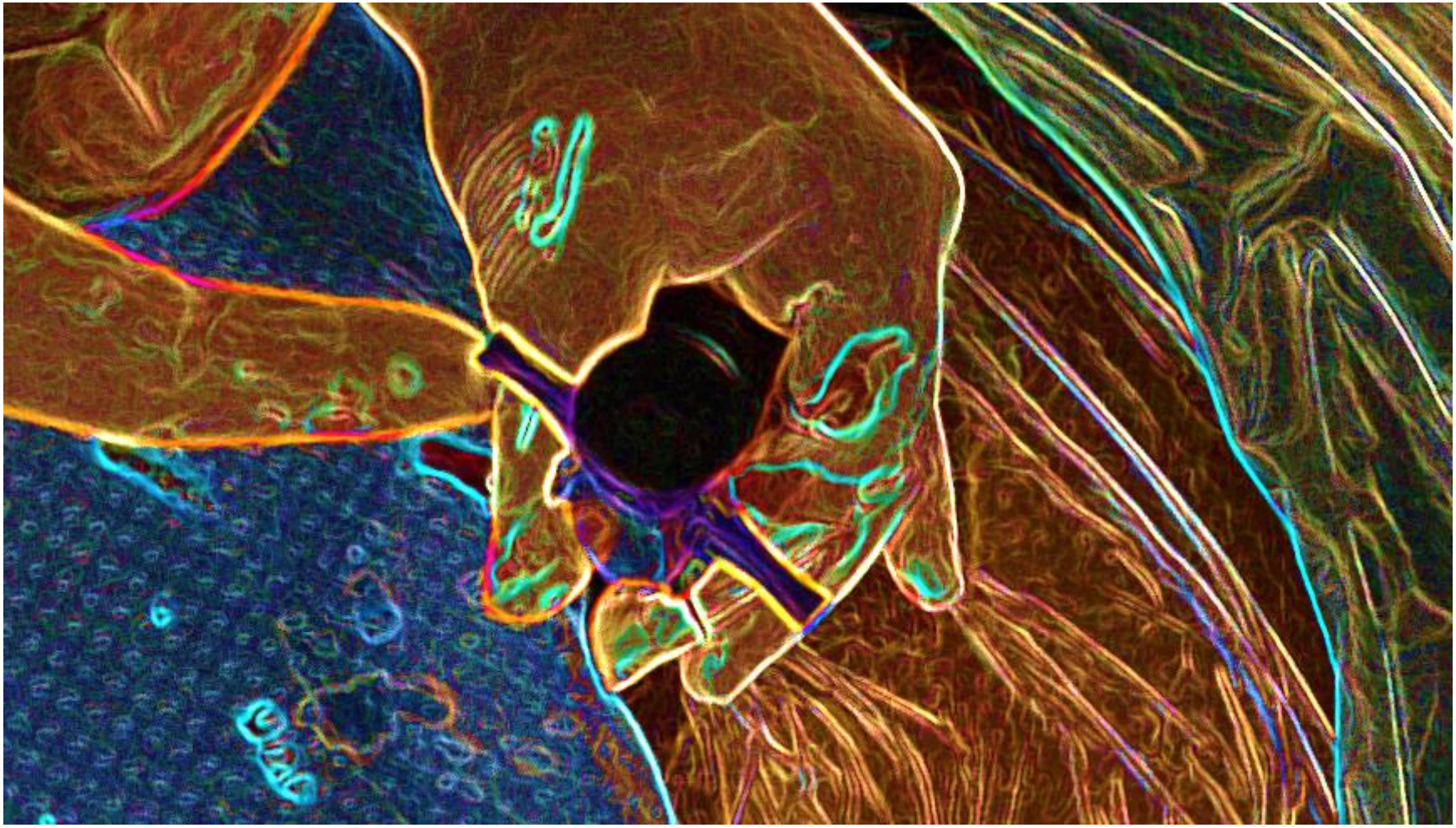
192 TEVAR/f-bEVAR
Technical success: 96.9%

2189 EVAR
Technical success: 96.3%

	TEVAR/f-bEVAR (192/2381)	EVAR (2189/2381)	*p*
Fr device (mean ± SD)	21.3 ± 2.1	16.7 ± 3.4	.03
Profile > 20 Fr	54 (43.5%)	482 (21.3%)	.001
CFA diameter, mm (mean ± SD)	8.4 ± 1.7	8.2 ± 1.4	.15
CFA < 7 mm	9 (7.2%)	163 (7.2%)	.54
High CFA bifurcation	2 (1.6%)	64 (2.8%)	.32
CFA stenosis >50%	6 (4.8%)	66 (2.9%)	.16

J Cardiovasc Surg 2015

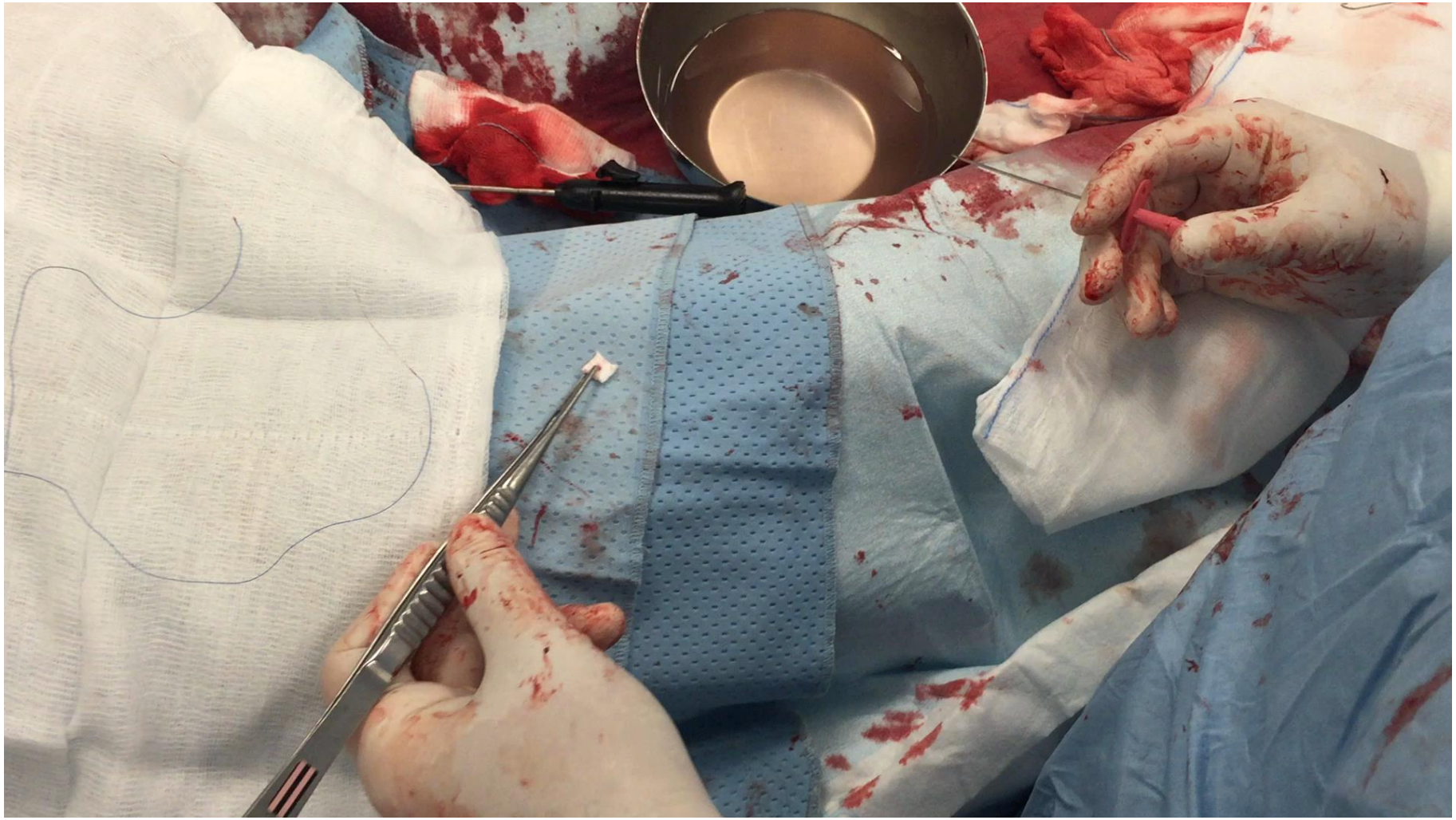
How to improve outcomes in pEVAR: tips & tricks



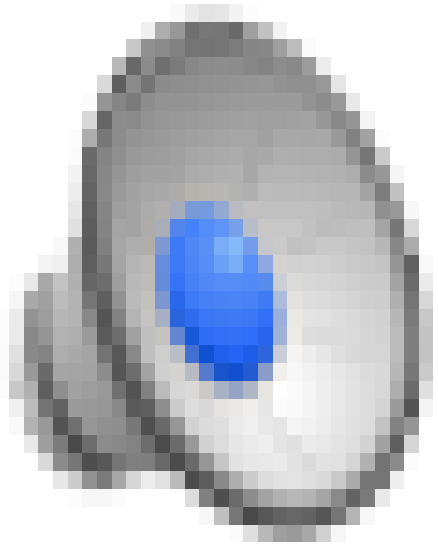
pEVAR tips & tricks: one Proglide up to 14F femoral access

pEVAR tips & tricks:
sheath downsizing during complex f/bEVAR

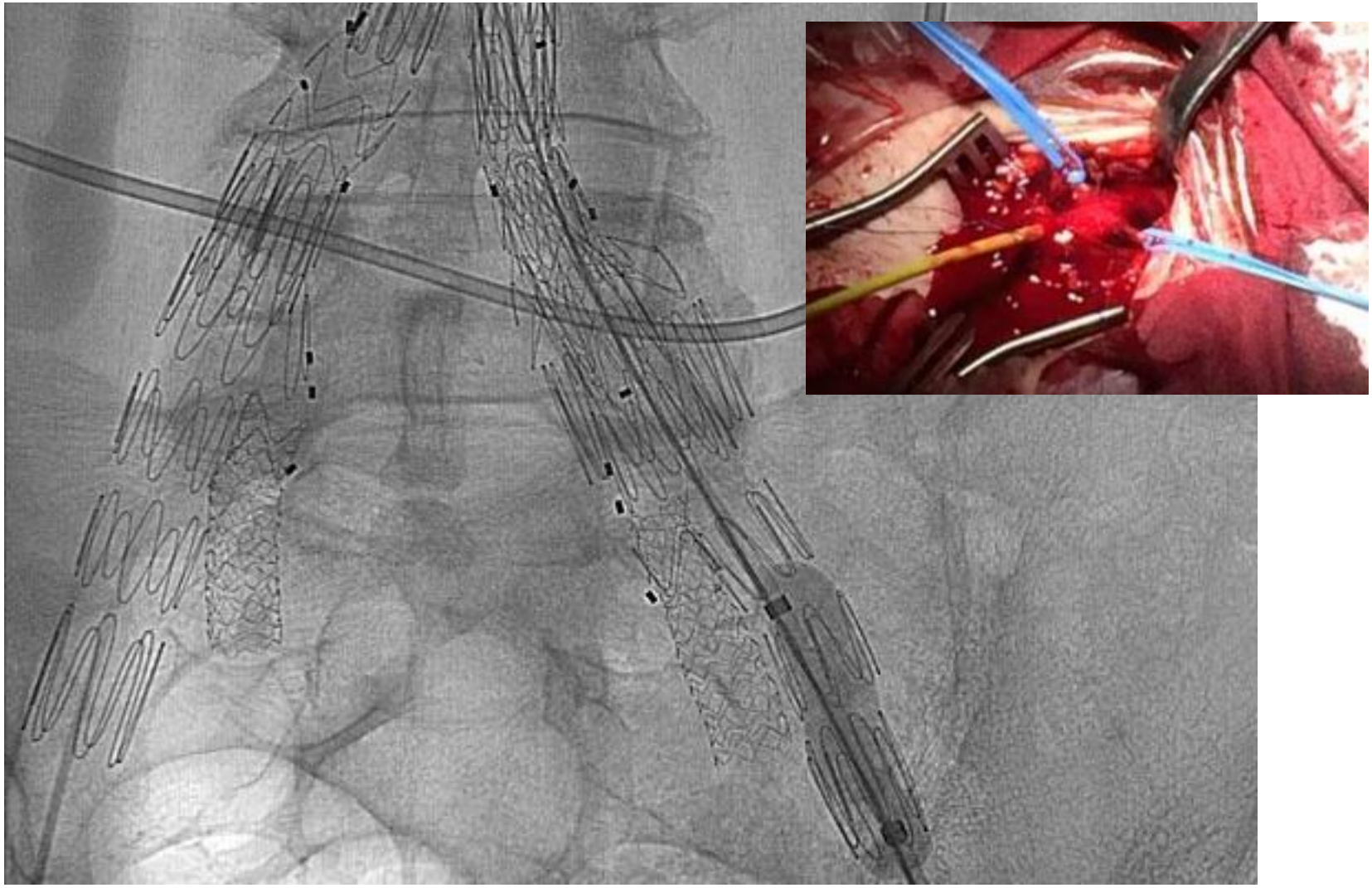
pEVAR: tips & tricks
pledgets with minor bleeding



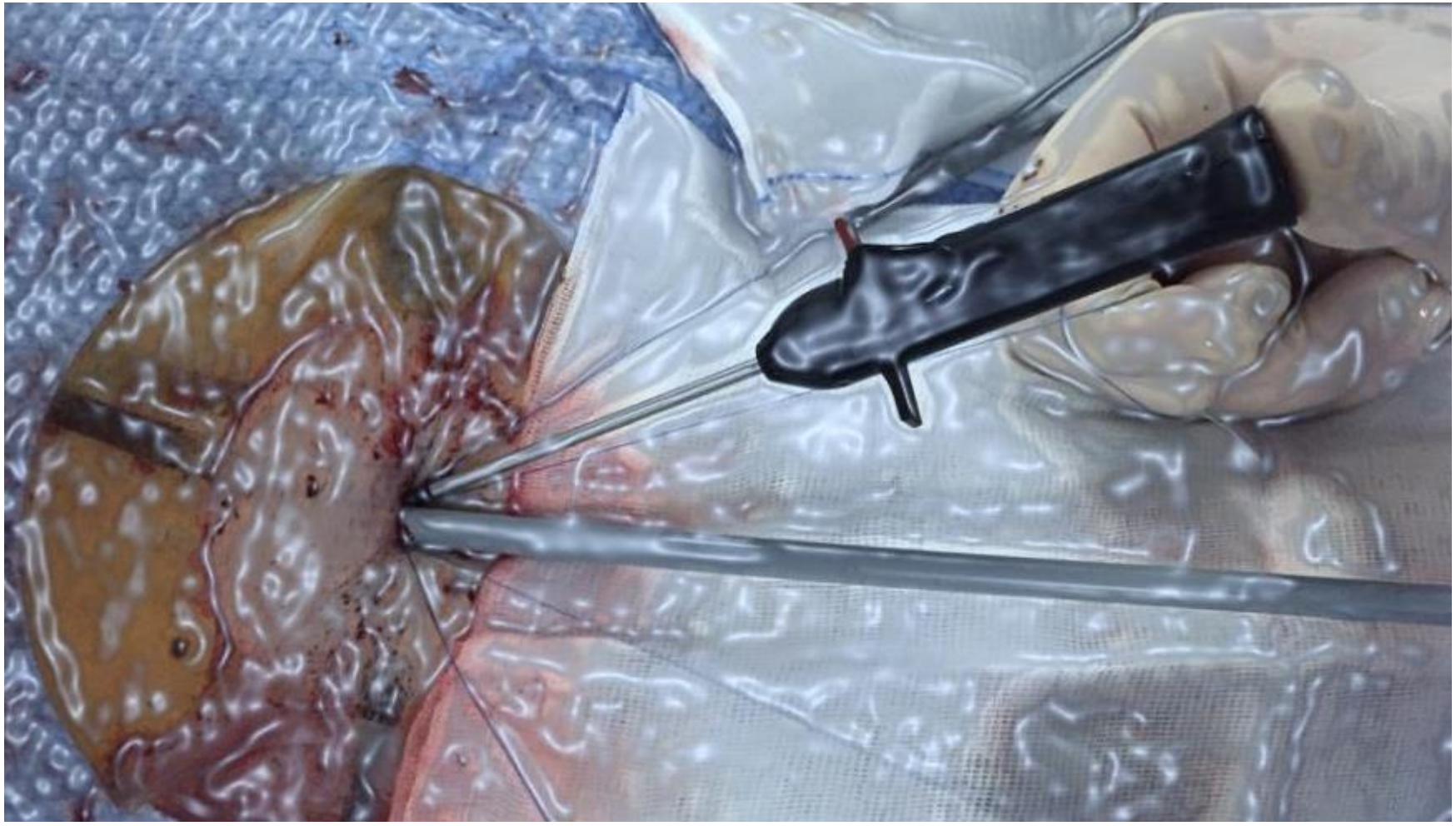
pEVAR: tips & tricks
third Proglide if you are not satisfied



pEVAR: tips & tricks
endoclamping in case of failure

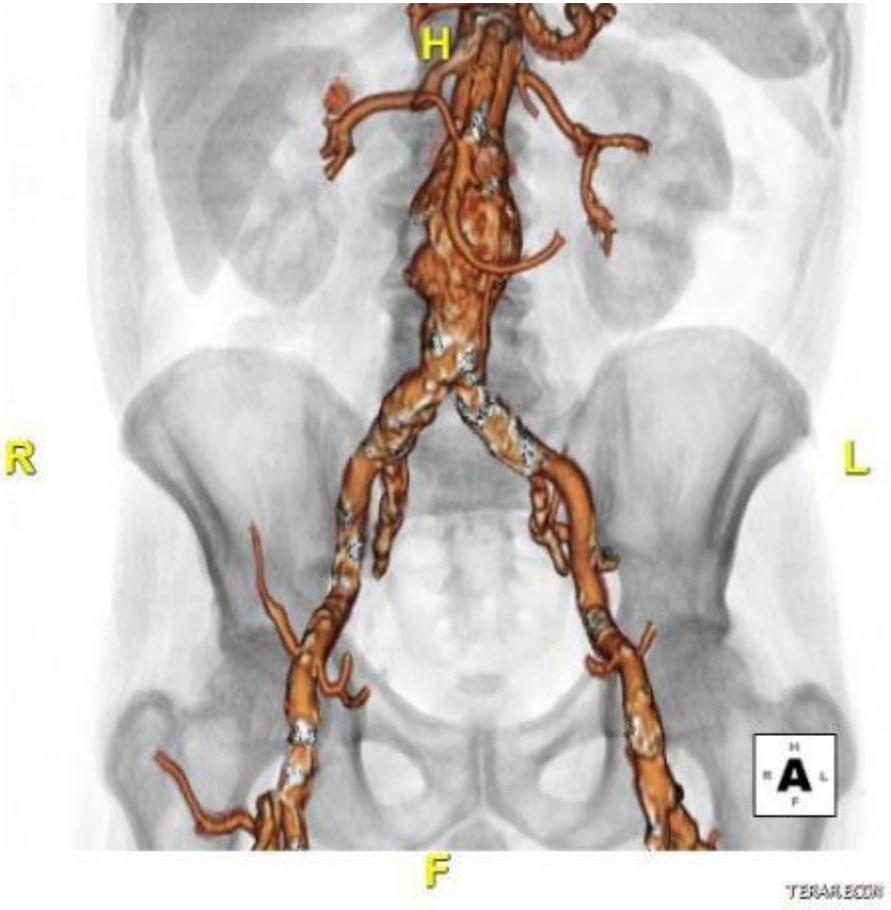


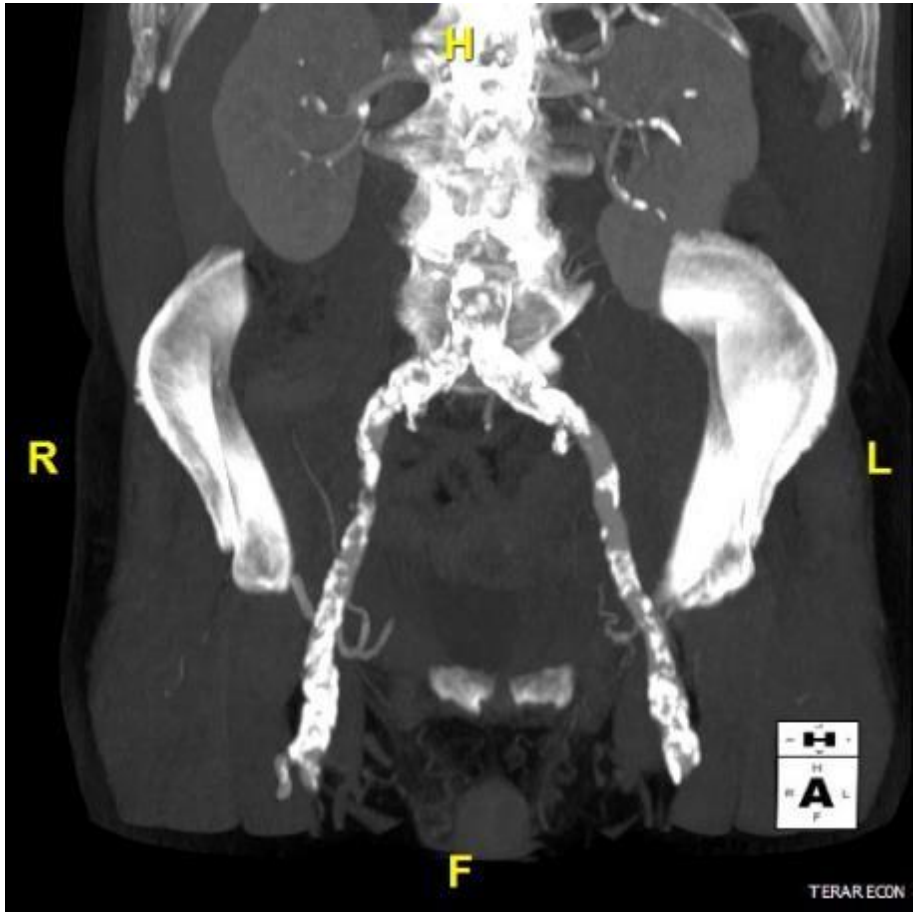
Expanding pEVAR applicability: toward a 100% percutaneous closure



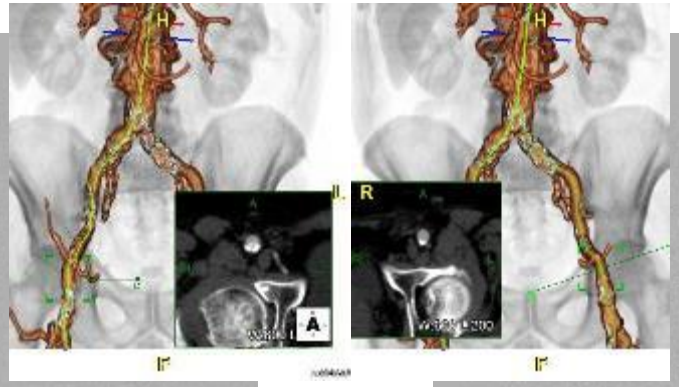
Expanding pEVAR applicability: obese patient

Expanding pEVAR applicability: calcified common femoral arteries





Expanding pEVAR applicability: calcified common femoral arteries



Expanding pEVAR applicability: calcified common femoral arteries