



HỘI NGHỊ KHOA HỌC CÔNG NGHỆ BỆNH VIỆN BÌNH DÂN LẦN THỨ 21  
21<sup>st</sup> SCIENTIFIC CONGRESS OF BINH DAN HOSPITAL

# CISE

2025

KẾT NỐI CHUYÊN GIA NGOẠI KHOA QUỐC TẾ  
CONNECTING INTERNATIONAL SURGICAL EXPERTS





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2025

**CHU**  
de Liège

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SURGICAL EXPERTS

# Endovascular reconstruction without contrast medium for aortic bifurcation occlusive disease

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# Disclosures

Consulting :

Boston Scientific, BD

Grant/research support :

Medicor, DMB Medical, Medtronic, Biotronik, iVascular,  
Abbott



# Introduction

The **C**overed **E**ndovascular **R**econstruction of **A**ortic **B**ifurcation (CERAB) technique was introduced in 2009.<sup>1</sup>

The CERAB technique is a safe and effective endovascular treatment for aortic bifurcation occlusive disease.<sup>2</sup>

Results<sup>3</sup> :

technical success rate	30-day systemic complications	overall primary patency rate at 3 years	claudication primary patency rate at 3 years	TASC D primary patency rate at 3 years	secondary patency rate at 3 years
95,9 %	6,4 %	83,8 %	89,4 %	70,4 %	97 %



# Introduction

Contrast media such iodinated agents and CO<sub>2</sub> are used to perform the CERAB technique.

Some patients have chronic kidney disease or iodine allergy, what is against the use of iodinated contrast medium.

CO<sub>2</sub> angiography is not always available.

Aim : to evaluate the feasibility of the CERAB technique with intravascular ultrasound (IVUS) and fluoroscopy without contrast medium.



# Patient history

73-year-old woman

Rutherford stage 3 left limb peripheral arterial disease (PAD)

Walking distance : 30 meters

Arterial hypertension, dyslipidemia, type 2 diabetes, no smoking

Physical examination : - palpable pulses on the right side

- weak left femoral pulse

- no palpable pulses at the left ankle

- ABI = 1,1 on the right side

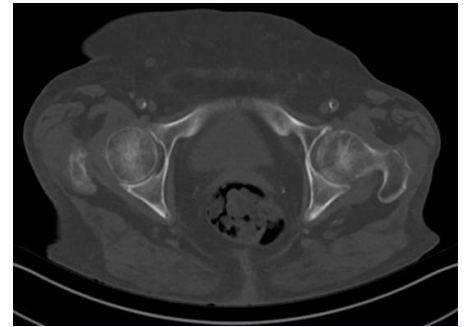
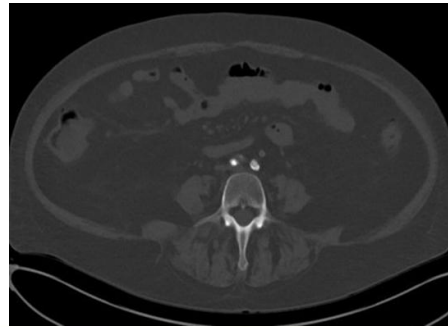
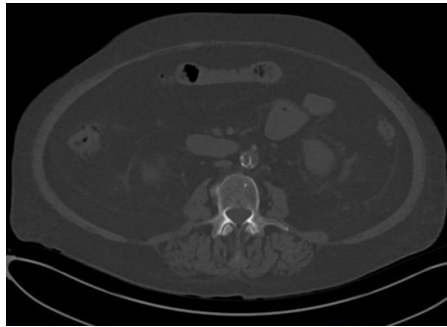
- ABI = 0,5 on the left side

# Patient history

Stage 5 chronic kidney disease with eGFR = 12  
ml/min/1,73m<sup>2</sup>

Duplex scan : patent common femoral arteries with  
attenuated signal on the left side

Computed tomography without contrast medium :



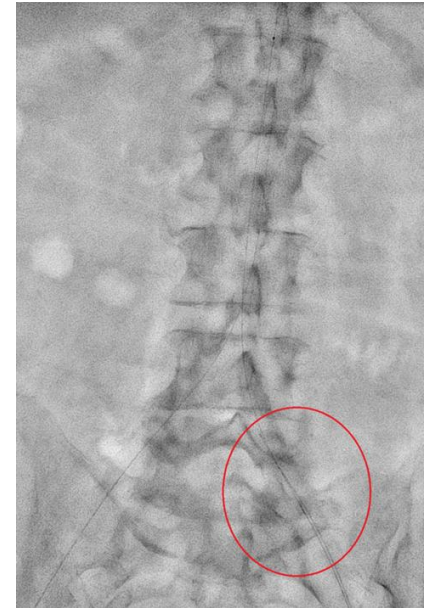
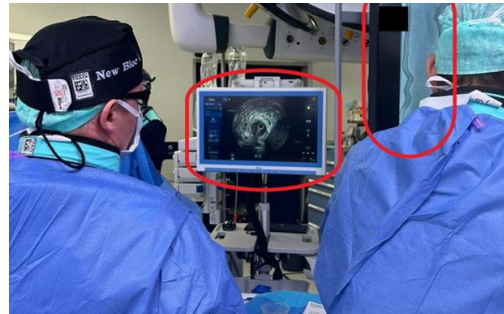
# Patient history

Strategy : free-contrast CERAB under fluoroscopy  
assisted by IVUS, under local anesthesia

Sizing was based on CT and IVUS images

IVUS was used to identify the level of the aortic  
bifurcation and of the iliac bifurcations

Those levels were  
sketched on the  
fluoroscopy screen

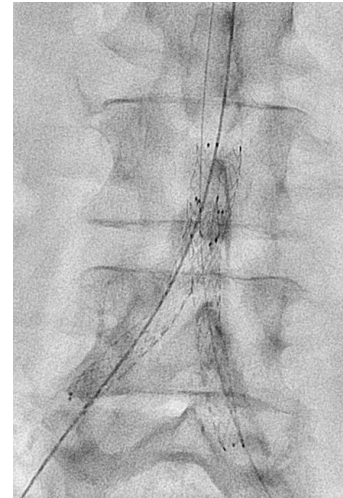
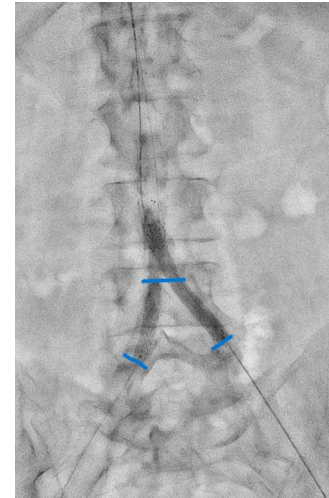
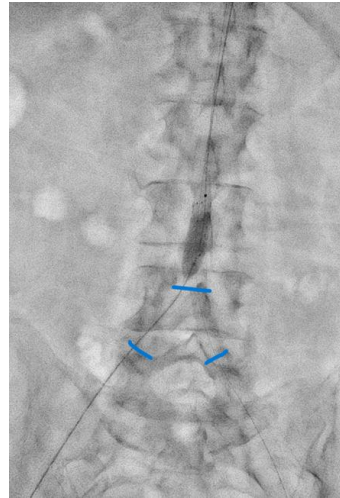


# Patient history

The covered stents were deployed under fluoroscopy at the level drawn on the screen

Covered stent 10-27  
(post-dilation with  
12 mm balloon) in the  
aorta

2 covered stents 7-57 in  
the iliacs





# Patient history

IVUS was used to check the stents position and opening

No complication

No eGFR further decline at short term

At six months follow up :

- Rutherford stage 0 PAD
- ABI = 1 on the right side and 1,1 on the left side
- stents patent at duplex scan
- start dialysis



## Discussion

Compared to angiography with contrast medium, IVUS offers a different view of the arterial lumen and wall.

It makes possible in-situ sizing, control of the wire intraluminal position and angioplasty assessment with wire still in place allowing intraoperative correction.

Addition of IVUS to angiography in PAD therapies improves stent patency and reduces reintervention rates.<sup>4</sup>



# Discussion

When used for the technical assessment of endovascular repair of the aortic bifurcation with kissing stents or CERAB, it can detect technical defect not seen at angiography in 25%.<sup>5</sup>

technical defects
stent compression/residual stenosis
dissection at the landing site
residual thrombus at the landing site

best indications for IVUS
narrow aortic bifurcation
heavily calcified total occlusion

The cost of IVUS is an issue, especially in the countries where there is no refund.



# Conclusions

Association of **IVUS with fluoroscopy** to perform percutaneous CERAB without contrast medium is feasible.

By **avoiding contrast medium**, it is a good alternative to angiography with iodinated agents or CO<sub>2</sub>.

It allows to **identify potential technical defect**, not viewable with angiography.



# References

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# Thanks you!

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