Paris Vascular Insights Course

Intravascular iliac artery lithotripsy to perform fenestrated endovascular aortic repair

#PVI25

Kerzmann A, Boesmans E, Granato R, Desiron Q, Tchana-Sato V

Liege Aortic Center, Belgium

11-13 December 2025

Statement of financial interest

Speaker's name : Arnaud Kerzmann

I currently have, or have had over the last two years, an affiliation or financial interests or interests of any order with a company or I receive compensation or fees or research grants with a commercial company :

- ☑ I have the following potential conflicts of interest to report
- Consulting fees - BD
- Consulting fees - Boston Scientific
- Consulting fees - DMB Medical
- Consulting fees - Artivion
- Consulting fees - Meril Life

Introduction

- For most patients with suitable anatomy and reasonable life expectancy, endovascular therapy is the preferred treatment modality for elective aortic aneurysm repairs.[1]

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

- TEVAR, FEVAR and BEVAR need large-bore access, 18 French or more.

[1] Wanhainen A, Van Herzeele I, Bastos Goncalves F, et al. European Society for Vascular Surgery (ESVS) 2024 Clinical Practice Guidelines on the Management of Abdominal Aorto-Iliac Artery Aneurysms. Eur J Vasc Endovasc Surg. 2024 Feb;67(2):192-331.

Introduction

- Intravascular lithotripsy (IVL) may be used to treat narrow and calcified iliac and femoral arteries to facilitate endograft delivery.[2,3,4]

- We report one case of intravascular iliac artery lithotripsy prior to complex fenestrated endovascular aortic repair.

[2] 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.

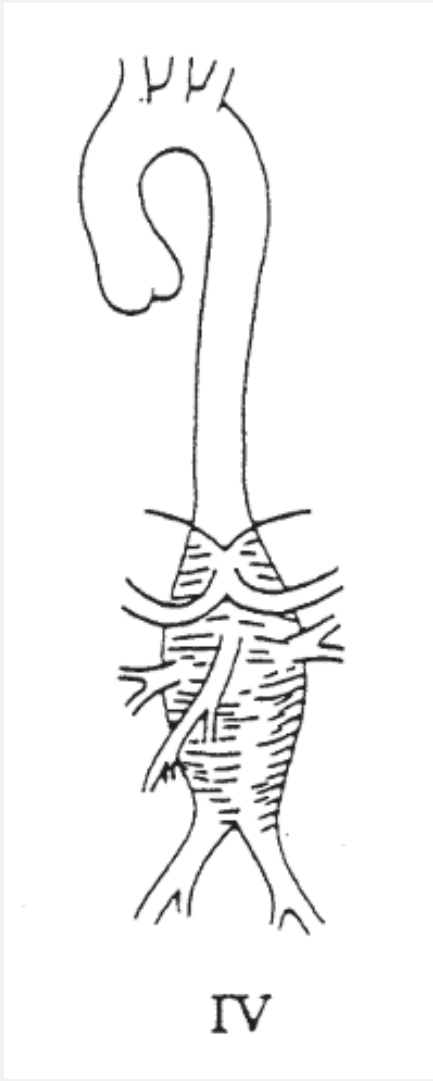
[3] Fazzini S, Turriziani V, Lomazzi C, et al. Mid-term outcomes of Shockwave intravascular lithotripsy in the IVLIAC Registry for the treatment of calcified iliac occlusive disease. J Vasc Surg. 2025 Oct;82(4):1366-1374.e3.

[4] 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.

Case report

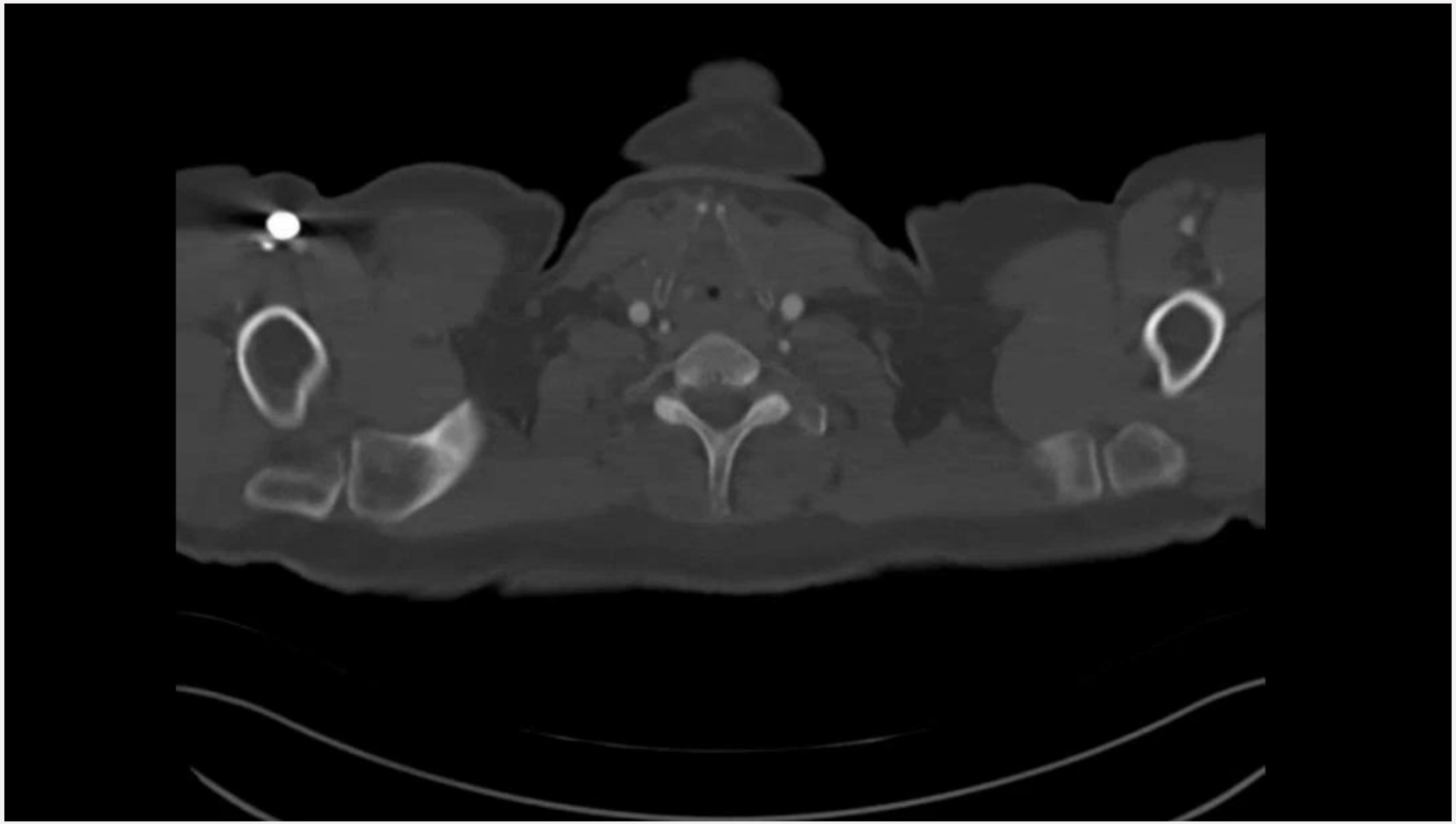
- 62-year-old man
- Arterial hypertension, dyslipidemia, smoking habit
- Ischemic cardiopathy with CABG
- Chronic obstructive pulmonary disease
- PTA with stents of both external iliac arteries
- Venous femoropopliteal bypass both side

- Type 4 TAAA[5]



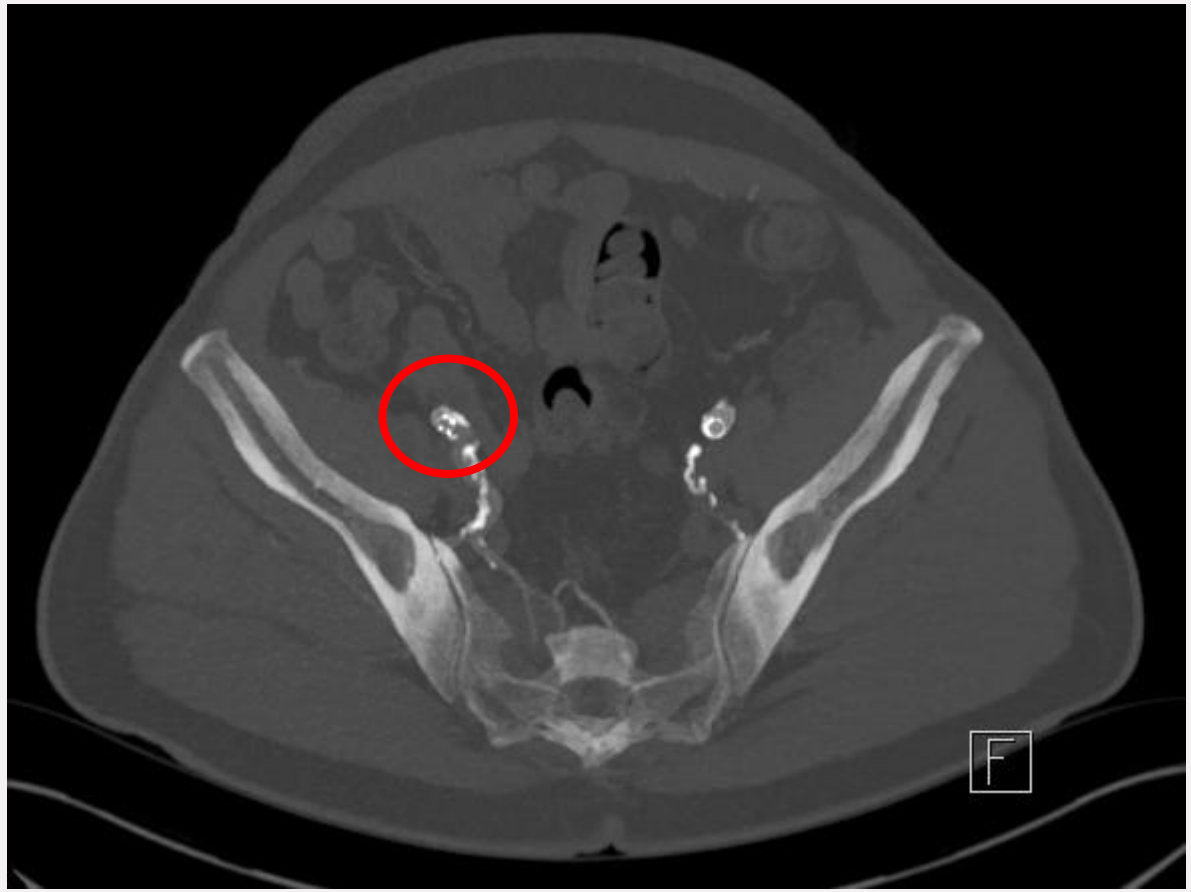
[5] Crawford ES, DeNatale RW. Thoracoabdominal aortic aneurysm: observations regarding the natural course of the disease. J Vasc Surg 1986; 3: 578–582.

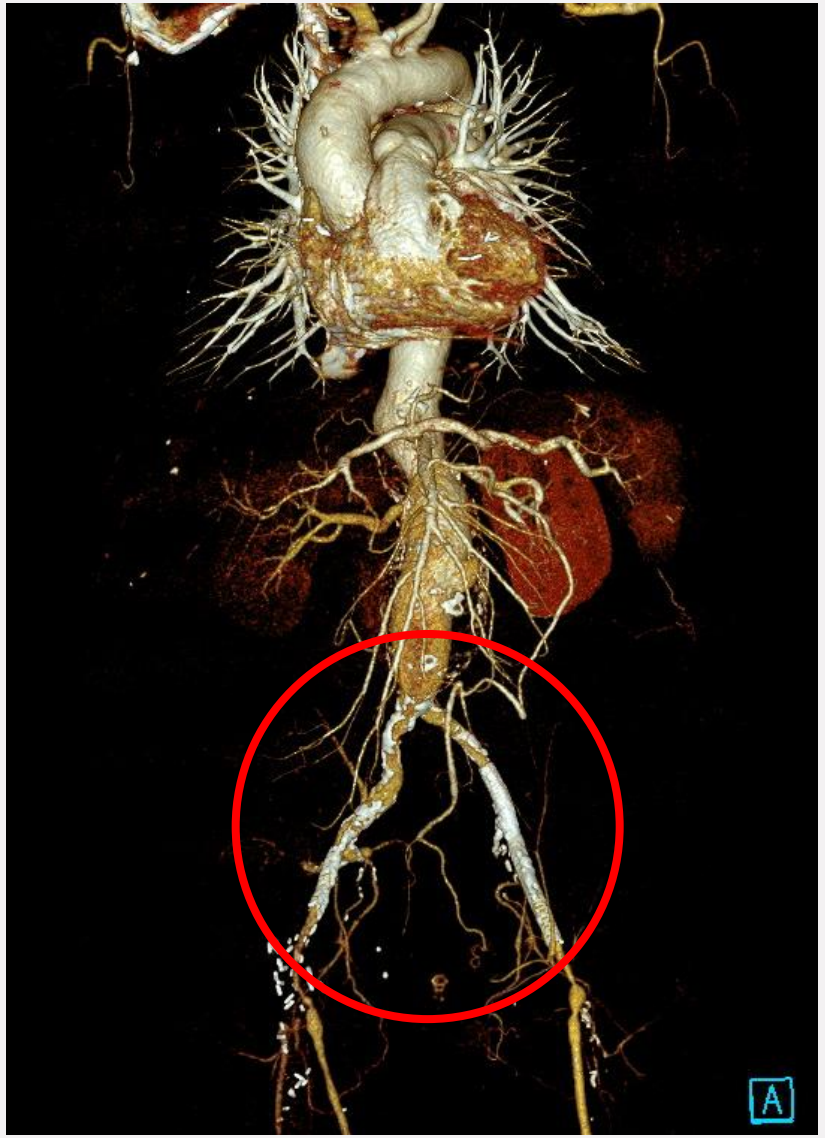
Case report



- Maximal diameter 55 mm
- Narrow, calcified and stented external iliac arteries, 4 mm right and 5,5 mm left
- Right renal artery stenosis

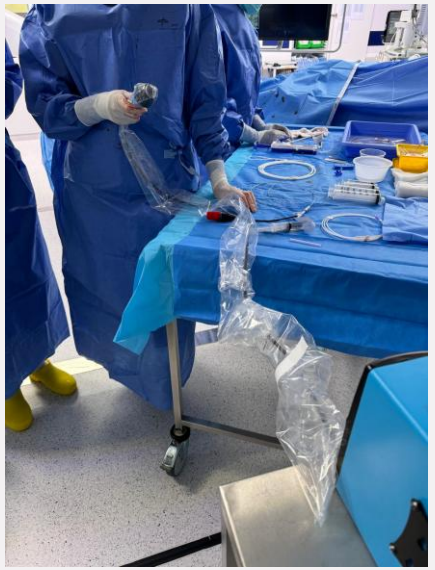
Case report



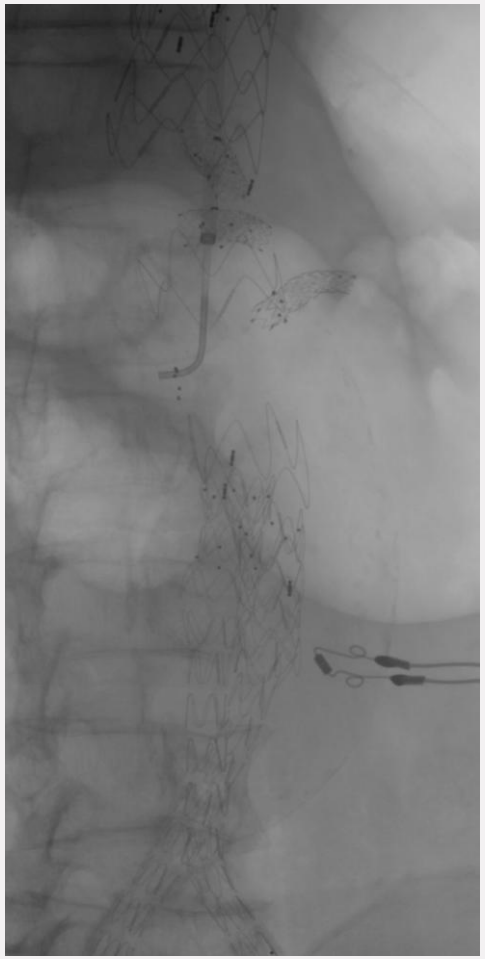


Case report

- Under general anesthesia, surgical cut-down for both femoral access
- IVL with 6 mm M5 + Shockwave™ balloon in both external iliac arteries
- Post-dilation with 7 mm balloon, without stenting
- 18 French main body through the right external iliac artery and 14 French sheath through the left one



Case report



- FEVAR performed in 2 steps
- Impossible to catheterize the right renal artery
- Procedure stopped due to too much irradiation and contrast medium toxicity
- 2 months later, still impossible to catheterize the right renal artery
- Closure of the fenestration with a stent and a plug inside

Case report

- Complications after the 1st step :
- right leg ischemia treated by endarterectomy 2 days later
- acute kidney injury AKIN stage 1

- Computed tomography angiography after 7 months on the left of the slide
- Normal blood creatinine level

Conclusions

- Intravascular iliac artery lithotripsy to enable large-bore vascular access is feasible and safe, even in stents.
- By facilitating endograft delivery through narrow and calcified access, IVL increases the feasibility and safety of endovascular aortic procedures.[2,3]
- Its use is growing.
- Limitations are too small arteries and the device’s cost.