



L'athérectomie percutanée pour l'artériopathie périphérique

Dr Arnaud Kerzmann

Service de Chirurgie Cardiovasculaire et Thoracique



Conflits d'intérêt

- Consultant

Boston Scientific, BD, Artivion

- Grant support

Medicor, iVascular, Medtronic, Biotronik, DMB Medical

Introduction

- La maladie artérielle périphérique des membres inférieurs touche plus de **200 millions** de personnes au monde.
- Ce nombre **augmentera** à l'avenir avec une prévalence plus élevée des facteurs de risque causant l'athérosclérose et le vieillissement des populations dans le monde entier.
- Le traitement **endovasculaire** est devenu la modalité thérapeutique la plus utilisée pour traiter les lésions occlusives fémoro-poplitées.
- Des progrès considérables ont été réalisés dans ce domaine ces dernières années. Ils permettent de soigner des **lésions de plus en plus complexes**.

Les lésions artérielles complexes

- Longues
- Calcifiées
- Occlusions totales chroniques
- Intra-stents

- **Traversée** de la lésion cible
- **Préparation** du vaisseau cible → dilatation ballon simple
→ « scoring balloon »
→ ***athérectomie***
→ lithotripsie intravasculaire
- **Traitement** de la lésion

Vessel prep

- Ensemble de différentes stratégies visant à modifier les propriétés d'une artère avant d'administrer un traitement définitif
- Afin de diminuer le risque de dissection, de maximaliser le gain de lumière et de préparer le lit vasculaire au traitement en le rendant plus compliant, la **préparation de la lésion** est devenue primordiale
- Elle est essentielle, quelle que soient la lésion initiale (sténose, occlusion) et la stratégie de traitement finale (DEB, stent)

Définition et buts de l'athérectomie

- Utilisation par voie percutanée d'un cathéter visant à retirer de la paroi artérielle des dépôts thrombotiques, des plaques d'athérosclérose et/ou du calcium, par « forage », avec ou sans aspiration
- Buts :
 - réduire le risque de **dissection** (moindre barotraumatisme)
 - réduire le taux de **stenting secondaire**
 - accroître l'**espace intraluminal**
 - améliorer la **compliance** vasculaire (moins de calcium)
 - favoriser le **transfert de drogue** vers la paroi artérielle (moins de calcium et de thrombus)

Dissections

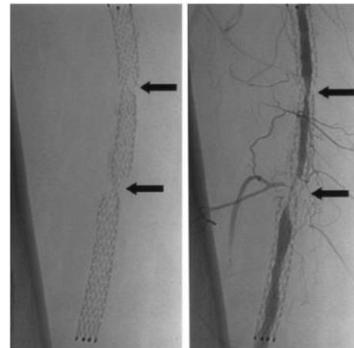
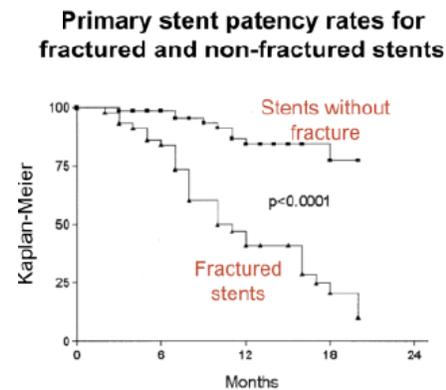
- Toute angioplastie transluminale par ballon induit une blessure de la paroi vasculaire. Elle est caractérisée par une fracture de la plaque athéroscléreuse et de l'intima, pouvant induire une dissection pariétale
- La survenue d'une dissection lors d'une angioplastie périphérique augmente d'un facteur 3,5 le risque de ré-intervention
- la sévérité des dissections induites est liée à un plus haut taux de ré-occlusion et de ré-intervention

Deloose K, Callaert J, Oosterlinck B. Vessel prep, pourquoi faire? L'interventionnel N°3. Mars 2019.

Fujihara M, Takahara M, Sasaki S, et al. Angiographic dissection patterns and patency outcomes after balloon angioplasty for superficial femoral artery disease. J Endovasc Ther 2017;24:367-75.

Stenting secondaire

- Le segment fémoro-poplité est exposé à de nombreux facteurs de stress mécaniques internes et externes comme la flexion, l'extension, l'allongement, la compression et la compression externe
- Limites des stents en nitinol : - résistance sub-optimal à la compression



- flexibilité limitée
- recoil et sous-expansion
- plicature et fracture (long)

Deloose K, Callaert J. Less is more : the «as less as reasonably achievable stenting» (ALARAS) strategy in the femoropopliteal area. J Cardiovasc Surg 2018;59:495-503.

Walker G. The value of debulking and vessel prep before drug delivery. The 13th AMP Symposium. Chicago. August 16-19, 2023.

Stenting secondaire

- Pour les longues recanalisation femoro-poplitée (> 25 cm), le seul facteur prédictif de ré-intervention est d'avoir stenter

Variable	N	OR	Lim inf. OR	Lim sup OR	P-value
Stenting secondaire Oui vs. Non	61	4.074	1.272	13.044	0.018

- Dans certaines situations, le stenting est nécessaire. La préparation du vaisseau autorise un « as less as reasonably achievable stenting (ALARAS) », ou spot stenting
- Le trépied femoral, l'artère poplitée et son trépied ne sont pas de bonnes zones à stenter

Stenting secondaire

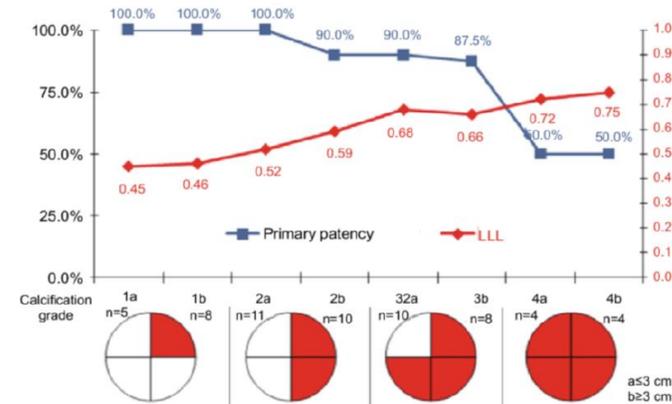
Recommendation 65

For patients with disabling intermittent claudication undergoing revascularisation, primary bare metal stenting is not recommended over balloon angioplasty with provisional stenting in femoropopliteal lesions due to the unfavourable secondary patency rates in patients with in stent re-stenosis.

Class	Level	Reference
III	C	Consensus

Calcifications

- La présence de calcium nécessite des pressions de dilatation plus élevées
- Les plaques associées à des dissections sont souvent calcifiées
- Les DEB fonctionnent moins bien quand il y a plus de calcifications



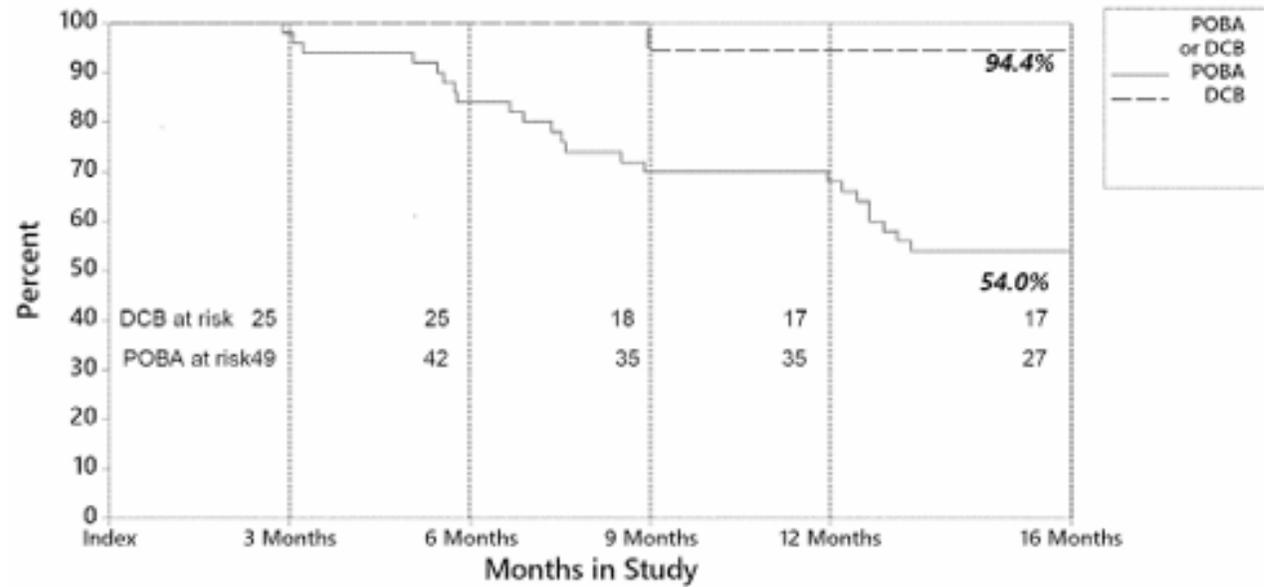
Makam P. Use of orbital atherectomy treatment in a high-volume clinical practice modifies non-compliant plaque to deliver durable long-term results. *J Invasive Cardiol.* 2013 Feb;25(2):85-8.

Fitzgerald PJ, Ports TA, Yock PG. Contribution of localized calcium deposits to dissection after angioplasty. An observational study using intravascular ultrasound. *Circulation.* 1992 Jul;86(1):64-70.

Fanelli F, Cannavale A, Gazzetti M, et al. Calcium burden assessment and impact on drug-eluting balloons in peripheral arterial disease. *Cardiovasc Intervent Radiol.* 2014;37:898-907.

DEB

- L'athérectomie suivie d'une dilatation avec un DEB donne de meilleurs résultats qu'avec un ballon simple (« freedom from TLR » sur le graphique)



Shammas NW, Shammas GA, Jones-Miller S, et al. 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;19(7 Pt A):771-777.

Types d'athérectomie

- Directionnelle : HawkOne™ (Medtronic)



- Rotationnelle :
 - Jetstream™ (Boston Scientific)
 - Phoenix™ (Philips)
 - Rotarex™ (BD)



- Orbitale : Stealth 360™ (Abbott)



- Par laser :
 - Turbo-Elite™ (Philips)
 - Turbo-Power™ (Philips)



Types d'athérectomie

	intro	guide	diamètre	aspiration	filtre	calcific.	Thrombus	ISR	excentrique	concentrique
HawkOne™	6 ou 7 F	0,014	2 à 7 mm	oui	oui	+++	+	-	+++	+
Jetstream™	7 F	0,014	1,6 à 7 mm	oui	non	+++	+	+	+	+++
Phoenix™	5 à 7 F	0,014	1,8 à 7 mm	oui	non	+++	++	-	+++	+++
Rotarex™	6 à 10 F	0,018	3 à 12 mm	oui	non	-	+++	++	+	+++
Stealth 360™	4 à 6 F	0,014	2 à 8 mm	non	non	+++	-	-	+++	+++
Turbo-Elite™	4 ou 8 F	0,014 à 0,035	≥ 1,4 mm à ≥ 3,8 mm	non	non	++	+	-	++	+++
Turbo-Power™	6 ou 7 F	0,018	≥ 3 mm	non	non	++	+	+	+++	++

Limites d'utilisation

- lésion non traversée par le guide (sauf pour Turbo-Elite™)
- guide en sous-intimal
- absence de flux pour certains systèmes (Rotarex™)
- héparinisation insuffisante (100 UI/kg nécessaire)
- angulations
- diamètre du vaisseau cible inadapté au cathéter d'athérectomie
- cathéter, guide ou introducteur endommagés, pliés, bloqués ou trop de résistance pour naviguer

complications

	non-athérectomie	athérectomie	directionnelle	rotationnelle	orbitale	laser
succès technique	76,4 %	92,3 %	NA	NA	NA	NA
embolisation	1,5 %	3,4 %	3,6 %	2,2 %	2,8 %	4,9 %
perforation	1,2 %	1,9 %	2,7 %	3,8 %	0 %	0 %
dissection	15,6 %	4,0 %	NA	NA	8,5 %	0,49 %
stent	NA	15,2 %	7,2 %	27,4 %	8,4 %	32,3 %
amputation majeure à 1 an	4,8 %	2,2 %	2,1 %	0,5 %	1,9 %	3,2 %
décès à 1 an	4,3 %	3,4 %	3,5 %	1,8 %	0 %	5,5 %
perméabilité 1 ^{ère} à 1 an	74,7 %	72,6 %	71,2 %	79,4 %	82,5 %	60,4 %

complications



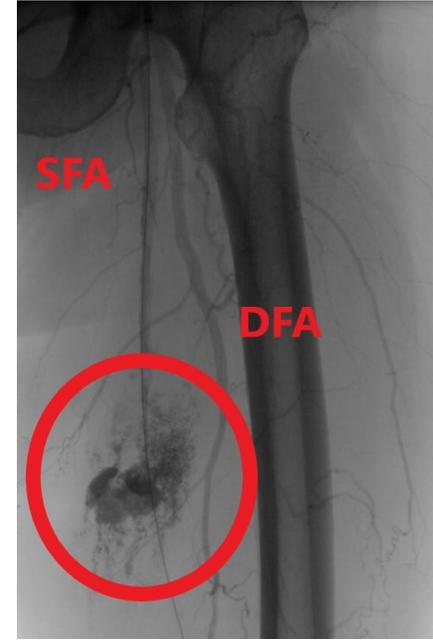
Beijing Targets Canada Critics From Overseas

Meddling With Ottawa Part of Global Aims

By NORIMITSU ONISHI
RICHMOND, British Columbia — The polls predicted a re-election victory, maybe even a landslide. But a couple of weeks before the vote, Kenny Chiu, a member of Canada's Parliament and a critic of China's human rights record, was panicking. Something had flipped among the ethnic Chinese voters in his British Columbia district. "Initially, they were supportive," he said. "And all of a sudden, they just vanished, vaporized, disappeared."
Longtime supporters originally from mainland China were not returning his calls. Volunteers reported icy greetings at formerly friendly homes. Chinese-language news outlets stopped covering him. And he was facing an onslaught of attacks — from untraceable sources — on the local community's most popular social networking app, the Chinese-owned WeChat.
The sudden collapse of Mr. Chiu's campaign — in the last federal election, in 2021 — is now drawing renewed scrutiny amid mounting evidence of China's interference in Canadian politics.
Mr. Chiu and several other elected officials critical of Beijing were targets of a Chinese state that has increasingly exerted its influence over Chinese diaspora communities worldwide as part of an aggressive campaign to expand its global reach, according to current and former elected officials, Canadian intelligence officials and experts on Chinese state disinformation campaigns.
Canada recently expelled a Chinese diplomat accused of conspiring to intimidate a lawmaker from the Toronto area, Michael Chong, after he successfully led efforts in Parliament to label China's treatment of its Uyghur Muslim community a genocide. Canada's inter-

Patients Lost Limbs as Doctors and Health Care Giants Prospered

This article is by Katie Thomas, Jessica Silver-Greenberg and Robert Gebeloff.
Kelly Hanna's leg was amputated in a summer day in 2020, after a Michigan doctor who called himself "the leg saver" had damaged her arteries by snaking metal wires through them to clear away plaque.
It started with a festering wound on her left foot. Her podiatrist referred Ms. Hanna to Dr. J. had Mustafa. Over 18 months, he performed at least that many artery-opening procedures on Ms. Hanna's legs, telling her they would improve blood flow and prevent amputations.
They didn't — for Ms. Hanna or many of his other patients. Surgeons at nearby hospitals had seen so many of his patients with amputations and other problems that they complained to Michigan's medical board about his conduct. An insurance company told state authorities that 43 people had lost limbs after treatment at his clinics in the past four years.
Dr. Mustafa is no back-alley operator working in the shadows of the medical establishment, an investigation by The New York Times has found. With the financial backing of medical device manufacturers, he has become a leader of a booming cottage industry that peddles risky procedures to millions of Americans — enriching doctors and device companies and sometimes costing patients their limbs.
The industry targets the roughly 12 million Americans with peripheral artery disease, in which plaque, a sticky slurry of fat, calcium and other materials, accumulates in the arteries of the legs. For a tiny portion of patients, the plaque can choke off blood flow, leading to amputations or death.
But more than a decade of medical research has shown that the vast majority of people with peripheral artery disease have mild or no symptoms and don't require treatment, aside from getting more exercise and taking medication. Experts said even those who do have severe symptoms, like Ms. Hanna, shouldn't undergo repeated procedures in a short period of time.
Continued on Page 14



Guidelines

Plaque excision by mechanical atherectomy using cutting blades, laser ablation, or “sanding” with a diamond-encrusted burr has been proposed as an alternative to angioplasty and stenting for symptomatic PAD. In a recent meta-analysis of four randomized studies including only 220 patients comparing atherectomy with other established treatments, including angioplasty, stenting, lower extremity bypass, and exercise therapy, the authors concluded there was **no evidence** to support the superiority of atherectomy over angioplasty for any outcome. They also observed that the quality of existing evidence is poor and recommended further study with properly powered trials.¹⁹⁹

Recommendation 67			
For patients with disabling intermittent claudication undergoing revascularisation, routine use of atherectomy for the treatment of femoropopliteal lesions is not recommended due to the lack of superiority of atherectomy over conventional endovascular therapies in terms of efficacy and safety endpoints.			
Class	Level	References	ToE
III	A	Koeckerling <i>et al.</i> (2023) ⁵ Vroegindeweyj <i>et al.</i> (1992) ⁵⁶⁴ Tielbeek <i>et al.</i> (1996) ⁵⁶⁵ Shammas <i>et al.</i> (2011) ⁵⁶⁶ Dattilo <i>et al.</i> (2014) ⁵⁶⁷ Ott <i>et al.</i> (2017) ⁵⁶⁸ Zeller <i>et al.</i> (2017) ⁵⁶⁹ Cai <i>et al.</i> (2020) ⁵⁷⁰	

Atherectomy **is not superior** to PBA and is associated with greatly increased costs.⁴⁵³ Combination approaches, such as atherectomy followed by DCB angioplasty, add significant **cost** and lack high-quality comparative data.

Conte MS, Pomposelli FB, Clair DG, et al. Society for Vascular Surgery practice guidelines for atherosclerotic occlusive disease of the lower extremities: management of asymptomatic disease and claudication. *J Vasc Surg.* 2015 Mar;61(3 Suppl):2S-41S.

Conte MS, Bradbury AW, Kolh P, et al. Global vascular guidelines on the management of chronic limb-threatening ischemia. *J Vasc Surg* 2019;69:3S-125S.

Nordanstig J, Behrendt CA, Baumgartner I, et al. European Society for Vascular Surgery (ESVS) 2024 Clinical Practice Guidelines on the Management of Asymptomatic Lower Limb Peripheral Arterial Disease and Intermittent Claudication. *Eur J Vasc Endovasc Surg.* 2024 Jan;67(1):9-96.

Atherectomy Classes Used in Published Studies

As of April 1, 2024 (Preliminary Analysis; 317 Papers)

295 Atherectomy Papers
22 IVL Papers

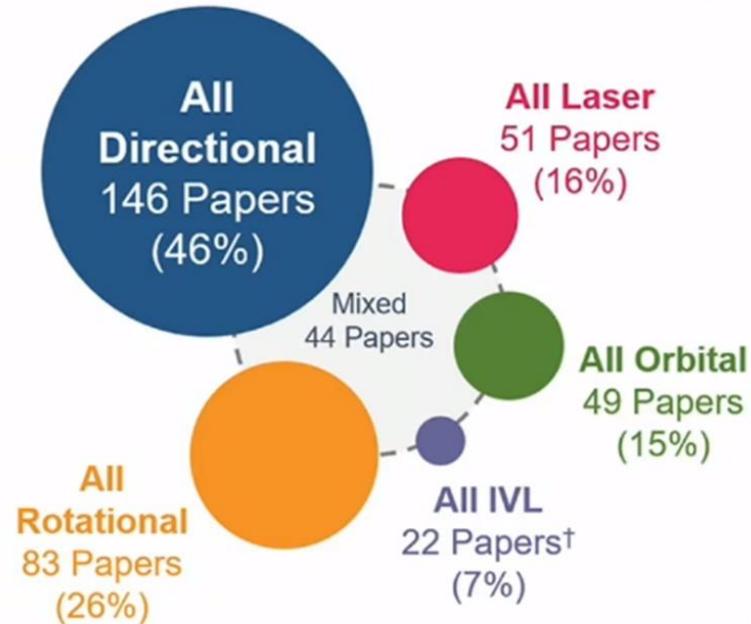


Diagram not precisely to scale
Numbers sum to more than 100% due to multiple atherectomy classes being used in the same study

† IVL data will be analyzed separately from atherectomy data

Directional (includes Excisional)

- HawkOne Directional Atherectomy System (Medtronic)
- TurboHawk Directional Atherectomy System (Medtronic)
- SilverHawk Peripheral Plaque Excision System (Medtronic)
- Pantheris Image-guided Atherectomy (Avinger)
- Simpson Athero Track Directional Atherectomy Catheter
- Transcatheter/transluminal extraction catheter (TEC)
- Arrow-Fischell Pullback Catheter (Teleflex)

Orbital

- Diamondback 360 Orbital Atherectomy System (Abbott)
- Predator 360 Orbital Atherectomy System (Abbott)
- Stealth 360 Orbital Atherectomy System (Abbott)
- FreedomFlow (Cardio Flow)

Rotational

- Jetstream Atherectomy System (Boston Scientific)
- Rotablator Rotational Atherectomy System (Boston Scientific)
- ROTAPRO Rotational Atherectomy System (Boston Scientific)
- Revolution Peripheral Atherectomy System (Rex Medical)
- Phoenix Rotational Atherectomy System (Philips)
- Temren Atherectomy System (Invamed)
- BYCROSS (Taryag Medical)
- Rotarex Rotational Excisional Atherectomy System (BD)

Laser

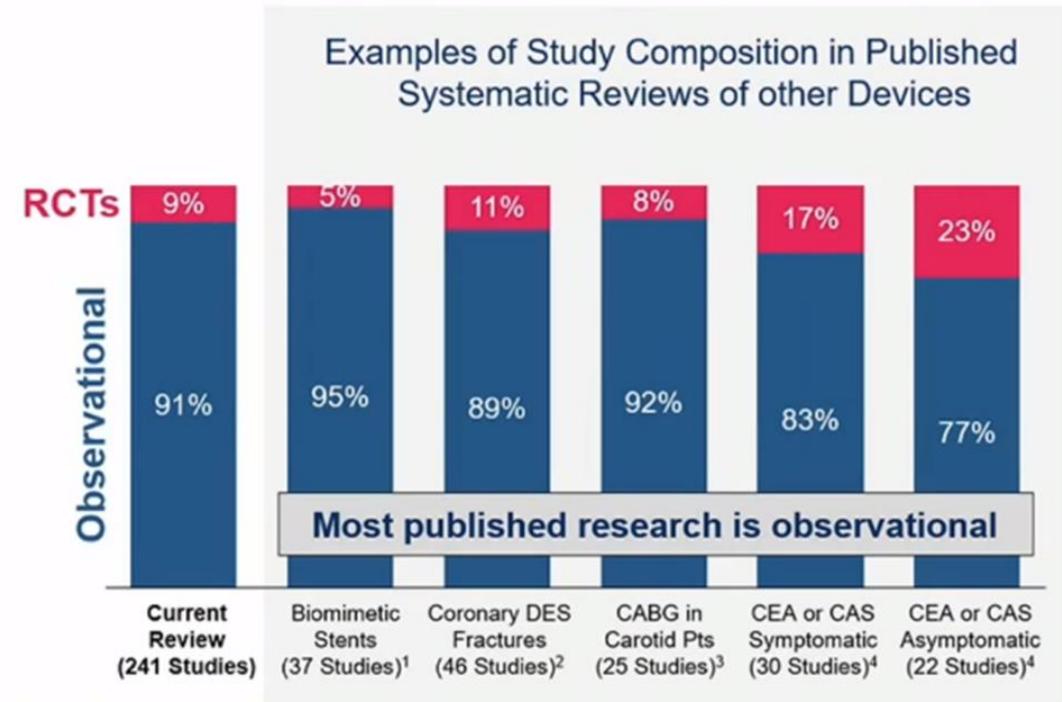
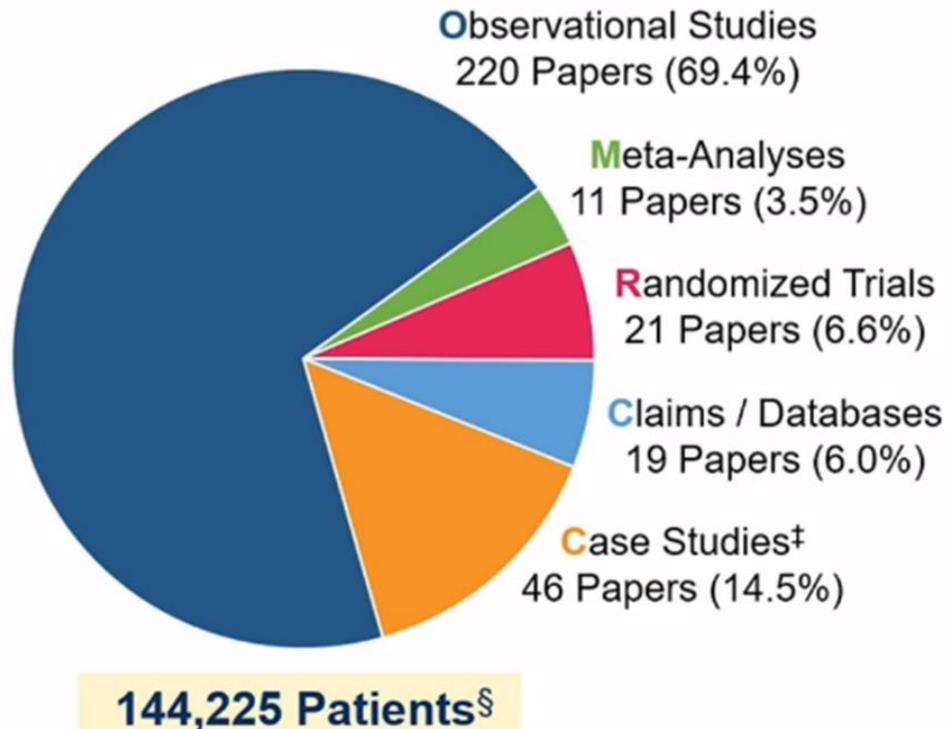
- CVX-300 Excimer Laser System (Philips)
- Turbo-Elite Laser Atherectomy Catheter (Philips)
- Turbo-Tandem Laser Atherectomy Catheter (Philips)
- Turbo-Power Laser Atherectomy Catheter (Philips)
- CLi-Rpath Excimer Laser System (Philips)
- B-Laser Atherectomy System (Eximo Medical)
- Auryon Peripheral Atherectomy System (Angiodynamics)

Intravascular Lithotripsy (IVL)

- Shockwave (Shockwave Medical)

Design of Published Studies

As of April 1, 2024 (Preliminary Analysis; 317 Papers[†])



Directional Atherectomy Followed by a Paclitaxel-Coated Balloon to Inhibit Restenosis and Maintain Vessel Patency: Twelve-Month Results of the DEFINITIVE AR Study

Thomas Zeller ¹, Ralf Langhoff ², Krishna J Rocha-Singh ², Michael R Jaff ², Erwin Blessing ², Beatrice Amann-Vesti ², Marek Krzanowski ², Patrick Peeters ², Dierk Scheinert ², Giovanni Torsello ², Sebastian Sixt ², Gunnar Tepe ²; DEFINITIVE AR Investigators

Affiliations + expand

PMID: 28916599 PMCID: [PMC5610565](#) DOI: [10.1161/CIRCINTERVENTIONS.116.004848](#)

Methods and results: DEFINITIVE AR study (Directional Atherectomy Followed by a Paclitaxel-Coated Balloon to Inhibit Restenosis and Maintain Vessel Patency-A Pilot Study of Anti-Restenosis Treatment) was a multicenter randomized trial designed to estimate the effect of DA before DCB to facilitate the development of future end point-driven randomized studies. One hundred two patients with claudication or rest pain were randomly assigned 1:1 to DA+DCB (n=48) or DCB alone (n=54), and 19 additional patients with severely calcified lesions were treated with DA+DCB. Mean lesion length was 11.2±4.0 cm for DA+DCB and 9.7±4.1 cm for DCB (P=0.05). Predilatation rate was 16.7% for DA+DCB versus 74.1% for DCB; postdilatation rate was 6.3% for DA+DCB versus 33.3% for DCB. Technical success was superior for DA+DCB (89.6% versus 64.2%; P=0.004). Overall bail-out stenting rate was 3.7%, and rate of flow-limiting dissections was 19% for DCB and 2% for DA+DCB (P=0.01). One-year primary outcome of angiographic percent diameter stenosis was 33.6±17.7% for DA+DCB versus 36.4±17.6% for DCB (P=0.48), and clinically driven target lesion revascularization was 7.3% for DA+DCB and 8.0% for DCB (P=0.90). Duplex ultrasound patency was 84.6% for DA+DCB, 81.3% for DCB (P=0.78), and 68.8% for calcified lesions. Freedom from major adverse events at 1 year was 89.3% for DA+DCB and 90.0% for DCB (P=0.86).

Conclusions: DA+DCB treatment was **effective and safe** but the study was not powered to show significant differences between the 2 methods of revascularization in 1-year follow-up. An adequately powered randomized trial is warranted.

Etudes

athérectomie
directionnelle
+ DEB

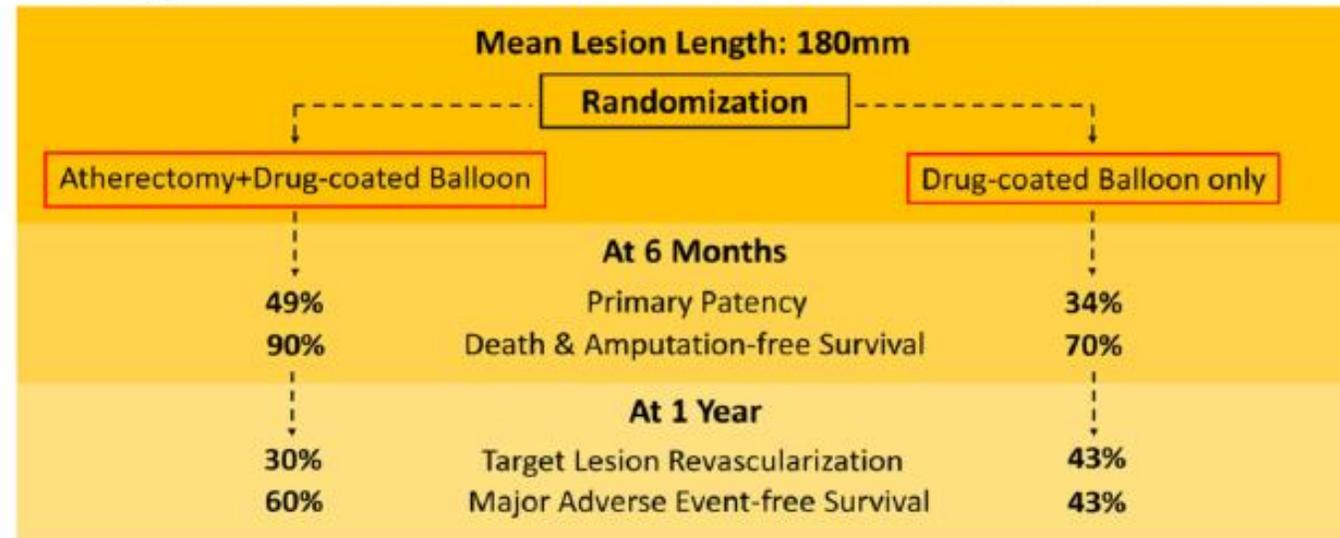
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DAART

Atherectomy and Drug-Coated Balloon Angioplasty for the Treatment of Long Infrapopliteal Lesions: A Randomized Controlled Trial

Aljoscha Rastan , Marianne Brodmann, Tanja Böhme, Roland Macharzina, Elias Noory, Ulrich Beschorner, Peter-Christian Flügel, Karlheinz Bürgelin, Franz-Josef Neumann and Thomas Zeller

Originally published 7 Jun 2021 | <https://doi.org/10.1161/CIRCINTERVENTIONS.120.010280> | Circulation: Cardiovascular Interventions. 2021;14:e010280

**RCT: No significant benefit for atherectomy +
drug-coated balloon in treatment of infrapopliteal arteries.**



Rastan et al. Circ Cardiovasc Interv. 2021



Review > Ann Vasc Surg. 2022 Mar;80:213-222. doi: 10.1016/j.avsg.2021.08.058.
Epub 2021 Nov 5.

Combination of Rotarex[®]S Rotational Atherothrombectomy and Drug-Coated Balloonangioplasty for Femoropopliteal Total In-Stent Occlusion

Tao Pan¹, Shi-Yun Tian², Zhen Liu¹, Tao Zhang¹, Cheng Li¹, Dong-Hua Ji³

Affiliations + expand

PMID: 34748945 DOI: 10.1016/j.avsg.2021.08.058

Conclusions: Rotarex S rotational atherectomy plus thrombectomy in combination with DCB was **safe** and **effective** in patients with femoropopliteal total in-stent occlusion during 12 months of follow-up.

↑
ISR

occlusions subaiguës



Multicenter Study > Ann Vasc Surg. 2021 May;90:240-246. doi: 10.1016/j.avsg.2022.11.019.
Epub 2022 Oct 6.

Midterm Results of Drug-Coated Balloon Alone or Combined with Rotarex Thrombectomy Device for Treatment of Subacute Femoropopliteal Artery Thrombotic Occlusion

Beijian Fan¹, Shuangshuang Lu², Jinyan Fan³, Xiaohong Cai⁴, Kun Liang⁵, Lei Zhu⁶,
Guang He⁷, Bin Yu⁸, Weibao Shi⁹

Affiliations + expand
PMID: 36509024 DOI: 10.1016/j.avsg.2022.11.019

PP was 82.0 ± 6.7% in the Rotarex + DCB group, whereas a significantly lower rate in the DCB alone group (60.9 ± 8.3%, P = 0.04)

Results: Among them, 35 patients were treated with the Rotarex catheter combined with DCB while 39 patients underwent DCB-alone. The overall technical success rate was 100%. Patients in the Rotarex + DCB group showed lower rate of bailout stenting than those in the DCB alone group (22.9% vs. 59.0%; P = 0.01). ABI at discharge was significantly higher in both groups. Mean follow-up time was 18.5 ± 3.4 months; 62 patients completed Doppler ultrasound investigation while 12 patients were censored. According to Kaplan-Meier analysis, the estimated PP was 82.0 ± 6.7% in the Rotarex + DCB group, whereas a significantly lower rate in the DCB alone group (60.9 ± 8.3%; P = 0.04). In addition, the freedom from CD-TLR rate was 82.9 ± 6.4% in the Rotarex + DCB group and 61.5 ± 7.8% in the DCB-alone group (P = 0.04).

Conclusions: These initial data indicate that the Rotarex thrombectomy device combined with DCB is an effective choice for the treatment of subacute femoropopliteal artery thrombotic occlusion compared to DCB-alone. The combined procedure had superior midterm results.



Multicenter Study > *Cardiovasc Revasc Med.* 2018 Jul;19(5 Pt A):506-511.

doi: 10.1016/j.carrev.2017.12.015. Epub 2017 Dec 27.

Jetstream Atherectomy System treatment of femoropopliteal arteries: Results of the post-market JET Registry

William A Gray¹, Lawrence A Garcia², Ali Amin³, Nicolas W Shammass⁴; JET Registry Investigators

Affiliations + expand

PMID: 29331436 DOI: 10.1016/j.carrev.2017.12.015

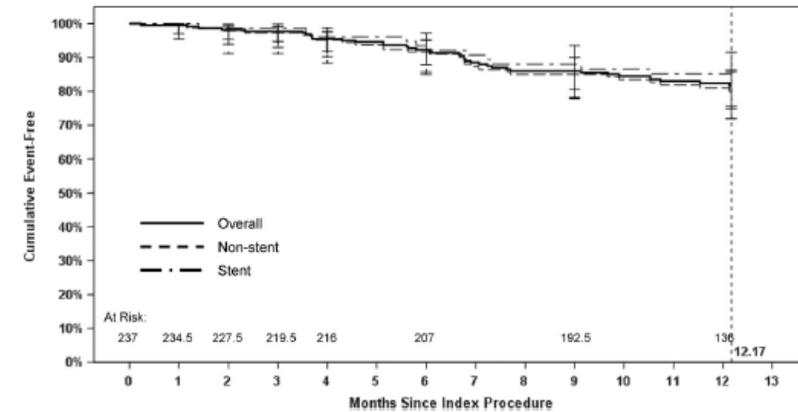


Fig. 1. Freedom from TVR/TLR.

Conclusion: In a cohort reflecting real-world practice, the Jetstream Atherectomy System demonstrated a **high procedural success rate** with a **low rate of complications** and reinterventions, especially given the relatively **long lesions** studied.

Randomized Controlled Trial > Vasc Health Risk Manag. 2022 Aug 2;18:603-615.

doi: 10.2147/VHRM.S371177. eCollection 2022.

Jetstream Atherectomy Followed by Paclitaxel-Coated Balloons versus Balloon Angioplasty Followed by Paclitaxel-Coated Balloons: Twelve-Month Exploratory Results of the Prospective Randomized JET-RANGER Study

Nicolas W Shammass¹, Bhaskar Purushottam², W John Shammass¹, Lori Christensen¹, Gail Shammass¹, Desyree Weakley¹, Sue Jones-Miller¹; JET-RANGER Investigators

Affiliations + expand

PMID: 35942041 PMID: PMC9356602 DOI: 10.2147/VHRM.S371177

Conclusion: A high rate of freedom from TLR was seen in the JET + PCB arm and the PTA + DCB arm at 1-year follow-up, with a significant reduction in bailout stenting following vessel prepping with the Jetstream.

Observational Study > J Endovasc Ther. 2024 Dec;31(6):1218-1226.

doi: 10.1177/15266028231161246. Epub 2023 Mar 24.

Novel Therapeutic Concepts for Complex Femoropopliteal Lesions Using the Jetstream Atherectomy System

Dalibor Dukic¹, Klaus Martin¹, Michael Lichtenberg², Marianne Brodmann³, Joachim Andrassy⁴, Grigorios Korosoglou⁵, Martin Andrassy¹

Affiliations + expand

PMID: 36960883 DOI: 10.1177/15266028231161246

Conclusion: Rotational atherectomy in combination with drug-coated balloon (DCB) can be safely performed in **long, calcified (non-) occlusive lesions** with a relatively **low rate of bail-out stenting** and favorable clinical mid-term results.

Randomized Controlled Trial > J Endovasc Ther. 2022 Dec;29(6):874-884.

doi: 10.1177/15266028211070968. Epub 2022 Jan 27.

Orbital Atherectomy Prior to Drug-Coated Balloon Angioplasty in Calcified **Infrapopliteal** Lesions: A Randomized, Multicenter Pilot Study

Thomas Zeller ¹, Stefanos Giannopoulos ², Marianne Brodmann ³, Martin Werner ⁴,
Martin Andrassy ⁵, Andrej Schmidt ⁶, Erwin Blessing ⁷, Gunnar Tepe ⁸, Ehrin J Armstrong ²

Affiliations + expand

PMID: 35086385 DOI: 10.1177/15266028211070968

Conclusion: The results of the Orbital Vessel Preparation to Maximize Dcb Efficacy in Calcified BTK (OPTIMIZE BTK) pilot study indicated that utilization of OA + DCB is **safe** for infrapopliteal disease. Further prospective adequately powered studies should investigate the potential benefit of combined OA + DCB for BTK lesions.

Observational Study > [Cardiovasc Revasc Med.](#) 2020 Jun;21(6):771-778.

doi: [10.1016/j.carrev.2019.10.006](#). Epub 2019 Oct 18.

Turbo-Power™ Laser Atherectomy Combined with Drug-coated Balloon Angioplasty is Associated with Improved One-Year Outcomes for the Treatment of Tosaka II and III Femoropopliteal **In-stent Restenosis**

Stefanos Giannopoulos ¹, Damianos G Kokkinidis ¹, Omar Jawaid ¹, Sean Behan ¹, Prio Hossain ², Bejan Alvandi ², T Raymond Foley ¹, Gagan D Singh ², Stephen W Waldo ¹, Ehrin J Armstrong ³

Affiliations + expand

PMID: 31761634 DOI: [10.1016/j.carrev.2019.10.006](#)

Conclusions: Turbo-Power™ laser atherectomy combined with DCB exerted synergistic mechanism of actions and improved 12-month **TLR** rates for the treatment of complex FP-ISR lesions.

> [Front Cardiovasc Med.](#) 2024 Sep 27;11:1472064. doi: 10.3389/fcvm.2024.1472064. eCollection 2024.

The efficacy and safety of atherectomy combined with drug-coated balloon angioplasty vs. drug-coated balloon angioplasty for the treatment of lower extremity artery disease: a systematic review and meta-analysis

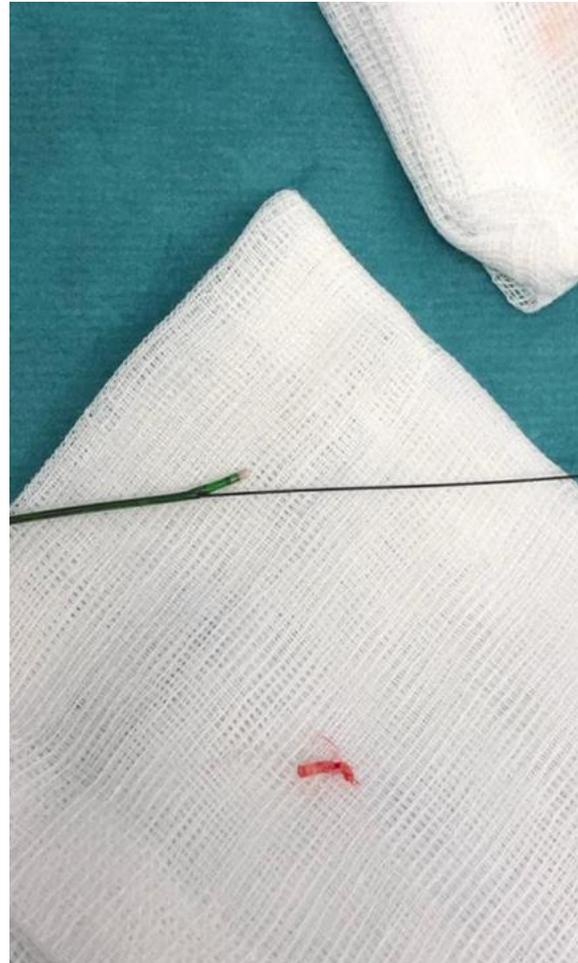
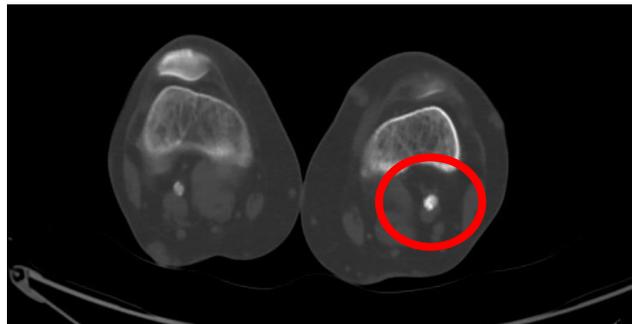
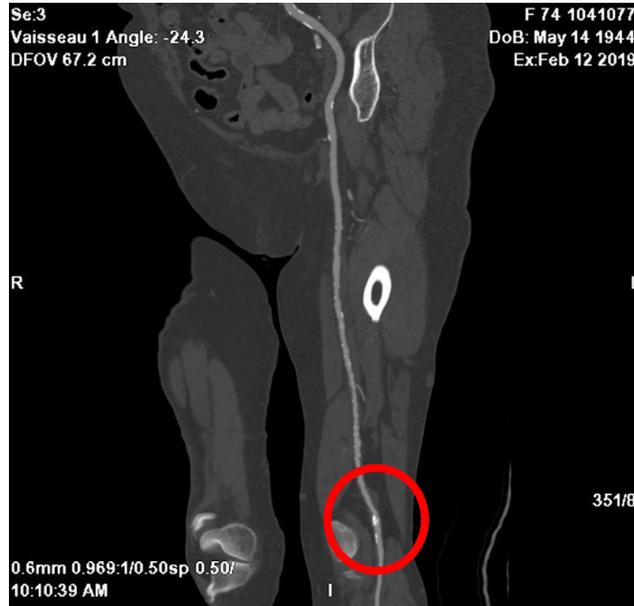
Margareta Ginanti Ratna Indraswari Suriyanto ¹, Raymond Pranata ¹, William Kamarullah ¹, Iwan Cahyo Santosa Putra ¹, Dendi Puji Wahyudi ¹, Giky Karwiky ¹, Teddy Arnold Sihite ¹, Mohammad Rizki Akbar ¹, Januar Wibawa Martha ¹, Syarief Hidayat ¹

Affiliations + expand

PMID: 39399517 PMCID: [PMC11470443](#) DOI: [10.3389/fcvm.2024.1472064](#)

Conclusions: The addition of atherectomy improves **primary patency** and reduces the risk of **TLR** with similar safety outcomes.

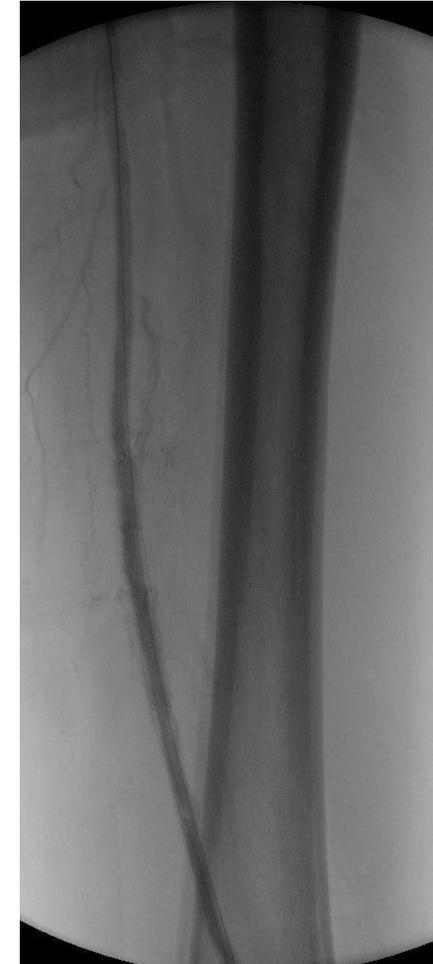
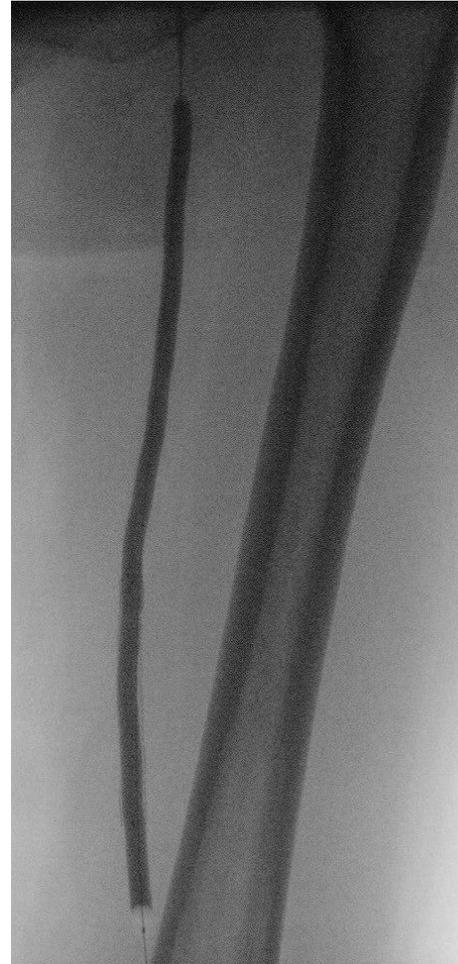
Cas clinique AP : HawkOne™



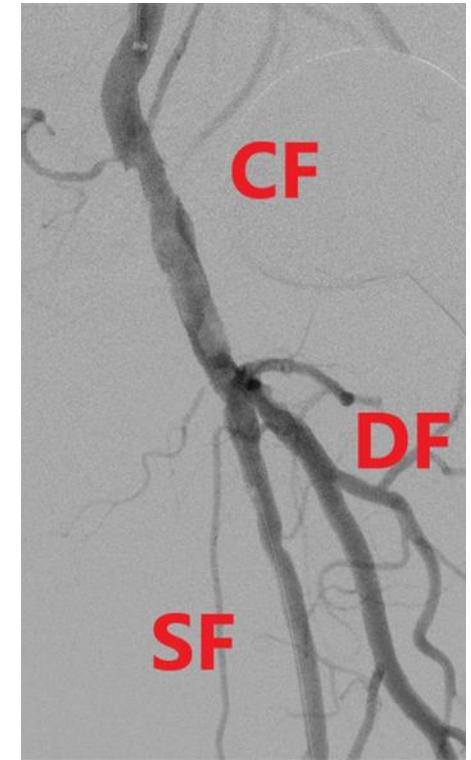
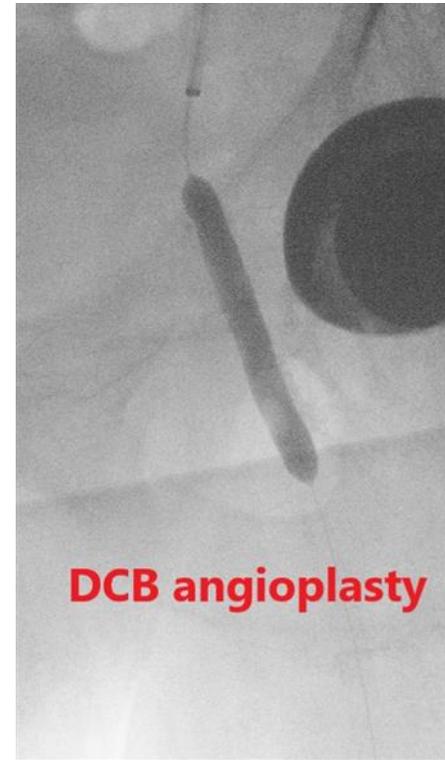
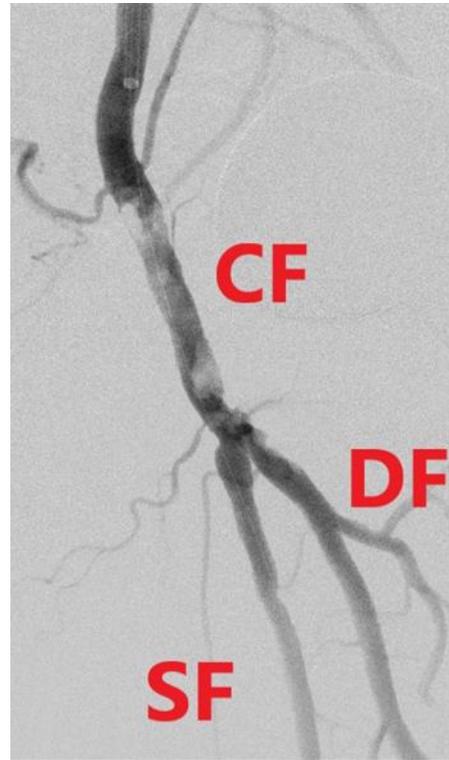
Cas clinique AFS intra-stent 1 : Rotarex™



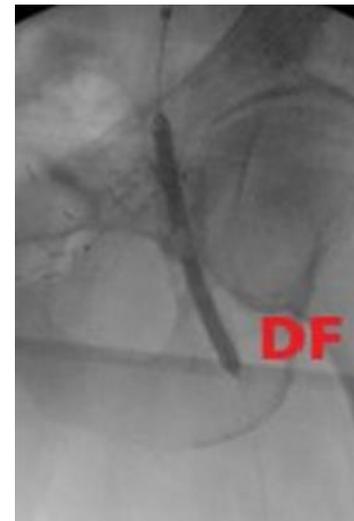
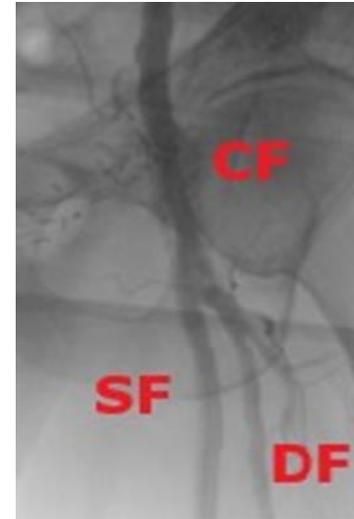
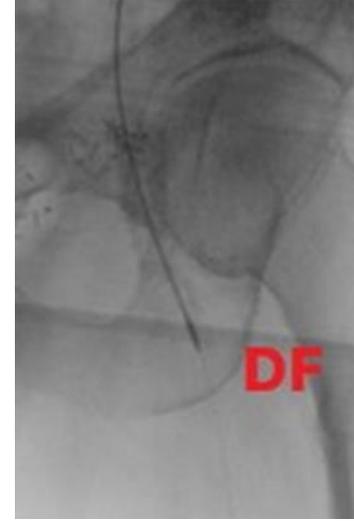
Cas clinique AFS intra-stent 2 : Rotarex™



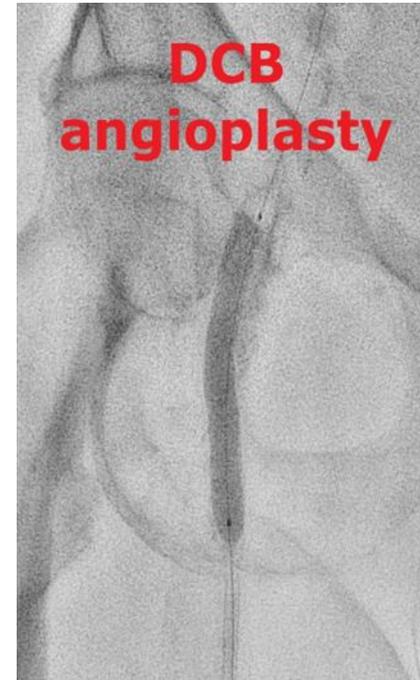
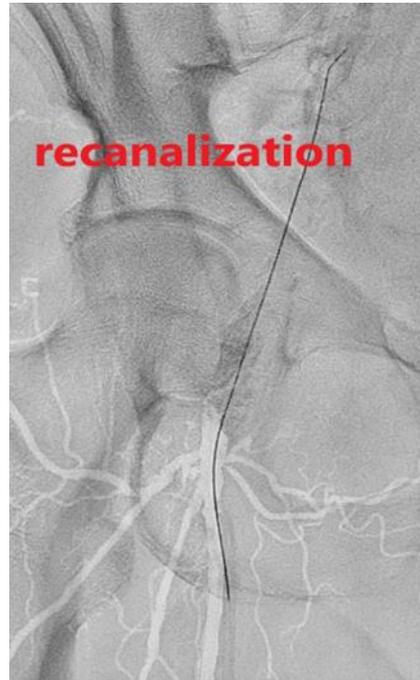
Cas clinique AFC 1 : Jetstream™



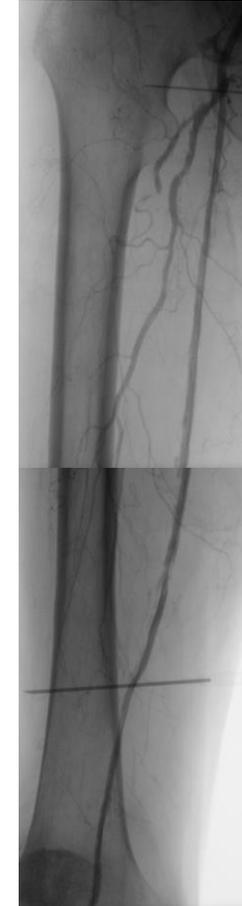
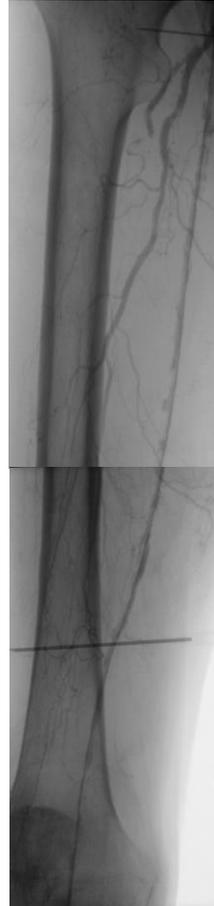
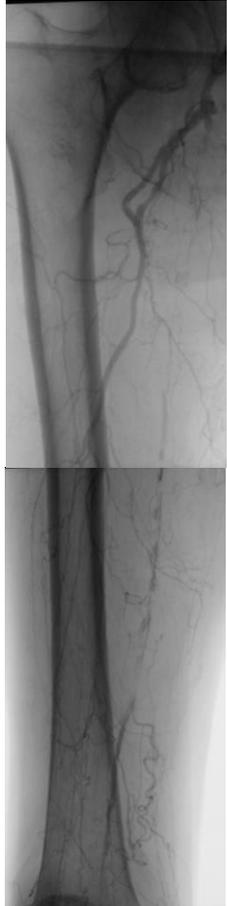
Cas clinique AFC 2 : Jetstream™



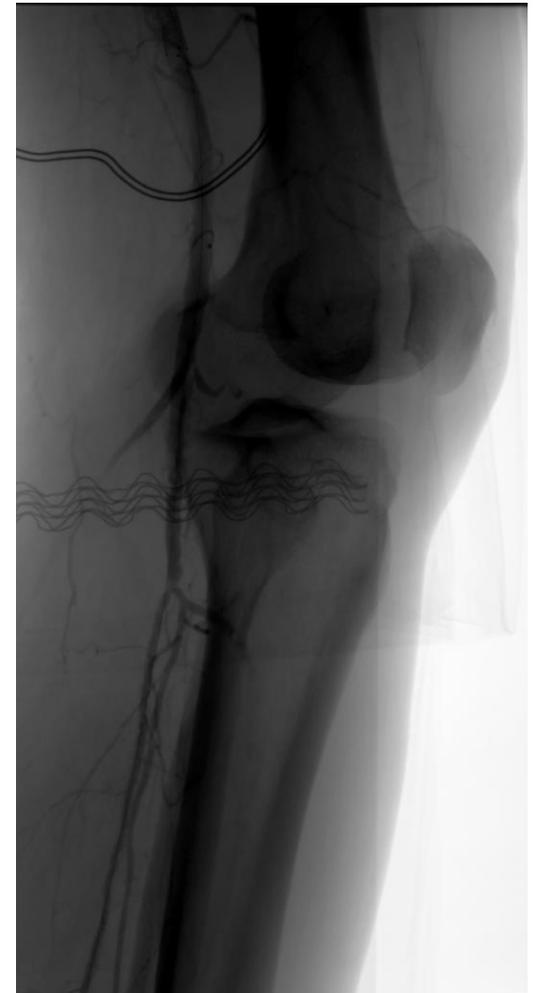
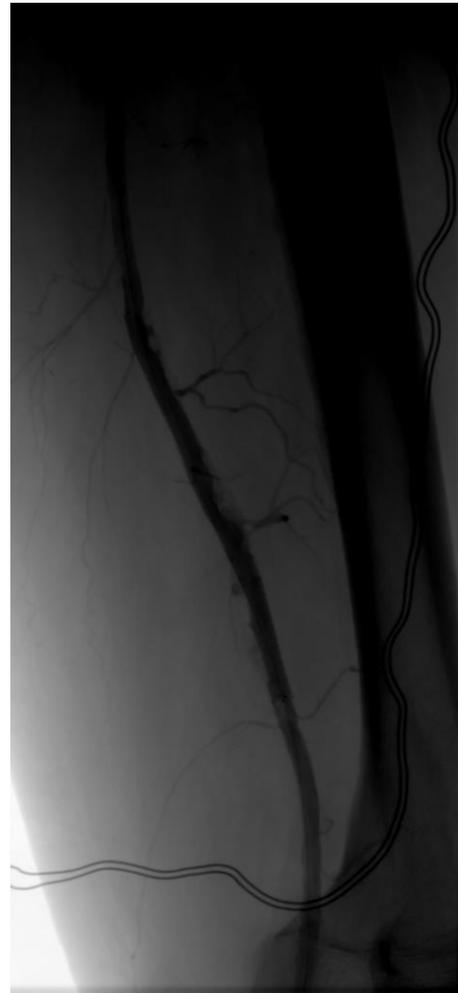
Cas clinique AFC 3 : Jetstream™



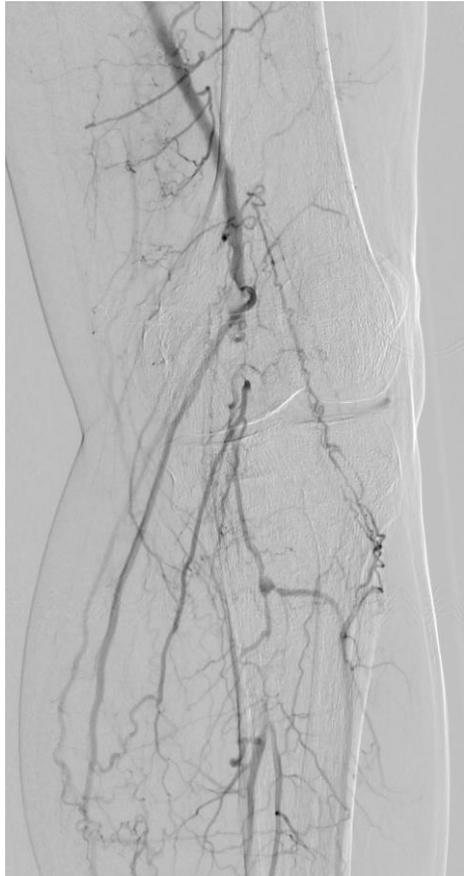
Cas clinique AFS : Jetstream™



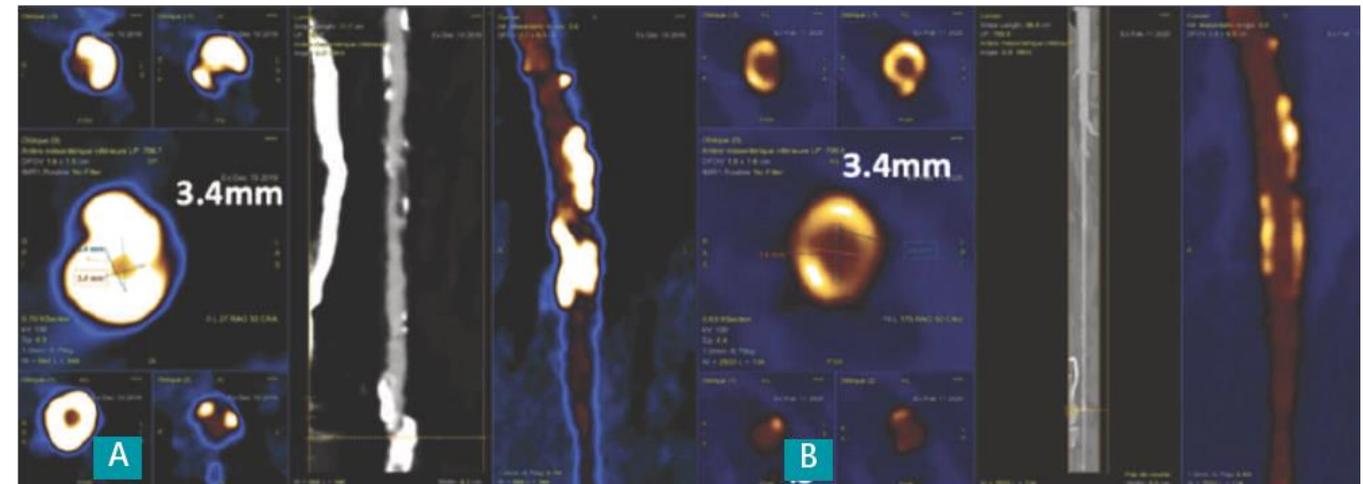
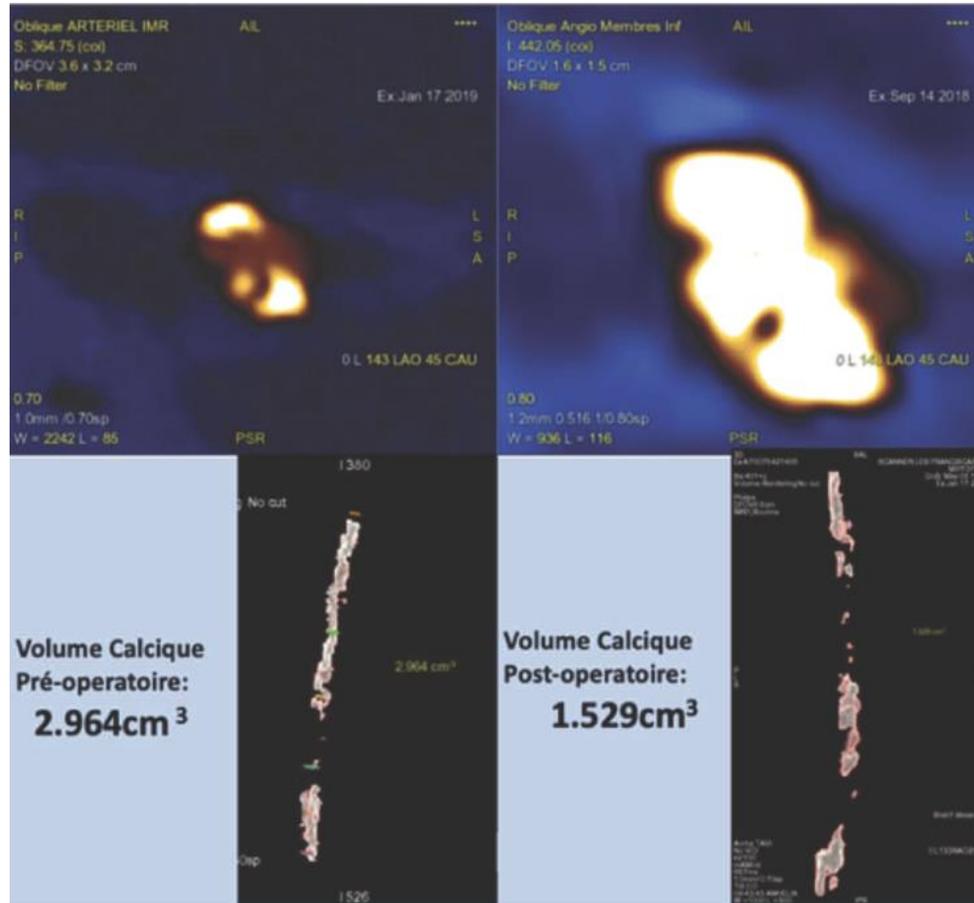
Cas clinique AFS + AP : Jetstream™



Cas clinique AP : Rotarex™



Décalcification avec Jetstream™



Conclusions

- L'athérectomie percutanée est un moyen de préparer le vaisseau **sûr** et **indispensable** dans notre arsenal thérapeutique endovasculaire.
- Elle est particulièrement **efficace** en cas de :
 - lésion très **calcifiée**
 - lésion **longue**
 - zone **peu « stentable »** (trépied fémoral, poplitée)
 - lésion **intra-stent**
- Elle n'est pour le moment **pas remboursée** en Belgique, ce qui oblige à trouver des « arrangements » avec l'industrie.