

# How I do it: Access and Closure in (complex) EVAR

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# Large-bore access

| Company       | Device          | Size (French) |
|---------------|-----------------|---------------|
| Cook          | Zenith Flex™    | 18-22 F       |
| Medtronic     | Endurant II(s)™ | 18-20 F       |
| Artivion      | E-tegra™        | 18-20 F       |
| Terumo Aortic | Treo™           | 18-19 F       |
| Gore          | Excluder™       | 16-18 F       |
| Cook          | Zenith Alpha™   | 16-17 F       |
| Endologix     | AFX2™           | 17 F          |
| Endologix     | Ovation Alto™   | 15 F          |

# Access

## Surgical cut down

direct control of  
the artery

free choice of  
puncture site

useful in difficult  
anatomies (bypass, occlusive disease)



## Percutaneous

less invasive

quicker done

quicker recovery



# Surgical cut down

- 2 types : longitudinal or transverse
- risks of infection, lymphocele or lymphorrhoea
- less infections with the transverse cut down
- longer recovery

| Recommendation 60                                                                                                                                                                       |       |                                             | Changed |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------------------|---------|
| For endovascular abdominal aortic aneurysms repair, the choice of percutaneous access or cut down should be considered based on <u>patient</u> factors and <u>operator</u> preferences. |       |                                             |         |
| Class                                                                                                                                                                                   | Level | References                                  | ToE     |
| IIa                                                                                                                                                                                     | B     | Antoniou and Antoniou (2021) <sup>441</sup> |         |

# Percutaneous access

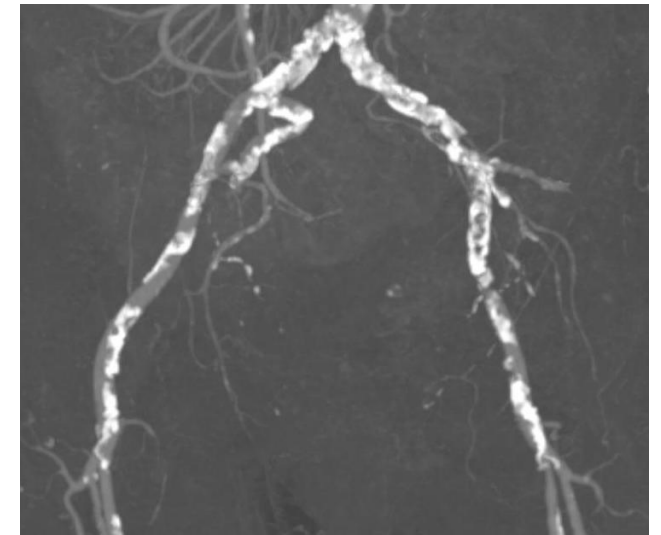
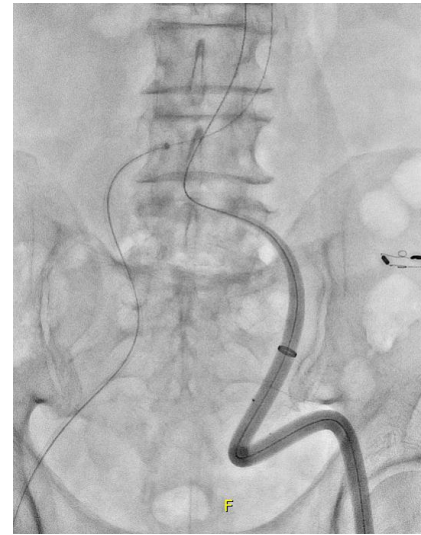
- patent femoral artery needed
- calcifications are predictor factor of failure
- ultrasound guidance required



| Recommendation 61                                                                                                  |       |                                                                                                                                                                                          | Changed |
|--------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| For endovascular abdominal aortic aneurysms repair by a percutaneous approach, ultrasound guidance is recommended. |       |                                                                                                                                                                                          |         |
| Class                                                                                                              | Level | References                                                                                                                                                                               | ToE     |
| I                                                                                                                  | A     | Sobolev <i>et al.</i> (2015), <sup>442</sup><br>Seto <i>et al.</i> (2010), <sup>443</sup><br>Kotronias <i>et al.</i> (2021), <sup>444</sup><br>Stone <i>et al.</i> (2020) <sup>445</sup> |         |

# Iliac access

Access for endovascular aortic repair is limited by anatomical features of the femoral and iliac arteries such as ***small size***, ***tortuosity*** and ***calcifications***



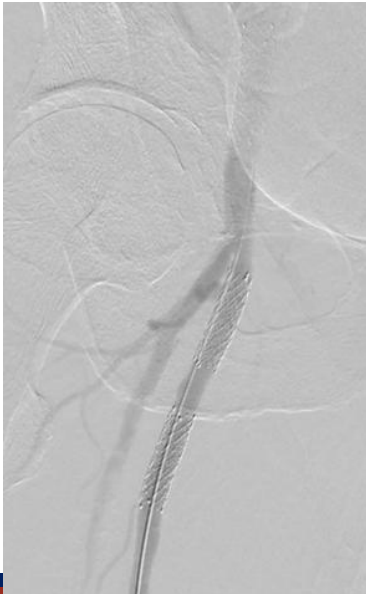
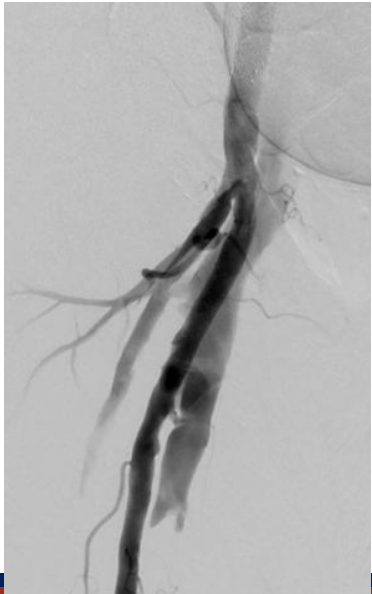
# Solutions for iliac access

- preoperative planning with CT angiography ! Looking for :
  - 1) size (1 French = 0,3 mm)
  - 2) tortuosity
  - 3) calcifications
- support wire (Lunderquist<sup>TM</sup>)
- predilation
- prestenting, pave and crack
- intravascular lithotripsy (Shockwave<sup>TM</sup>)
- dacron conduit

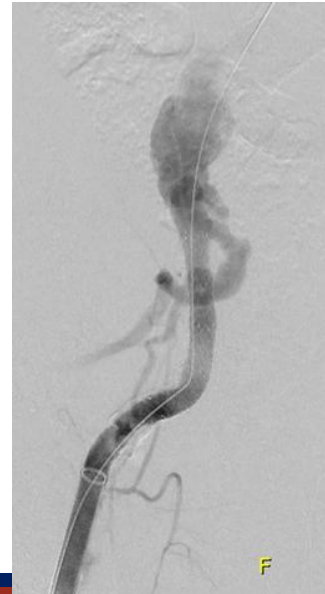
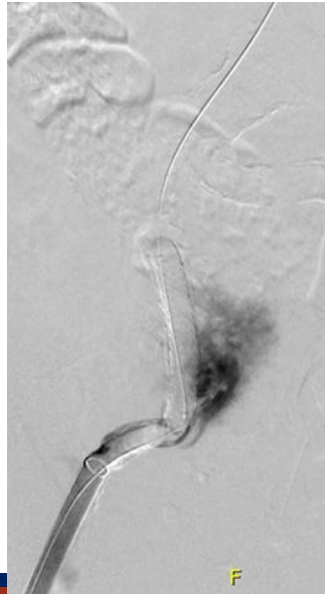
# Solutions for iliac access

- through and through (subclavian-femoral or femoro-femoral)
- in case of trouble, inflate a balloon to stop the bleeding

***arterio-venous  
fistula***



***arterial rupture***



***stripping  
of the  
external  
iliac***



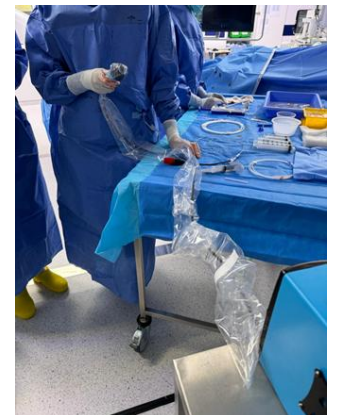
# Intravascular lithotripsy

- Intravascular lithotripsy (IVL) may be used to treat narrow and calcified iliac and femoral arteries to facilitate endograft delivery.
- By facilitating endograft delivery through narrow and calcified access, IVL increases the feasibility and safety of endovascular aortic procedures.

Fazzini S, Pennetta FF, Torsello G, et al. Intravascular Iliac Artery Lithotripsy to Facilitate Aortic Endograft Delivery: Midterm Results of a Dual-Center Experience. J Endovasc Ther. 2025 Dec;32(6):2183-2195.

Fazzini S, Turriziani V, Lomazzi C, et al. Mid-term outcomes of Shockwave intravascular lithotripsy in the IVLIAC Registry for the treatment of calcified iliac occlusive disease. J Vasc Surg. 2025 Oct;82(4):1366-1374.e3.

Nwachukwu C, Garg K. Lithotripsy-assisted femoral artery access for percutaneous endovascular aortic repair. J Vasc Surg Cases Innov Tech. 2025 Jun 26;11(6):101899.

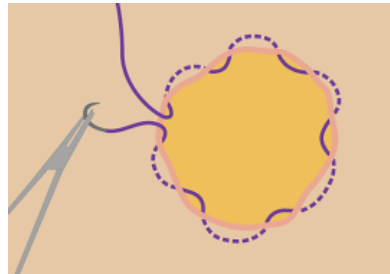


# Closure

## Surgical cut down

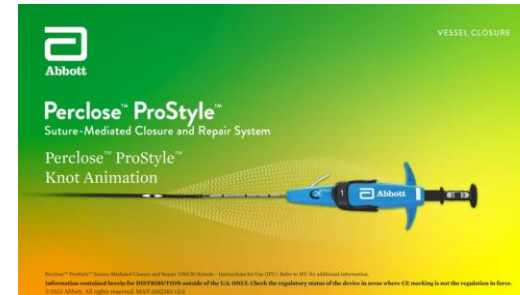
direct arterial or bypass repair

stitches, running or purse-string suture

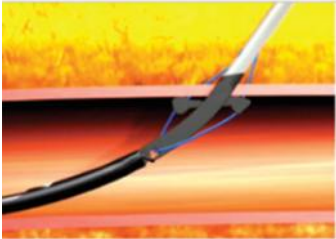


## Percutaneous

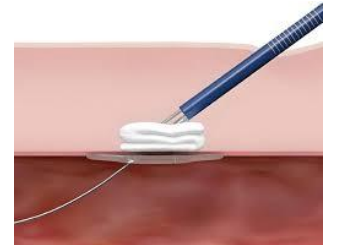
closure devices



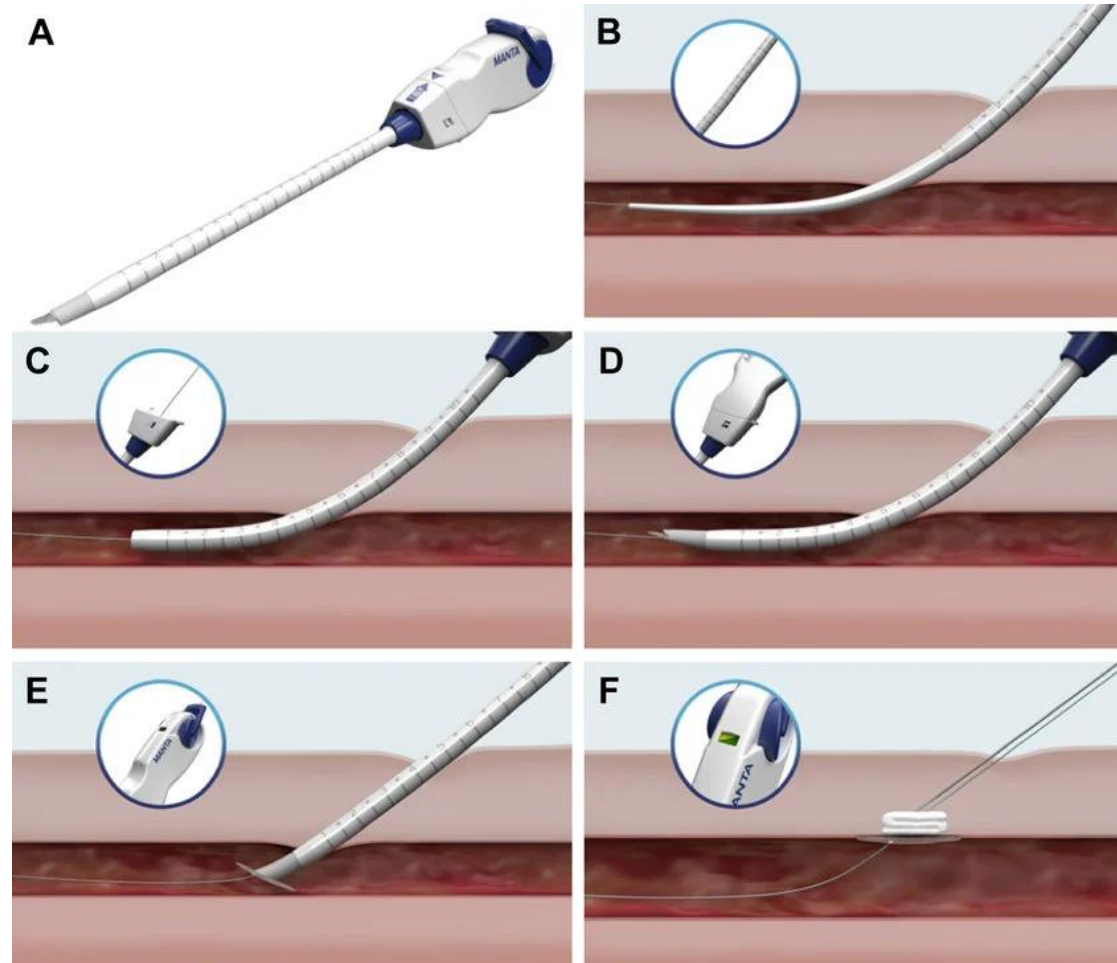
# Closure devices



| Perclose™ Prostyle™  | Manta™                |
|----------------------|-----------------------|
| Abbott               | Teleflex              |
| suture-based (activ) | plug-based (passiv)   |
| 1 type               | 2 types (14 and 18 F) |
| preclosing           | no preclosing         |
| 2 devices/hole       | 1 device/hole         |
| up to 21 F           | up to 25 F            |
| radiolucent          | radiopaque            |



# Manta™



# Perclose™ Prostyle™





ORIGINAL ARTICLE - CLINICAL SCIENCE | [Open Access](#) | 

**Outcomes with plug-based versus suture-based vascular closure device after transfemoral transcatheter aortic valve replacement: A systematic review and meta-analysis**

[This article relates to:](#) 

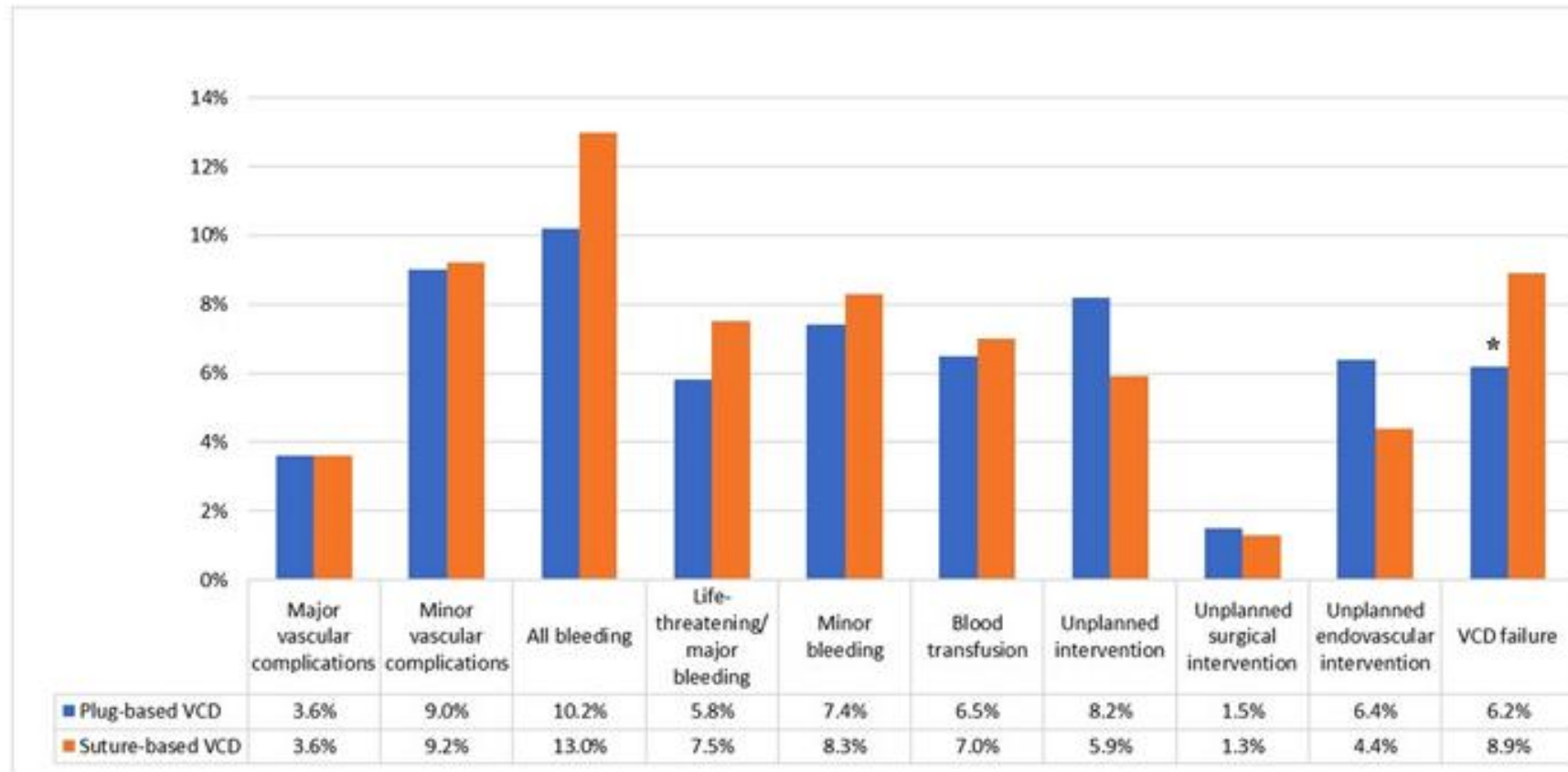
[Ramy Sedhom MD](#), [Alexander T. Dang MD](#), [Amr Elwagdy MD](#), [Michael Megaly MD](#), [Islam Y. Elgendy MD](#),  
[Firas Zahr MD](#), [Samir Gafoor MD](#), [Mamas Mamas MD](#), [Ayman Elbadawi MD](#) 

First published: 19 February 2023 | <https://doi.org/10.1002/ccd.30597> | [VIEW METRICS](#)

- 2 RCTs and 8 observational studies, for TAVI
- 1358 patients with Manta™ vs 1755 patients with ProGlide™/ProStar XL™
- for the 2 RCTs, **8,2%** of vascular and bleeding complications for Manta™ vs **5,9%** for Proglide™/ProStar XL™

# Closure devices

## (B) Outcomes with plug-based vs. suture-based VCDs



\* P=0.002

CLINICAL RESEARCH STUDY | ABDOMINAL AORTIC AND ILIAC ARTERY ANEURYSMS · Volume 82, Issue 4, P1226-1231, October 2025

## Single-center comparative study of MANTA and ProGlide vascular closure devices in percutaneous endovascular aneurysm repair

[Rens Jorn Oosterveld, MD](#) <sup>a,b</sup> · [Chrissy van Wely, MD](#) <sup>a,b</sup> · [Pieter Bartholomeus Salemans, MD](#) <sup>a</sup> · [Ruben Nouwens, BSc](#) <sup>c</sup> ·

[Lee Hans Bouwman, MD, PhD](#) <sup>a,b</sup> · [Ozan Yazar, MD, PhD](#) <sup>a</sup>  

[Affiliations & Notes](#)  [Article Info](#) 



| device                       | Manta™ | ProGlide™ |
|------------------------------|--------|-----------|
| number of femoral access     | 325    | 186       |
| technical failure            | 8,3 %  | 15,1 %    |
| improper sealing             | 5,8 %  | 13,9 %    |
| bleeding after the procedure | 1,2 %  | 1,6 %     |
| surgical cut down            | 4,6 %  | 4,8 %     |

- Both are safe in pEVAR
- ProGlide™ has a lower first success rate, solved by adding another device
- ProGlide™ was less expensive to use than Manta™

# Conclusions

- access and closure are critical determinants of EVAR success
- proper access planning is essential
- ultrasound guidance improves safety
- closure devices enable percutaneous EVAR



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Arnaud Kerzmann, Jâd Abi-Khalil, Carlo Caravaggio, Bernard Segers

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