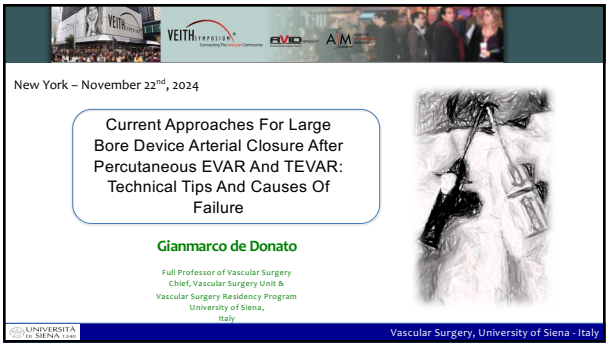

New York – November 22nd, 2024

Current Approaches For Large Bore Device Arterial Closure After Percutaneous EVAR And TEVAR: Technical Tips And Causes Of Failure

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University of Siena,
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Disclosure

Speaker's name: Gianmarco de Donato

x **I have the following** potential conflicts of interest to report:

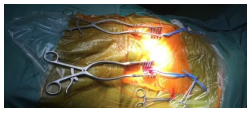
- ❑ Research contracts
- x Travel & educational grants (Endologix, Gore, Penumbra, Terumo)
- ❑ Employment in industry
- ❑ Stockholder of a healthcare company
- ❑ Owner of a healthcare company
- ❑ Other(s)

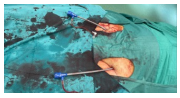
❑ **I do not have any potential conflict of interest**

Guidelines

- Cutdown or percutaneous closure

Recommendation 60		Changed
For endovascular abdominal aortic aneurysms repair, the choice of percutaneous access or cut down should be considered based on patient factors and operator preferences.		
Class	Level	References ToE
IIa	B	Antoniou and Antoniou (2021)[183]



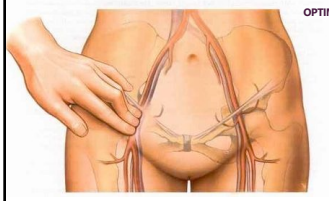


CLINICAL PRACTICE GUIDELINE DOCUMENT

European Society for Vascular Surgery (ESVS) 2024 Clinical Practice Guidelines on the Management of Abdominal Aorto-Iliac Artery Aneurysms[10]

EJVES 2024

Anatomy of the groin



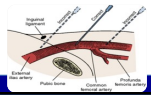
OPTIMAL PUNCTURE LOCATION

A correct puncture should be in the **Common Femoral Artery (CFA)**

Proximal or above
the bifurcation of Superficial (SFA) and Profunda Femoral Artery (PFA)

&

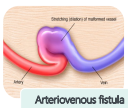
Distal or below
the Inguinal Ligament and Inferior Epigastric Artery (IEA)



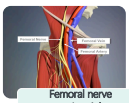
FEMORAL ACCESS SITE COMPLICATIONS

- Lower entry points:

Pseudoaneurysm

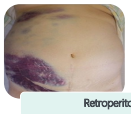


Arteriovenous fistula



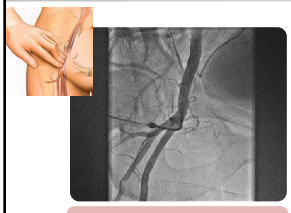
Femoral nerve compression / damage

- Higher entry points:



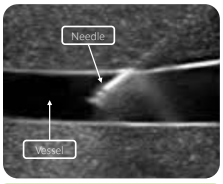
Retroperitoneal bleeding: Rare, high risk of morbidity / mortality

RECOMMENDED TECHNIQUES TO CONFIRM THE ACCESS SITE



Femoral Angiogram

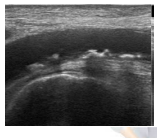
OR



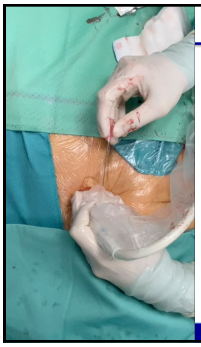
Ultrasound Guidance
Highly recommeded in both Access & Closure

RECOMMENDED TECHNIQUES TO CONFIRM THE ACCESS SITE

Fluoroscopy-guided puncture



DON'TS



DO'S

Identify the correct arterial puncture site, avoiding calcification and lateral or posterior wall punctures

Guidelines

- Cutdown or percutaneous closure
- Ultrasound guidance

Recommendation 60			Changed
For endovascular abdominal aortic aneurysms repair, the choice of percutaneous access or cut down should be considered based on patient factors and operator preferences.			
Class	Level	References	ToE
IIa	B	Antoniou and Antoniou (2021)[443]	

Recommendation 61			Changed
For endovascular abdominal aortic aneurysms repair by a percutaneous approach, ultrasound guidance is recommended.			
Class	Level	References	ToE
I	A	Sobolev *et al.* (2015),[442] Seto *et al.* (2010),[445] Kotronias *et al.* (2021),[444] Stone *et al.* (2020)[446]	

CLINICAL PRACTICE GUIDELINE DOCUMENT

European Society for Vascular Surgery (ESVS) 2024 Clinical Practice Guidelines on the Management of Abdominal Aorto-Iliac Artery Aneurysms[20]

EJVES 2024

Percutaneous closure technique

- Suture based
- Plug based

ProGlide 5 - 21 Fr *

Suture-based

Prostar XL 8.5 - 10 Fr

Suture-based

MANTA 12 - 25 Fr

Collagen-based

PerQseal < 24 Fr

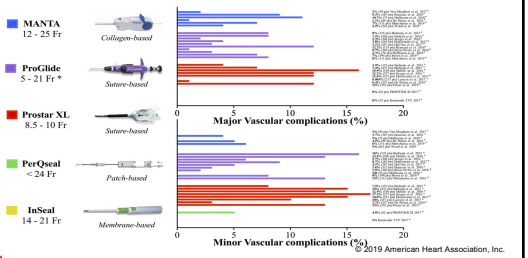
Patch-based

InSeal 14 - 21 Fr

Membrane-based

ANGIO-SEAL 6-8 Fr.

Circulation: Cardiovascular Interventions
Volume 12, Issue 7, July 2019
https://doi.org/10.1161/CIRCINTERVENTIONS.119.008203



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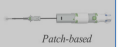


Patch-based

InSeal 14 - 21 Fr

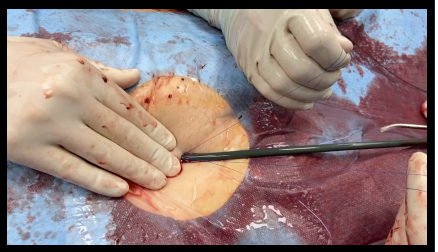
Membrane-based

ANGIO-SEAL 6-8 Fr.

THE HYBRID TECHNIQUE

Bail-out: 2 proglides + 6fr Angio-seal

19 Fr OD device removel



Access closure – protocol at University of Siena

- BAIL-OUT
  - ≤ 15 Fr → 1 proglide
  - > 15 Fr → 2 proglides

Angio-seal (6 or 8 fr based on bleeding amount)

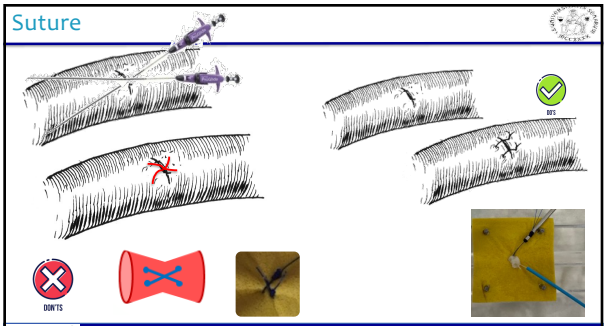
Access closure – protocol at University of Siena

- BAIL-OUT
  - ≤ 15 Fr → 1 proglide
  - > 15 Fr → 2 proglides

Angio-seal (6 or 8 fr based on bleeding amount)

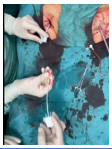
- PRIMARY STRATEGY
  - 14-18 Fr → 1 proglide + 6 Fr Angioseal
  - 18-22 Fr → 1 proglide + 8 Fr Angioseal
  - > 24 Fr → 2 proglide & angioseal (or cutdown)

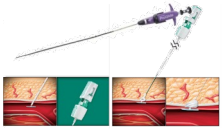
Suture



Rationale for Angioseal + proglide (hybrid techn)

1. **Dual mechanism of Angio-seal & proglide**
   - physical approximation due to suture/footplate & collagen plug
   - procoagulant properties of the collagen to enhance local haemostasis
2. **immediate hemostasis**
3. **Costs**

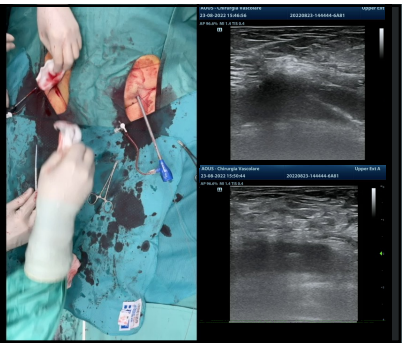




Hybrid closure Primary indication

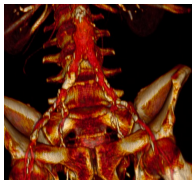
EVAR Endurant 18 Fr

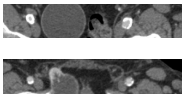
1 Proglide + 8Fr Angioseal



Case of failure

- Blind puncture
- Calcification *
- Obesity





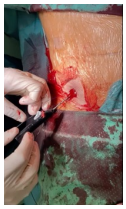
* Pratesi G, et al. Italian Percutaneous EVAR (IPER) Registry: outcomes of 2381 percutaneous femoral access sites' closure for aortic stentgrafi. J Cardiovasc Surg (Torino) 2015;56:889-98.

Technical tips & conclusions

Percutaneous approach is becaming the first-line approach for EVAR & TEVAR

Technical tips:

1. US guidance for access
2. Combination of suture- & plug-based systems
3. US guidance for closure



Piazza del Campo, Siena – Italy