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Atherectomy with Drug-Eluting Balloon for Common Femoral Artery Occlusive Disease: One-Year Experience

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Disclosures

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Objectives

- Gold standard treatment for occlusive lesions of the common femoral artery used to be endarterectomy.
- In recent years, interest for endovascular treatment of the common femoral artery has been increasing¹.
- Stenting of the common femoral artery is possible^{1,2} but we believe it is better to avoid it. Calcified arterial lesions are not well treated with drug coated balloons alone³.

¹ Deloose K, Martins I, Neves C, Callaert J. Endovascular treatment for the common femoral artery: is there a challenger to open surgery? J Cardiovasc Surg. 2019;60:8-13.

² Gouëffic Y, Della Schiava N, Thaveau F, Rosset E, Favre JP, Salomon du Mont L, Alsac JM, Hassen-Khodja R, Reix T, Allaire E, Ducasse E, Soler R, Guyomarc'h B, Nasr B. Stenting or Surgery for De Novo Common Femoral Artery Stenosis. JACC Cardiovasc Interv. 2017;10:1344-1354.

³ Fanelli F, Cannavale A, Gazzetti M, Lucatelli P, Wlderk A, Cirelli C, d'Adamo A, Salvatori FM. Calcium burden assessment and impact on drug-eluting balloons in peripheral arterial disease. Cardiovasc Intervent Radiol. 2014;37:898-907.

Objectives

- Atherectomy followed by drug coated balloon angioplasty do better than atherectomy followed by plain old balloon angioplasty⁴.
- Our aim was to evaluate vessel preparation with rotational atherectomy followed by drug coated balloon angioplasty to treat common femoral artery calcified occlusive disease.

⁴Shammas NW, Shammas GA, Jones-Miller S, Shammas WJ, Bou-Dargham B, Shammas AN, Banerjee S, Rachwan RJ, Daher GE. Long-term outcomes with Jetstream atherectomy with or without drug coated balloons in treating femoropopliteal arteries: A single center experience (JET-SCE). Cardiovasc Revasc Med. 2018 Oct;19(7 Pt A):771-777.

Methods

- Prospective registry
- In one Belgian center: University Hospital of Liège.
- Start in June 2021
- Inclusion of all **heavy calcified** common femoral artery stenosis and chronic total occlusions.
- Percutaneous treatment: rotational atherectomy followed by drug coated balloon angioplasty.
- Exclusion: embolic occlusive disease, hybrid procedure (endovascular and open surgery), critical acute ischemia.
- Primary end point: primary patency rate.

Results

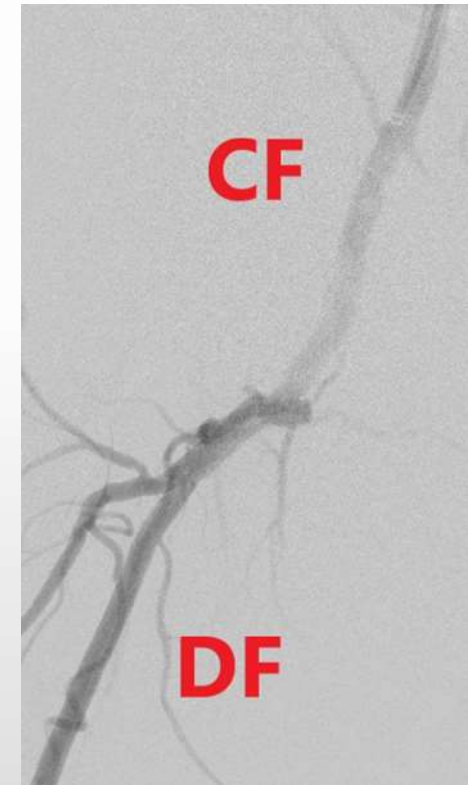
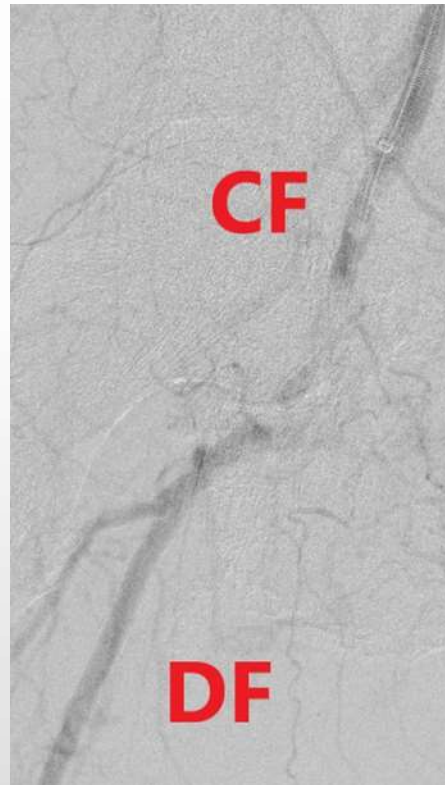
- Between June 2021 and October 2022, 36 patients including 4 with bilateral lesions were treated.

procedures	40
men	23
women	13
mean age	74 years old (52-89)
arterial hypertension	81 % (29/36)
smoking or stopped < 3 years	61 % (22/36)
diabetes (all types)	31 % (11/36)
dyslipidemia (all types)	86 % (31/36)
chronic kidney disease	36 % (13/36 with 3 dialysis)
Rutherford stage 2-3	83 % (33/40)
Rutherford stage 4-5-6	17 % (7/40)
mean ankle-brachial index	0,70 (0,2-1,2)
chronic total occlusion	10 % (4/40)
mean lesion length	4,0 cm (2-8)
simultaneous angioplasties	65 % (26/40)

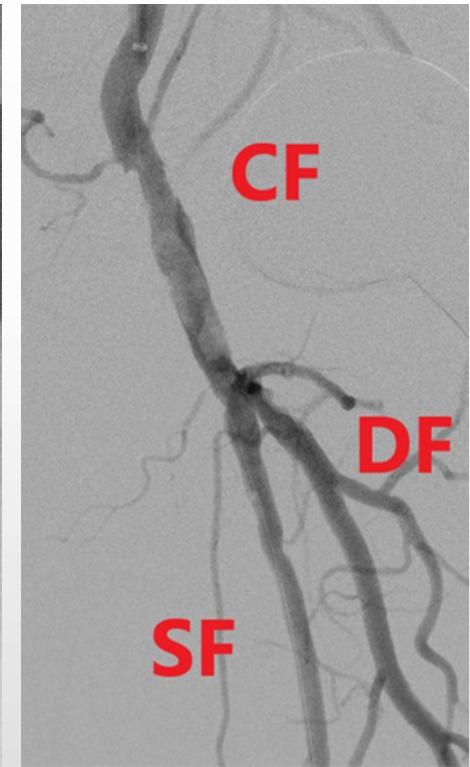
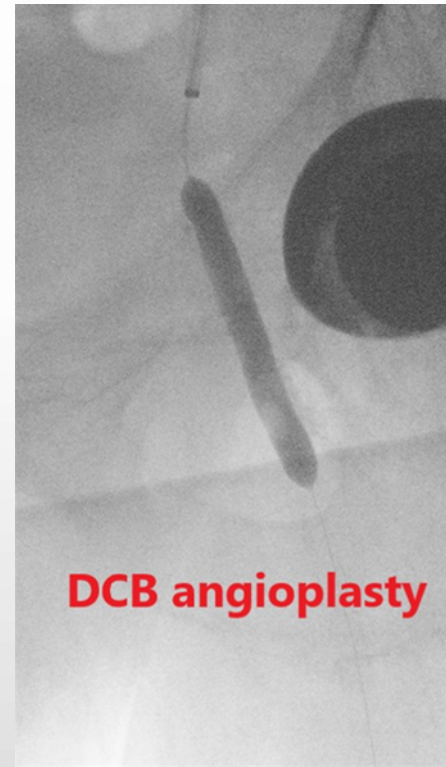
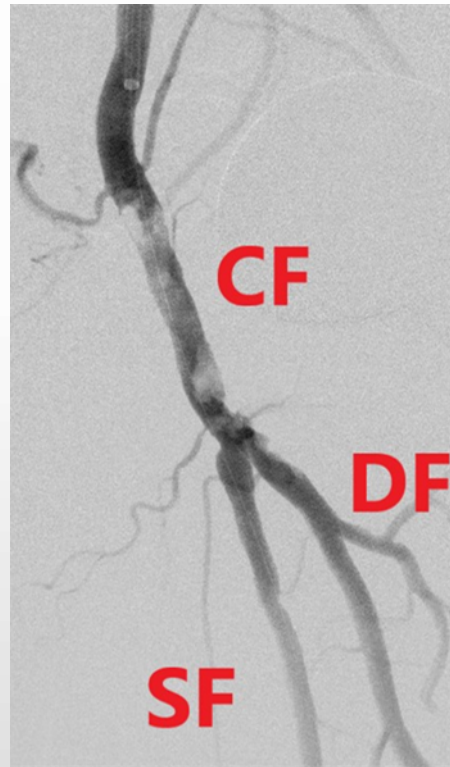
Results

- All procedures were performed under local anesthesia, except 2 under general anesthesia.
- 33 (83 %) were anterograde with 32 contralateral femoral and 1 humeral puncture, and 7 (17 %) were retrograde with ipsilateral superficial femoral puncture.
- No filter was used.
- Technical success rate was 100% with 2 deep femoral retrograde punctures.
- No arterial perforation was observed.
- No bail-out stent was needed.
- One asymptomatic embolization in a deep femoral artery side branch.

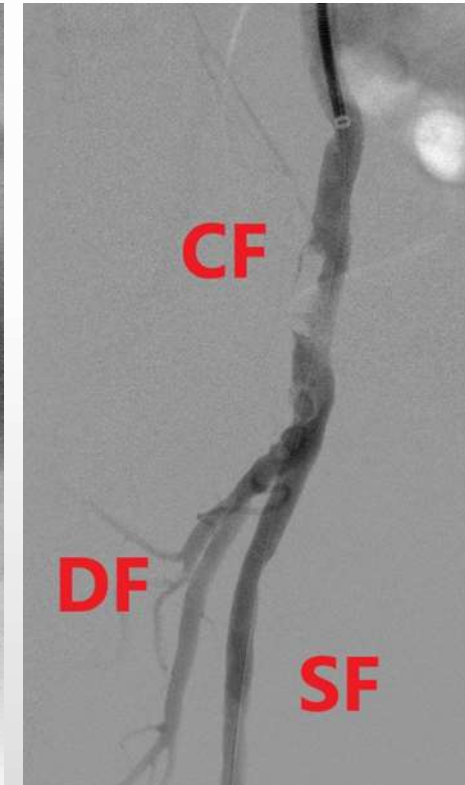
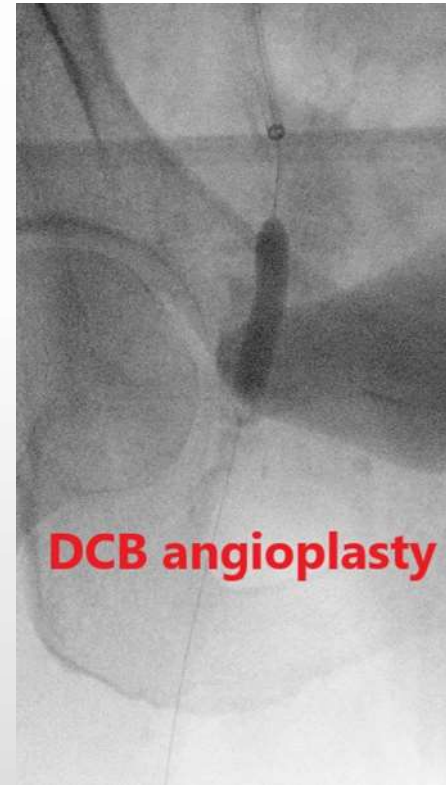
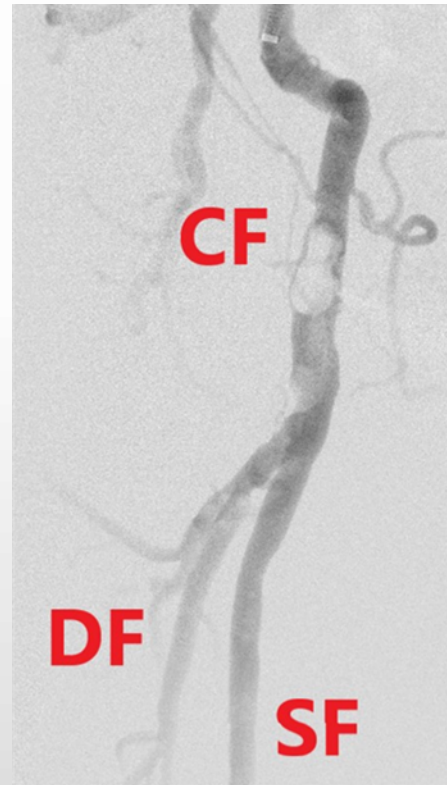
Results



Results

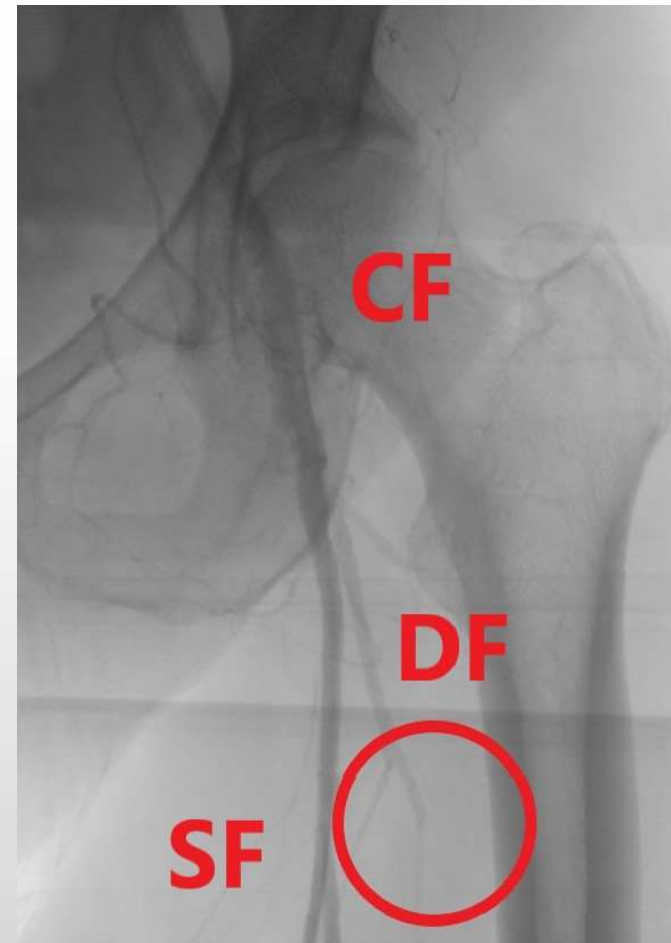
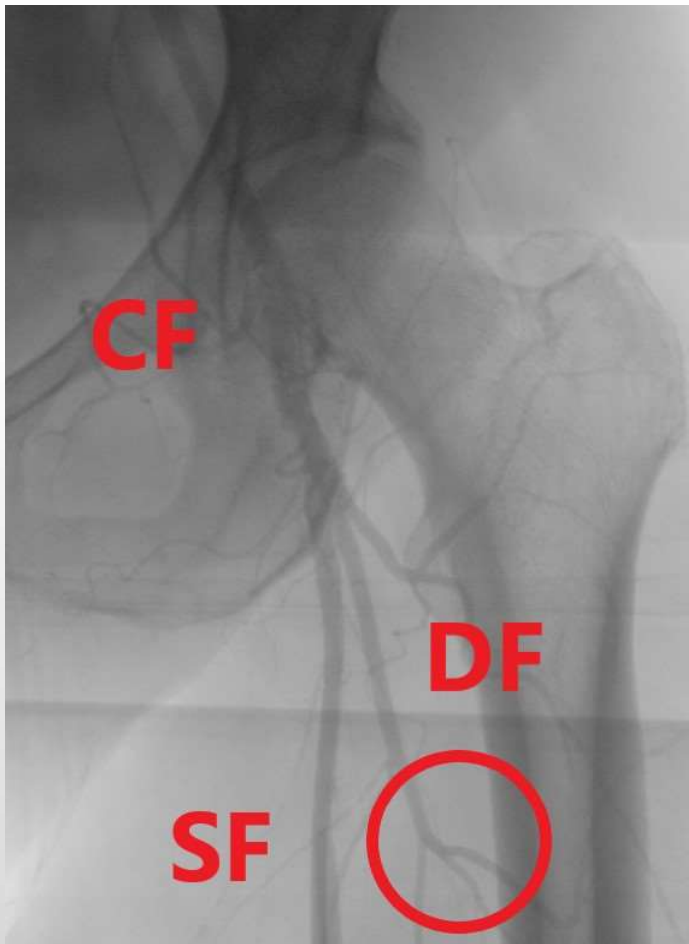


Results



Results

Deep femoral artery side branch embolization



Results

- Mean follow up was 7 months

complications	n
mortality at 30 days	3/36 (MI at D1, AMI D5 and CF D30)
NSTEMI at 30 days	2/40 (at D1 and D30)
major amputation	1 (Rutherford stage 6)
minor amputation	1 (Rutherford stage 4)
false aneurysm at the access site	2/40 (1 thrombin and 1 surgery)
thrombosis at the access site	2/40 (1 endovascular and 1 surgery)
target lesion revascularization	2/40

Results

- Primary patency rate: $38/40 = 95\%$
- All patients except 2 had improved Rutherford stage.
- 2 procedures needed secondary endarterectomy:
 - one for persistent Rutherford stage 3 disease. After the open surgery, the patient had still claudication probably due to underestimated run off vessels disease.
 - one with Rutherford stage 6. The patient had secondary ipsilateral femoro-popliteal venous bypass with common femoral endarterectomy. He had later below the knee amputation.

Conclusions

- Rotational atherectomy followed by drug coated balloon angioplasty for common femoral artery calcified occlusive disease is *feasible* and *safe*.
- The advantages are
 - to *avoid* the potential *complications* of the surgical treatment
 - to *leave nothing* behind
- The best indication seems to be *old patient* with intermittent *claudication*, and the worst CLTI with multi-level extended occlusive disease.
- Long-term results are required.
- Enrollment and follow-up are on-going.