

LINC

January 30 – February 2, 2018

Trade Fair Leipzig, Hall 2 Messe-Allee 1, 04356 Leipzig, Germany

Guide to Live Case Transmissions



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Guide to Live Case Transmissions

During the Leipzig Interventional Course 2018 more than 90 interventional and surgical live cases are scheduled to be performed and transmitted to the auditorium. The aim of this booklet is to give you an overview about the live case schedule and to provide a practical quide through the procedures.

We hope for your understanding that with respect to the clinical needs of the patients changes of the schedule may occur.
Furthermore, the anticipated procedural steps are just an outline of the procedure.
Depending on the discretion of the operator the procedural strategy or the choice of material may vary.

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Tuesday, January 30, 2018 Case 01 - LEI 01: male, 56 years (G-Q)

Severely calcified CTO of the SFA left

Operators: A. Schmidt, M. Ulrich

Clinical data: Severe claudication left calf, walking capacity 50 meters, ABI left 0.62

Thrombendatherectomy right groin 7/2016

Minor stroke 2014

Risk factors: Art. hypertension, diabetes mellitus type 2, nicotine abuse

Procedural steps

1. Left groin retrograde and cross-over approach

■ 0.035" SupraCore guidewire 190 cm (ABBOTT)

■ 7F-40 cm Balkin Up&Over sheath (COOK)

2. Guidewire passage and PTA

- Command 18 and Armada 18-balloon (ABBOTT) or
- o.o35" Radiofocus soft angled guidewire, 260 cm (TERUMO) and 4.0/120 mm Armada 35 balloon (ABBOTT)
- 6.0/40 mm Armada 35 balloon (ABBOTT)
- Conquest high pressure balloon on indication (BARD)

3. Stenting

■ 5.0 or 6.0/150 mm Supera Interwoven Selfexpanding Nitinol stent (ABBOTT)



Case 02 - LEI 02: male, 78 years (G-A)

Re-occlusion left popliteal artery

Operators: S. Bräunlich, J. Schuster

Clinical data: Restpain left foot, Rutherford class 4, ABI left 0.40

PTA / stenting left SFA 11/2016 and PTA left popliteal artery

PTA / stent right SFA 11/2015

Risk factors: Chronic renal failure, GFR 65 ml/min

Nephrectomy left due to renal cell carcinoma 1994

Art. hypertension, former smoker

Procedural steps

1. Right femoral access and cross-over approach

- 0.035" SupraCore guidewire 190 cm (ABBOTT)
- 6F–55 cm sheath (COOK)

2. Guidewire passage

- Command 18, 300 cm guidewire (ABBOTT)
- Armada 18 4.0/80 mm balloon (ABBOTT)

In case of failure to pass the CT from antegrade:

3. Retrograde approach via proximal anterior tibial artery

- 7 cm 21 Gauge needle (COOK)
- Command 18, 300 cm guidewire (ABBOTT)
- 0.018" 3.0/40 mm Armada 18 balloon (ABBOTT)

4. PTA and stenting

- Armada 18 5.0/50 mm balloon (ABBOTT)
- Supera Interwoven Nitinol Stent 5.0/80 mm (ABBOTT)



Case o3 - LEI o3: male, 62 years (F-L)

Chronic total occlusion right SFA

Operators: S. Bräunlich, A. Schmidt

Clinical data: Severe claudication right calf, walking capacity 10 meters, ABI right 0.35

Rutherford class 3

Risk factors: Congesitve heart failure, EF 40%

Chronic renal failure, GFR 50 ml/min

Art. hypertension, diabetes mellitus type 2, former smoker

Procedural steps

1. Left groin retrograde and cross-over approach

■ 0.035" SupraCore guidewire 190 cm (ABBOTT)

■ 6F-40 cm Balkin Up&Over sheath (COOK)

2. Guidewire passage

■ 0.035" Radiofocus soft angled guidewire, 260 cm (TERUMO)

■ CXI support catheter, 0.035" 135 cm (COOK)

In case of failure to pass the CT from antegrade:

3. Retrograde approach via distal SFA

■ 9 cm 21 Gauge needle (COOK)

■ 0.018" V-18 Control guidewire, 300 cm (BOSTON SCIENTIFIC)

■ 0.018" CXI support catheter 90cm (COOK)

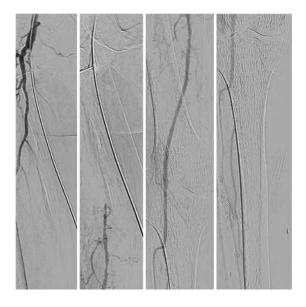
4. Angioplasty

■ Advance balloon 5.0/100 mm (COOK)

■ Advance Enforcer 6.0/40 mm in case of focal residual stenosis (COOK)

5. Stenting

■ Zilver PTX stent 6.0/140 mm (COOK)



Case 04 - JEN 01: male, 46 years (F-T)

Drug eluting stents in SFA lesions

Operators: R. Aschenbach, M. Thieme

Clinical data: PAOD Rutherford 3, walking distance 200 meters

Risk factors: Arterial hypertension, current smoker, thromendatherectomy right CFA 12/2017

Duplex: Long occlussion of left SFA

Procedural steps

1. Cross-over access with 6F sheath

■ CXI Support-Catheter Straight, Angled & Angled 2 (COOK)

2. Guidewire passage to popliteal artery

■ CTO-Approach guidewire 12gr (COOK)

3. Predilatation

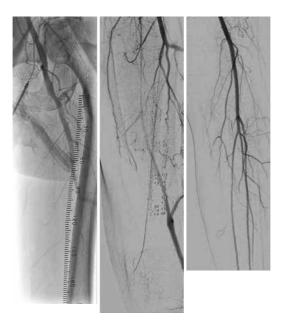
■ 18 LP Advance Balloon (COOK)

■ 35 LP Advance Balloon (COOK)

4. Drug-eluting stent implantation

■ Zilver-PTX (COOK-MEDICAL)

5. Postdilatation



Case o5 - NY o1: female, 66 years (E-M)

Right superficial femoral diffuse severe disease

Operators: P. Krishnan, V. Kapur, K. Gujja, S. Singla, R. Lascano

Clinical data: Patient presents with 2 block life-style limiting lower extremity claudication

over last 6 months. Progressively worsening. Rutherford Category 3.

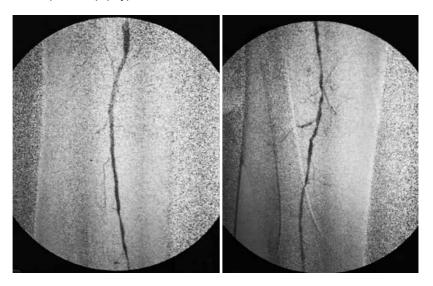
No history of ulcer. Failed maximal medical therapy

ABI: right 0.71, left 0.92

Risk factors: Hypertension, ex smoker, dyslipidemia

CAD s/p CABG

PVD - s/p left fempop bypass



Procedural steps

1. Left groin access with retrograde cross over approach

- UF 4F diagnostic catheter (ANGIODYNAMICS)
- 0.035" SupraCore guidewire, 300 cm (ABBOTT VASCULAR)
- 7F 45 cm Pinnacle sheath (TERUMO)

2. Passage through the right SFA stenosis

- 0.035" Tempo Aqua Vert support catheter, 125 cm (CORDIS)
- 0.014" Fielder guidewire, 300 cm (ABBOTT VASCULAR)
- Exchange to 0.014" Spartacore guidewire, 300 cm (ABBOTT VASCULAR)

3. Filter placement

- Exchange to a Barewire through the support catheter (ABBOTT VASCULAR)
- Emboshield Nav 6 filter placement (ABBOTT VASCULAR)

4. Plaque modification

■ Chocolate balloon 5 x 120 mm (MEDTRONIC)

5. PTA with drug-coated balloon

■ In.Pact Admiral 6.0 x 150 mm DCB (MEDTRONIC)

Case o6 - COT o1: male, 66 years (A-V)

Severely calcified left SFA restenosis

Operators: A. Micari, F. Castriota

Clinical data: Previous left SFA PTA (plain balloon) for severe claudication in February 2017

(final angio attached). Asymptomatic till mid November when he started complaining left leg pain for walking distances > 200 mt (very active lifestyle)

Risk factors: Hypertension

Severe claudication (walking distance 200 mt)

Duplex: Evidence of proximal SFA occlusion with flow demodulation in popliteal artery

Procedural steps

1. Right femoral access

2. Cross-over approach

■ TERUMO Destination 6F 45 cm long sheath

3. Lesion crossing

■ 0.018" wire, 0.035" hydrophilic wire (TERUMO)

4. Atherectomy for lesion preparation

■ HawkOne System (MEDTRONIC)

5. Balloon dilatation

■ 5.0 and 6.0 mm In.Pact Admiral drug-eluting balloons (MEDTRONIC)

6. Further postdilatation with long balloons, if needed



Case 07 - LEI 04: male, 65 years (J-G)

CLI with multilevel disease right

Operators: M. Ulrich, A. Schmidt

Clinical data: Critical limb ischemia with chronic ulceration right heel, Rutherford class 5

Restpain during night, ABI right 0.33,

Failed recanalization-attempt of the posterior tibial artery elsewhere 1/2018

PTA of the popliteal artery right 7/2017

Risk factors: Diabetes mellitus type 2, CAD, PTCA 7/2017

Hypertensive cardiomyopathy, chronic renal failure, GFR 55ml/min

Art. hypertension

Procedural steps

1. Antegrade approach right groin

■ 6F-55 cm Flecor Shetah (COOK)

2. Guidewire passage into the anterior tibial artery and placement

■ 0.018" V-18 Control guidewire, 300 cm (BOSTON SCIENTIFIC)

■ 4m Spider filter (MEDTRONIC)

3. Atherectomy of the popliteal artery

■ JetStream atherectomy device (BOSTON SCIENTIFIC)

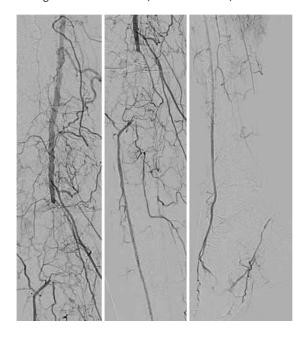
4. Guidewire passage of the posterior tibial artery

■ 0.014" PT2 guidewire, 30 cm (BOSTON SCIENTIFIC)

■ 0.014" Coyote balloon (BOSTON SCIENTIFIC)

5. PTA with DCBs of the popliteal and posterior tibial artery

■ Ranger DCB balloon 2.0 – 4.0 mm diameter (BOSTON SCIENTIFIC)



Case o8 - NYo2: male, 80 years, (H-P)

Right superficial femoral artery occlusion – calcified

Operators: P. Krishnan, V. Kapur, K. Gujja, S. Singla, R. Lascano

Clinical data: Progressively worsening right leg claudication x 1 year

No history of rest pain or ulceration Has failed maximal medical therapy Current claudication distance <1 block

(Rutherford stage 3)
ABI: right o.82, left o.94

Risk factors: Type 2 diabetes mellitus, hypertension, dyslipidemia,

ex smoker

History of CAD s/p CABG

Procedural steps

1. Left groin access with retrograde cross over approach

- UF 4F diagnostic catheter (ANGIODYNAMICS)
- 0.035" SupraCore guidewire, 300 cm (ABBOTT VASCULAR)
- 6F 45 cm Pinnacle sheath (TERUMO)

2. Passage through the right SFA occlusion

- 0.035" Tempo Aqua Vert support catheter, 125 cm (CORDIS)
- 0.018" Connect 250 T guidewire, 300 cm (ABBOTT VASCULAR)
- If unable to cross with o.o18" guidewire, switch to an o.o35" stiff angled glidewire (TERUMO)

3. Filter placement

- Exchange to a Barewire through the support catheter (ABBOTT VASCULAR)
- Emboshield Nav 6 filter placement (ABBOTT VASCULAR)

Jetstream atherectomy of the right SFA calcified disease

■ Jetstream 2.4/3.4 mm atherectomy (BOSTON SCIENTIFIC)

5. PTA with drug-coated balloon

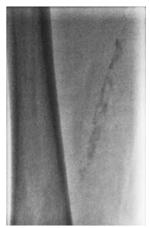
■ In.Pact Admiral 6.0 x 120 mm DCB (MEDTRONIC)

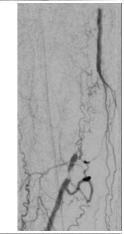
6. PTA with a non-compliant balloon

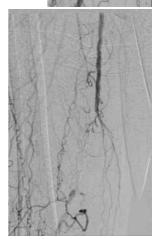
■ Dorado 6 x 100 mm balloon (BARD)

7. Stenting and post-dilatation

- 5.5 x 150 mm Supera interwoven self-expanding Nitinol stent (ABBOTT)
- Dorado 6 x 100 mm balloon (BARD)







Case og - LEI o5: male, 72 years (D-W)

Severely calcified SFA-stenosis right

Operators: A. Schmidt, M. Ulrich

Clinical data: Severe claudication right calf, walking capacity 40 meters,

ABI right 0.47, Rutherfor class 3 PTA / stenting left SFA 12/2017

CAD, MI 8/2016, PTCA

Ischaemic cardiomyopathy, EF 47%

Pace-maker 5/2016

Risk factors: Art. hypertension, former smoker

Procedural

steps

1. Left groin retrograde and cross-over approach

■ IMA-diagnostic 5F catheter (CORDIS/CARDINAL HEALTH)

■ 0.035" angled soft Radiofocus guidewire, 190 cm (TERUMO)

■ 0.035" SupraCore guidewire, 190 cm (ABBOOTT)

■ 7F 55 cm Flexor Check-Flo introducer, Raabe Modification (COOK)

2. Passage of the distal SFA-CTO

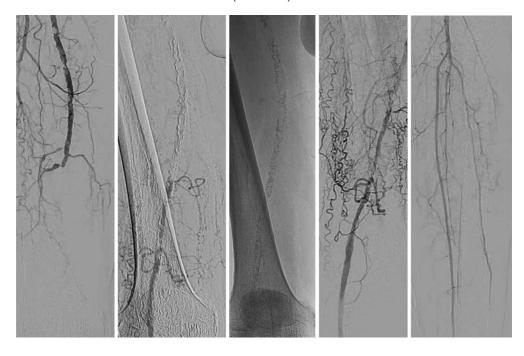
■ 0.018" Connect 250 T guidewire, 300 cm (ABBOTT)

■ 0.018" QuickCross support catheter 135 cm (SPECTRANETICS)

3. Angioplasty

■ 6.0/60 mm Lithoplasty balloon (SHOCKWAVE MEDICAL)

■ 6.0/80 mm iLuminor DCB (iVASCULAR)



Case 10 - ZUE 01: male, 57 years (W-J)

Pelvic lymphocele causing post-thrombotic syndrom left leg

Operators: N. Kucher, D. Do Clinical data:

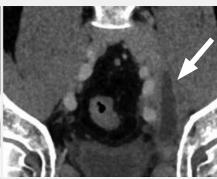
Residual small pelvine lymphocele post sclerotherapy

Risk factor: Compression left external iliac vein, inactive prostate carcinoma

Lymphocele (post sclerotherapy) CT-scan:

Swelling left leg





Procedural steps

Retrograde left common femoral vein access

■ 10F sheath

- 2. Retrograde recanalization left iliac vein obstruction
- IVUS
- 4. Vessel preparation
- 5. Stenting
 - New generation woven nitinol stent (Blue Flex stent) 10F (14/100 and 14/150)
- 6. Post dilatation

Case 11 - GAL 01: female, 57 years (A-J)

Left lower limb DVT

Operators: M. Al Hajiry, G. O'Sullivan

Clinical data: 8 day history of low back and pelvic pain; 4 days history of leg pain

Swollen, purple, tense; normal pulses

Present state: No prior history, no medications, no cancer

Recently laid up with severe flu

US diagnosed left Ilio-femoral deep vein thrombosis; confirmed on CT





Procedural steps

1. Prone position; US guidance

■ 11F sheath; 5000u IV Heparin

- Initial venograms; cross lesion with hydrophiic wire (MERIT MEDICAL); confirm position in IVC
- 3. Penumbra Indigo 8F Cat system 80 cm long
- 4. May or may not use Alteplase 5-20 mg
- 5. Repeat venography
- 6. Aspiration
 - 7F Detachable Hub sheath (TERUMO) or 8F 45 cm Hockey Stick (CORDIS)
- 7. IVUS
 - Volcano/PHILIPS
- 8. Balloon

■ Atlas 14–16 mm at high pressure (>20 atm) (BARD)

- 9. Venous Stent
 - Zilver Vena 14/140 mm inferiorly (COOK);
 16mm x 100 or 140mm superiorly;
 repeat balloon dilatation to nominal diameter stent
- 10. IVUS to confirm full stent expansion; minimal venography to finish; CDUS Day 1; pneumatic compression boots; Class 2 thigh high stockings x 6 weeks





Case 12 - COT 02: male, 70 years (P-P)

Right common iliac occlusion in a patient with severe aortic carrefour disease

Operators: F. Castriota, A. Micari

Clinical data: Known vascular history with previous LICA PTA in 2015

No history of chest pain, referred progressively deteriorating symptoms of claudication from October '17, now severely impairing his quality of life

Risk factors: Hypertension, previous history of smoking, hypercholesterolemia

Severe claudication (20 mt), erectile dysfunction

pronounced flow demodulation in both common femoral arteries

Procedural steps

1. Radial access for angiographic evaluation

2. Bilateral femoral access

3. Right common iliac artery lesion crossing

■ 0.018" 300 cm wire or TERUMO soft 0,035" hydrophilic wire

4. Kissing stenting with balloon-expandable stents

Assurant-Cobalt stents (MEDTRONIC)

5. Postdilation as required



Case 13 - LEI 06: male, 59 years (A-W)

TASC D iliac occlusion left

Operators: A. Schmidt, M. Ulrich

Clinical data: Severe claudication left, walking-capacity 120 meters

Rutherford class 3, ABI left 0.53

Risk factors: Minor stroke 2009, art. hypertension, former smoker, diabetes mellitus type 2

Procedural steps

1. Left femoral access

■ 7F 25 cm Radiofocus Introducer (TERUMO)

■ o.o35" SupraCore guidewire 300 cm (ABBOTT)

Left brachial approach:

■ 7F 90 cm Check-Flo Performer (COOK)

2. Antegrade and retrograde guidewire passage

brachial:

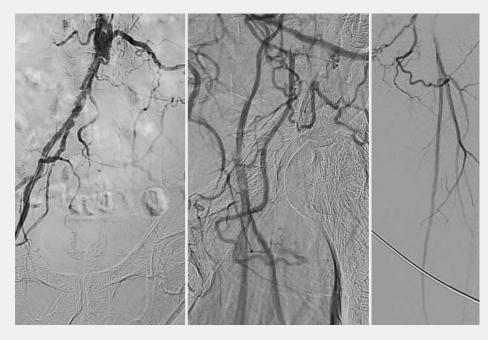
■ 5F Judkins Right diagnostic catheter 125 cm (CORDIS/CARDINAL HEALTH) from femoral:

■ 5F Multipurpose diagnostic catheter 8o cm (CORDIS/CARDINAL HEALTH)

■ 0.035" stiff angled glidewire, 260 cm (TERUMO)

3. Predilatation and stenting of the aorto-iliac bifurcation

- Ultraverse or Dorado balloon (BARD)
- LifeStream covered stent 7/58 bilateral common iliac arteries in kissing-technique (BARD)
- Covera Plus vascular covered stent for the external iliac artery (BARD)



Case 14 - ZUE 02: female, 27 years, (K-S)

Postpartal ilio-femoral vein thrombosis left

Operators: N. Kucher, D. Do

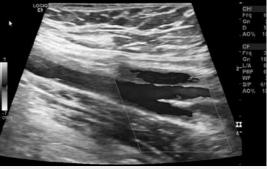
Clinical data: Post-thrombotic syndrome with leg swelling and claudicatio venosa

Risk factors: Delivery, postpartum status, May-Thurner anatomy

Duplex: Occlusion left external iliac and common femoral veins;

maintained venous inflow by V. femoralis & V. profunda femoris





Procedural steps

- Ultrasound-assisted retrograde left common femoral vein access
 10F SHEATH
- 2. Passage left iliac vein occlusion
- 3. IVUS
- 4. Vessel preparation
- 5. Stenting
 - VIC: Sinus Obliquus (14/150) (OPTIMED)
 - VIC: Sinus XL Flex (14/100) (OPTIMED)
 - VFC: Sinus XL Flex (14/80) (OPTIMED)
- 6. Post-dilatation

Case 15 - GAL 02: female, 57 years (S-C)

Dealing with a chronic post thrombotic iliac obstruction

Operators: M. Al Hajiry, G. O'Sullivan

Clinical data: Swollen left leg 10 months after an IF DVT. Initially presented April 2017 with acute

L IFDVT. Delayed diagnosis. Attempted lysis treatment complicated by genuine anaphylactic reaction to iodinated contrast. Abandoned. CTV showed IVC to ankle DVT. Transferred to Galway; 3 days CDT improved situation, did not stent. Anticoagulated for

7 months; leg has improved; still some venous claudication. MRV to follow:

MRV shows chronic iliac occlusion IVC to L CFV. We think CFV is good enough for inflow.

Procedural steps

1. Access R IVJ; L FV or PFV General anaesthetic; supine, urethral catheter

- 10F 35cm sheath
- 8F Hockey stick
- 5f CXI catheter (COOK)
- Road runner wire (COOK) or Glide wire (MERIT MEDICAL)

2. Ideally cross from above and below; confirm position - multiple obliques

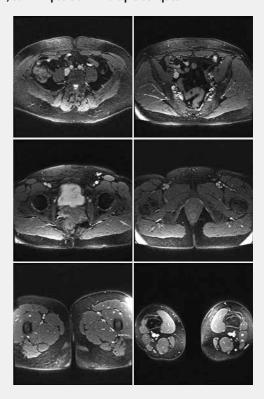
3. Predilatation @ 20atm

- 16 mm BARD Atlas CIV EIV
- 14 mm CFV 12 mm PFV
- or FV cephalad end

4. Stent choice

there is no right or wrong; no stent has a proven advantage over another – so: deploying from inferior to superior

- 14 mm Wallstent/Veniti Vici/ BARD Venovo/COOK Zilver Vena/Optimed Sinus Venous/ MEDTRONIC Abre; then 16 mm to CIV
- Identifying the dominant inflow by IVUS is probably the key step to this case
- 6. Post stent dilatation; same size balloons to high pressure
- Confirm full stent expansion with IVUS
- 8. Venography to finish
- Pneumatic compression boots (Tyco/COVIDIEN);
 Class 2 stockings; CDUS day 1;
 full anticoagulation before,
 during and after



Case 16 - ZUE 03: female, 69 years (R-L)

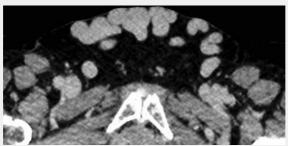
Recanalization chronic iliac vein occlusion left

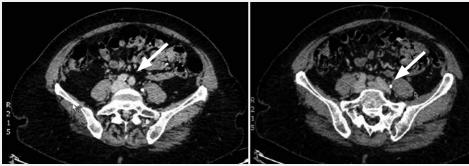
Operators: N. Kucher, U. Frank

Clinical data: Post-partal iliac vein thrombosis (1969) with post-thrombotic syndrome

Risk factors: APC-resistance, atypical left iliac vein compression

CT: Spontaneous palma, no May-Thurner anatomy but atypical iliac vein compression





Procedural steps

- 1. Ultrasound-assisted retrograde left femoral vein access
 - 10F sheath
- 2. Passage left iliac vein occlusion
- 3. IVUS
- 4. Vessel preparation
- 5. Stenting
 - VIC: Sinus Obliquus (14/150) (OPTIMED)
 - VIE: Sinus XL Flex (14/100) (OPTIMED)
 - VFC: Sinus XL Flex (14/80) (OPTIMED)
- 6. Postdilatation

Case 17 - GAL 03: male, 47 years (M-M)

IVC sewn graft – occluded – what to do?

Operators: M. Al Hajiry, G. O'Sullivan

Clinical data: Leiomyosarcoma IVC resection 1996; IVC sewn graft;

patient for years and discharged to GP; recent severe RTA; no head injury; mildly swollen legs but now more severe

CT: CT abdomen with IV contrast as shown

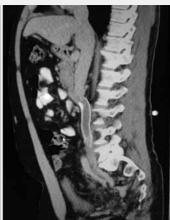
Procedural steps

1. Access

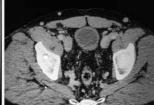
■ 10F 35 cm sheaths above and below- RIJV + L CFV + R CFV

- 2. Support catheters
- 3. Hydrophilic catheters and wires
- 4. If successful in crossing, then CBCT (SIEMENS) to confirm all intra-luminal
- 5. Exchange to 260 Lunderquist wires (COOK)
- 6. Capturex from above to trap any debris
 - Consider use of Aspirex (STRAUB) I don't know how acute this is really
- 7. Attempt balloon dilatation
 - Kissing 14 mm balloons (BARD Atlas) entire length of occlusion
- 8. Kissing stents with high resistance to compression
 - Veniti Vici 14/120 mm and or Sinus XL 24/80 to top end; distal extension to mid CIV or EIV bilaterally
- 9. Post stent implantation to same high pressure (>20 atm)
- 10. IVUS, venography and CBCT to finish
 - Normally I wouldn't use this much radiation but this is a bit unusual!!!









Case 18 - ZUE 04: female, 65 years, (N-R.M.)

Recanalization vena cava superior occlusion

Operators: N. Kucher, D. Do

Clinical data: PM-associated occlusion of vena cava superior

Bi-parietotemporal headache

Sick-sinus syndrome with dual-champer PM implantation 2012

Persisting pericardial effusion

Clinical image: Epigastric collateral veins

CT: Occlusion V. cava superior and innominate vein, insufficient hemiacygos collateral vein,

atypical mamarian and epigastric veins, PM-electrodes in situ

Procedural steps

1. Ultrasound-assisted access

- Left common femoral vein 10F sheath
- Right internal jugular vein 6F sheath
- 2. Passage V. cava superior occlusion
- 3. IVUS
- 4. Balloon angioplasty
 - Atlas Gold Balloon (up to 16 mm) (BARD)
 - xy balloon







Case 19 - GAL 04: male, 39 years (J-G)

SVC occlusion in a dialysis patient

Operators: M. Al Hajiry, G. O'Sullivan

Clinical data: 3 prior renal transplants, current one is failing, innumerable previous

central lines for dialysis, now has symptoms of SVC obstruction

Present state: Clinically sleeps with 4 pillows; swollen face, lips, hoarse voice –

CTV initially read as no obstruction – however at MDM complete obstruction noted.

Previous attempt to cross failed.

Procedural steps

General anaesthetic; cardiothoracic back up; 6 units grouped and cross matched.
 Arterial line

2. Access above and below 14F sheaths

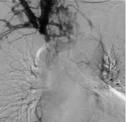
 Get good support catheters up close to occlusion and obtain best oblique Try to cross with a variety of wires including hyrdophilic; stiff hydrophilic; Road Runner (COOK); ASAHI Astata 30g curved tip

- **4.** If unsuccessful then, in best oblique; line up TIPS need or Trans-Septal needle with a snare- shoud we go from south ot north or via versa??
- 5. If we get across then balloon dilatation- unlike in iliacs where we go straight to 16 mm we will start here with 4/6/8/10; probably use a covered stent?

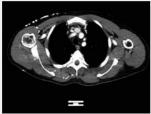
 Viabahn 13 mm x 50 mm; possibly reinforce with a Venous Stent like Bard Venovo
- 6. Post dilate to 12/14 mm
- 7. CBCT and IVUS to finish











Case 20 - GAL 05: male, 49 years (A-O-M)

Covera (Bard) covered stent graft to resitance venous stenosis

Operators: M. Al Hajiry, G. O'Sullivan

Clinical data: Right arm AVF created 2010; treatment resistant cephalic vein stenosis;

brachial artery to cephalic vein; recurrent high venous pressures prolonged bleeding – has been dilated every 6 weeks to 3/12 –

we are looking for a bit more durability

Present state: End stage renal disease

Procedural steps

1. Right arm AVF access using micropuncure set and then a pursestring suture

2. Cross lesion using hydrophilic wire and then stiff wire into IVC

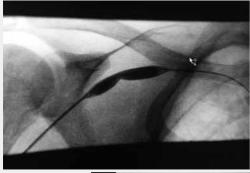
3. Predilate with high pressure balloon to 10mm (its usual size)

4. Covera stent graft (BARD) to cover the lesion and avoid covering much of subclavian vein beyond

5. 3000u IV Heparin

6. Purse-string suture

7. Dialysis following day







Case 21 - BLN 01: male, 79 years (R-L)

Progressive bilateral carotid artery stenosis ~80% (surveillance since 2012)

Operators: R. Langhoff, A. Behne

Clinical data: CRF: art. hypertension, hyperlipidemia

PAOD with bilateral iliac stenting in 2013 CHD with CABG and ischemic cardiomyopathy

Stenting of right carotid artery 12/2107

Important items: Known carotid artery disease since 2012

Yearly DUS surveillance

and since Dec. 2017 treatment was initiated

by vascular surgeon

Vascular surgeon referred the patient

for bilateral CAS

Duplex: PSV right 377 cm/s, left 420 cm/s

Procedural steps

1. Transfemoral access

■ 8F short sheath (TERUMO)

2. Intubation of LCC

■ Berenstein 4F catheter (4F, Tempo Aqua, CARDINAL HEALTH)

3. Placement of guiding sheath

8F CBL or Simmons 8F guiding sheath (Vista Brite Tip IG, CARDINAL HEALTH)

4. Wiring with Filter Wire

■ EZ Distal EPD (BOSTON SCIENTIFIC)

5. Predilation of left ICA

■ 3 x 20 mm Maverick balloon (BOSTON SCIENTIFIC)

6. Stenting

■ 9 x 30 mm Carotid Wallstent (BOSTON SCIENTIFIC)

7. Postdilation

■ Paladin 5 x 20 mm balloon with integrated filter protection (CONTEGO MEDICAL)

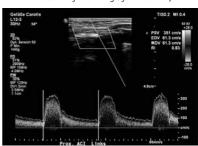
8. Removal of guiding catheter and sheath

9. Vessel closure

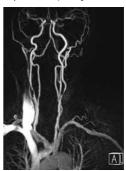
Angioseal 8F (TERUMO)



Ostium of LCC in Angio from Dec. 2017



Duplex Dec. 2017 ICA left



Left ACI Stenosis in MRA

Case 22 - COT 03: female, 79 years (D-P)

Symptomatic left internal carotid disease in a 79-year old woman

Operators: A. Micari, F. Castriota

Clinical data: In November '17 major stroke with right-sided hemiparesis

Progressive full recovery in the subsequent 30 days

Risk factors: Hypertension, hypercholesterolemia

Asymptomatic (recent stroke)

Duplex: Left internal carotid tight disease with soft/mixed plaque

determining significant flow acceleration

Procedural steps

1. Femoral access

2. Proximal protection■ MOMA 9F (MEDTRONIC)

3. Lesion crossing with 0.014" wire

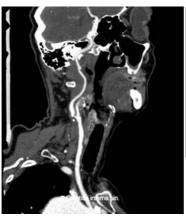
4. Direct stenting

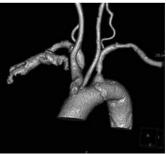
■ 'Double mesh' stent C-Guard (INSPIRE MD)

5. Postdilation

■ 5.0 mm Maverick XL balloon (BOSTON SCIENTIFIC)

6. Debris aspiration (if any)





Case 23 - LEI 07: male, 72 years (U-R)

Chronic total occlusion left

Operators: S. Bräunlich, J. Schuster

Clinical data: Severe claudication left calf, walking capacity 150 meters,

ABI left o.67, Rutherford class 3

Failed recanalization-attempt left SFA 11/2017

Risk factors: Art. hypertension, former smoker, diabetes mellitus type 2

Procedural steps

1. Right femoral access and cross-over approach

■ 0.035" SupraCore guidewire 190 cm (ABBOTT)

■ 6F-40 cm Balkin Up&Over sheath (COOK)

2. Guidewire passage

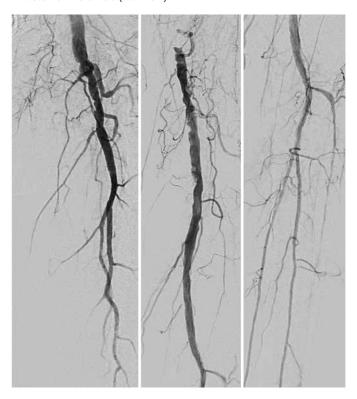
■ 0.035" Radiofocus soft angled guidewire, 260 cm (TERUMO) and

■ QuickCross support catheter, o.o35" 135 cm (SPECTRANETICS - PHILIPS)

3. PTA and stenting on indication

■ SeQuent Please DCB 5.0/150 mm (B.Braun)

■ VascuFlex Multi-LOC (B.BRAUN)



Case 24 - LEI 08: male, 64 years (F-B)

Critical limb ischemia with restpain right, severely calcified right SFA

Operators: A. Schmidt, M. Ulrich

Clinical data: Restpain right foot, livedo forefoot right, ABI o.o, Rutherford class 4,

PTA / stenting right iliac and left SFA 3/2016, CAD, PTCA 2/2015,

Hypertensive and ischemic cardiomyopathy, NYHA II

Risk factors: Art. hypertension

Procedural steps

1. Right groin retrograde and cross-over approach

- IMA 5F diagnostic catheter (CORDIS/CARDINAL HEALTH)
- 0.035" soft angled Radiofocus guidewire, 190 cm (TERUMO)
- 0.035" SupraCore guidewire 190 cm (ABBOTT)
- 7F 55 Check-Flo Performer sheath, Raabe Modification (COOK)

2. Antegrade guidewire passage

- 0.035" Stiff angled glidewire, 260 cm (TERUMO)
- CXC o.o35" support catheter, 135 cm (COOK)

3. Retrograde guidewire passage

Access via the proximal anterior tibial artery:

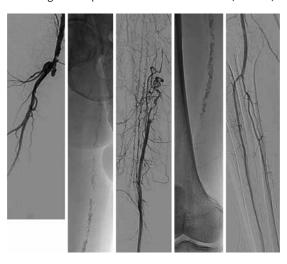
- 7 cm 21 Gauge needle (COOK)
- Command 18 guidewire, 300 cm (ABBOTT)
- 4Fr-10cm Radiofocus Introducer (TERUMO)
- Pacific Plus 4.0/40 mm balloon, 90 cm (MEDTRONIC)

4. PTA and stenting

- 6.0/20mm Admiral Xtreme balloon (MEDTRONIC)
- 7.0/20 Conquest non-compliant high pressure balloon (BARD)

In case of inability to open the balloons fully:

- Implantation of a Viabahn 7.0/100 mm (GORE)
- Relining with Supera Interwoven Nitinol stent (ABBOTT)



Case 25 - BLN 02: female, 78 years (B-P)

Long SFA occlusion right leg

Operators: R. Langhoff, M. Boral

Clinical data: Severe claudication right leg

12 cm long SFA occlusion

Recanalisation of left SFA with focal stent and DEB 11/2017

Risk factors: Art hypertension, hyperlipidemia, former smoker

Present state: Ablatio mammae left 1997

ABI: 0.57 right

Procedural steps

1. Antegrade access 5F right common femoral

2. Wire passage

- 0.018" Advantage (TERUMO) with CXI 0.018" support (COOK)
- Back-up wire: Connect o.o18" 250T (ABBOTT VASCULAR)

3. PTA

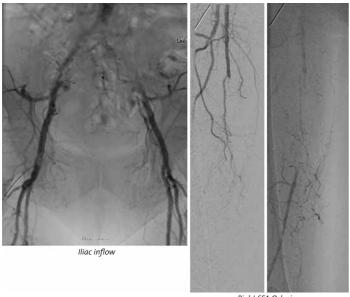
- Passeo 18 4 mm balloon (BIOTRONIK)
- Passeo 18 LUX DEB 5 mm balloon (BIOTRONIK)

4. Stenting

■ Pulsar 18 5 x 150 mm stent on demand following REACT strategy (BIOTRONIK)

5. Manual compression

6. If antegrade recanalisation fails retrograde access via ATA



Right SFA Oclusion

Case 26 - LEI 09: female, 78 years (E-B)

Chronic CTO left SFA, CLI

Operators: S. Bräunlich, J. Schuster

Critical limb ischemia, small interdigital ulceration, Rutherford class 5, ABI left 0.56

CAD, MI and PTCA 2007 Spinal surgery 2006

Risk factors: Art. hypertension

Procedural steps

1. Right femoral access and cross-over approach

■ 6F 45 cm cross-over sheath Fortress (BIOTRONIK)

2. Recanalisation left SFA

■ o.o18" Advantage glidewire (TERUMO)

■ o.o18" CXI support catheter (COOK)

Back-up material:

■ Connect 250T CTO-wire (ABBOTT)

■ Outback reentry system (CORDIS / CARDINAL HEALTH)

3. PTA

■ Passeo 18 Ballon 5 x 150 mm (BIOTRONIK)

■ 5 mm Passeo 18 Lux DCB (BIOTRONIK)

4. Stenting on indication, spot-stenting

■ Pulsar 18 stent (BIOTRONIK)



Case 27 - LEI 10: male, 70 years (KH-J)

Restenosis after TEA left internal carotid artery

Operators: A. Schmidt, M. Ulrich

Clinical data: Restenosis left ICA, TEA left 2013, asymptomatic

TEA right 3/2015, minor stroke 5/2006 right hemispheric

Congestive heartfailure, EF 45%, NYHA II Chronic renal insufficiency, GFR 67ml/min

COPE

Risk factors: Art. hypertension, nicotin abuse

Procedural

steps

1. Right groin acces

■ 8F 25 cm Radiofocus introducer (TERUMO)

■ 5F Judkins Right diagnostic catheter (CORDIS/CARDINAL HEALTH)

■ 0.035" soft angled glidewire, 190 cm (TERUMO)

■ 0.035" SupraCore 190 cm guidewire (ABBOTT)

2. Cerebral protection

■ MoMa proximal protection system, Mono-Balloon (MEDTRONIC)

3. Predilatation and stenting

- 3.5/20 mm MiniTrek Monorail balloon (ABBOTT)
- 8/30 mm CGuard stent (InspireMD)

4. Postdilatation

Paladin® Carotid Post-Dilatation balloon
 with integrated embolic protection (CONTEGO MEDICAL)

5. Aspiration and declamping with the Paladin filter in place

6. Retrieval of the Paladin system





Case 28 - COT 04: male, 68 years (A-S)

Symptomatic left internal carotid artery disease in a 68-year old high-risk patient

Operators: F. Castriota, A. Micari

Clinical data: Known history of dilated cardiomyopathy (EF 35%). Severe COPD.

Previous PTA to RICA in 2016. In Novmber 2017 sudden onset of right-sided

hemyparesis with dysartria, full recovery after 24 hours.

Risk factors: Hypertension

Currently asymptomatic (previous stroke in Novmber 2017)

Duplex: Severe LICA disease (fibro-calcific disease)

Procedural steps

1. Femoral access

2. Proximal protection

■ MoMa proximal protection system (MEDTRONIC)

3. Direct stenting with 'closed-cell' stent

■ Carotid Wallstent (BOSTON SCIENTIFIC)

4. Postdilatation

■ 5.0 mm Maverick XL balloon (BOSTON SCIENTIFIC)

5. Debris aspiration (if any)





Case 29 - BLN 03: female, 79 years (K-S)

Occlusion of tibioperoneal trunk left

Operators: R. Langhoff, A. Behne

Clinical data: PTA of left SFA & recanalisation of tibioperoneal trunk and ATA 2013

Stenting of left SFA 2016 (re-occlusion)

Stenting, scoring PTA and DEB of right SFA 2017

Risk factors: Impaired renal function CKD III

Hyperlipidemia, art. hypertension, diabetes mellitus

Present state: Severe claudication, walking distance <80 meters

ABI 0.5 left. 0.71 right

Procedural steps

1. Antegrade access

■ 5 F TERUMO Destination 45 cm

2. Crossing of the lesion

■ Advantage o.o18" wire (TERUMO) with CXI Support (COOK)

3. PTA of TB-trunk

■ 3.0 x 40 mm balloon

4. Stenting

■ Cr8-BTK (ALVIMEDICA) if needed (after exchange to 0.014" wire)

5. PTA of ATP and peroneal artery

■ 2.5 mm balloon

6. Recanalisation of ATA and PTA

■ 2.5 mm x 200 mm balloon



LEIPZIG INTERVENTIONAL COURSE 2018

LINC

Wednesday, January 31, 2018 Case 30 - LEI 11: male, 71 yeras (T-K)

Calcified BTK CTOs left, CLI

Operators: A. Schmidt, J. Schuster

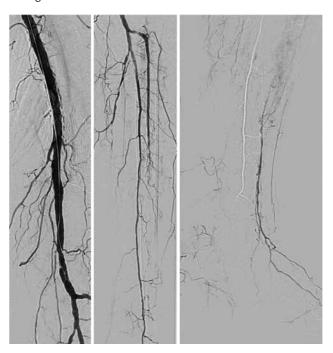
Clinical data: PAOD Rutherford 5, D3-ulcerations and rest pain at night, walking capacity 10 m

PTA of the left popliteal artery 01/18

Risk factors: Diabetes mellitus type 2, arterial hypertension, former smoker

ABI right 0.7, left 0.5

Angiography: During PTA 01/18: occlusion of ATP and ATA



Procedural steps

1. Left groin antegrade approach

■ 6F 55 cm Flexor Check-Flo sheath, Raabe Modification (COOK)

2. Guidewire passage of the occlusion PTA with DCBs

- 0.014" Command ES guidewire, 300 cm (ABBOTT)
- 0.018" 90 cm Seeker support catheter (BARD)
- 0.014" Ultraverse balloon (BARD)
- Lutonix-BTK DCB (BARD)

3. In case of dissections after DCB, provisional placement of nitinol "tacks"

■ Tack Endovascular System (INTACT VASCULAR)

Case 31 - LEI 12: male, 68 years (H-A)

Occlusion of the right popliteal artery

Operators: S. Bräunlich, J. Schuster

Clinical data: PAOD Rutherford 3, walking capacity 10–15 m, ABI right 0.55, left 0,8

PTA/stenting of left SFA and BTK 12/2107

Risk factors: Arterial hypertension, hyperlipidemia,

diabetes mellitus type 2 with neuro- and angiopathy

Procedural steps

1. Left groin and cross-over approach

■ Judkins Right 5F diagnostic catheter (CORDIS/CARDINAL HEALTH)

■ 0,035" SupraCore guidewire 30 cm (ABBOTT)

■ 6F-40 cm Balkin Up&Over sheath (COOK)

2. Guidewire passage of the occlusion

■ 0.035" Halfstiff Terumo 260 cm (TERUMO)

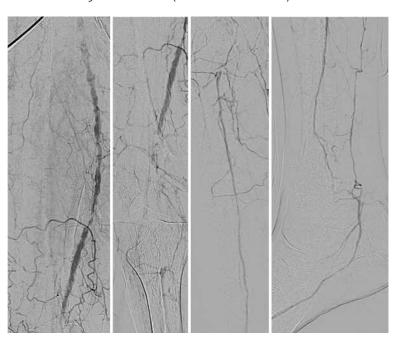
■ o.o35" QuickCross support catheter, 135 cm (SPECTRANETICS-PHILIPS)

3. PTA with scoring ballon

■ 4/40 mm AngioSculpt PTA scoring balloon (SPECTRANETICS-PHILIPS)

4. PTA with DCBs

■ Stellarex 5.0/120 mm DCBs (SPECTRANETICS-PHILIPS)



Case 32 - LEI 13: male, 69 years (C-D)

Instent reoclusion left SFA

Operators: M. Ulrich, S. Bräunlich

Clinical data: PAOD Rutherford 3, walking capacity 150 m, ABI left 0,6

PTA/stent right EIA 12/2017, PTA/stent left SFA 08/2016

CAD, PTCA 06/2016

Risk factors: Hyperlipidemia, nicotine abuse (20PY), arterial hypertension

Angiography: During PTA right 12/2017: IRS left SFA

Procedural steps

1. Right groin and cross-over approach

■ Judkins Right 5F diagnostic catheter (CORDIS/CARDINAL HEALTH)

■ 0,035" SupraCore guidewire 30 cm (ABBOTT) ■ 7F-40 cm Balkin Up&Over sheath (COOK)

2. Guidewire passage of the in-stent reocclusion

■ 0.035" Halfstiff Terumo 260 cm (TERUMO)

■ 0.035" QuickCross support catheter, 135 cm (SPECTRANETICS-PHILIPS)

■ Exchange to a o.o14" Floppy ES guidewire 300 cm (ABBOTT)

3. Laser atherectomy

■ 7F Excimer laser with Turbo Elite 2.3 mm cathether (SPECTRANETICS-PHILIPS)

4. PTA with DCBs

■ Stellarex 6.0/120 mm DCBs (SPECTRANETICS-PHILIPS)



Case 33 - LEI 14: male, 63 years (AG-N)

Long SFA-occlusion left in a CLI-patient

Operators: A. Schmidt, S. Bräunlich

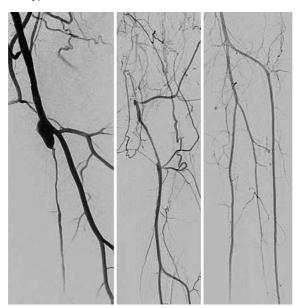
Clinical data: Critical limb ischemia left, ulcerations dig 2/3 left, restpain,

Previous femoro-popliteal bypass surgery left (in-situ) 2007

with bypass-thrombectomy 2017 Congestive heartfailure, NYHA III Paroxysmal atrial fibrillation

COPD

Risk factors: Art. hypertension, nicotine abuse



Procedural steps

1. Left groin and cross-over approach

- Judkins Right 5F diagnostic catheter (CORDIS/CARDINAL HEALTH)
- 0,035" SupraCore guidewire 30 cm (ABBOTT)
- 6F-40 cm Balkin Up&Over sheath (COOK)

2. Guidewire passage

- 0.035" stiff, angled glidewire, 260 cm (TERUMO)
- 0.035" Seeker support catheter, 135 cm (BARD)

3. Angioplasty

- VascuTrak 5.0/300 mm balloon (BARD)
- Lutonix GEOALIGN marking system DCB 6.0/120 mm (BARD)

4. Stenting on indication

■ LifeStent (BARD)

Case 34 - TEA 01: male, 73 years (D-W)

CIA and EIA stenoses

Operators: J. Rundback, K. Herman, V. Gallo

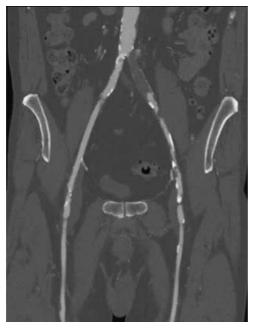
Clinical data: Three-year history of 4-5 block claudication, left greater than right, described as pain

in the calves with walking which has increased in severity over the last two months to the point where he has constant numbness and paresthesias in the left leg. He has been treated for many years with antiplatelet therapy and cilostazol, and has exercised regularly without improvement in symptoms. He has no ischemic rest pain other than

described paresthesias and no active ulceration

Risk factors: Hypertension, dyslipidemia, 40-year two pack-per-day smoking history,

stopped for 15 years, right carotid stent 2014



- 1. Ipsilateral femoral access
- 2. Contralateral femoral access for angiography
- 3. Pelvic and left LE angiography
- 4. Predilation of iliac lesion (POBA) (Charger, MEDTRONIC)
- 5. Cross iliac lesions
- 6. EIA POBA then SES (BARD)
- 7. CIA stent placement (LifeStream, BARD)

Case 35 - TEA 02: male, 57 years (J-D)

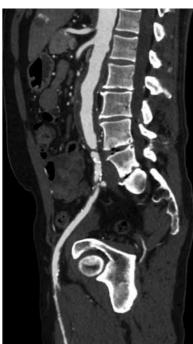
TASD aorto-iliac occlusive disease

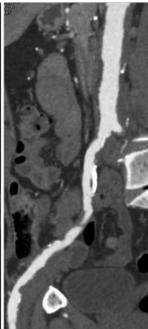
Operators: Z. Raval, I. Zairis, K. Herman

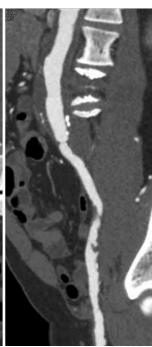
Clinical data: 57 yo male with claudication x 1 yr, not improved with Cilostazol,

he works in food delivery business and the symptoms have made his work difficult.

Risk factors: HTN, long time smoker (trying to quit-currently with nicotine patch)

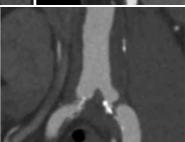






Procedural steps

- 1. Bilateral groin access
- 2. Will plan for treatment using Endologix AFX Unibody Endograft
- Pre-close technique utilizing
 Per-Close devices (ABBOTT)
- 4. Aortogram to size device
- Deploy device, possible extension to cover iliac disease using Ovation limb (ENDOLOGIX)
- 6. Alternate plan: b/l groin access and kissing balloon stent graft, VBX (GORE)



Case 36 - BK 01: female, 64 years (B-R)

CFA directional atherectomy with additional DCB angioplasty

Operators: A. Rastan

Clinical data: Claudication Rutherford-Becker class 3

DCB angioplasty and stenting of the left popliteal artery 2014

Stenting of the right CIA and CIE 2017

Risk factors: Hypertension, tobacco use, diabetes, hypercholesterolemia

Present state: ABI at rest: 0.7

Duplex ultrasound/angiography: 80% stenosis of the left CFA

Procedural steps

1. Femoral access (cross-over)

■ o.o35" wire (TERUMO)

■ 7/8F 45 cm sheath (COOK)

2. Directional atherectomy

- 0.0014" wire (TERUMO)
- Spider filter (MEDTRONIC)
- TurboHawk/HawkOne (MEDTRONIC)

3. Post-dilatation

■ DCB (MEDTRONIC)

4. Stenting on indication



Case 37 - LEI 15: male, 65 years (W-W)

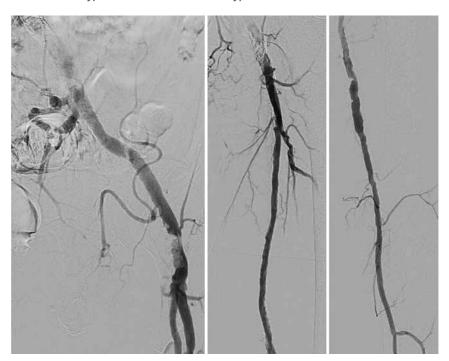
Calcified stenosis left CFA

Operators: S. Bräunlich, A. Schmidt

Clinical data: Severe claudication left leg, walking capacity 200 meters, ABI left 0.53,

Rutherford class 3, CAD

Risk factors: Art. hypertension, diabetes mellitus type 2, current smoker



Procedural steps

1. Right groin and cross-over approach

- Judkins Right 5F diagnostic catheter (CORDIS/CARDINAL HEALTH)
- 0,035" SupraCore guidewire 30 cm (ABBOTT)
- 7F-40 cm Balkin Up&Over sheath (COOK)

2. PTA of the CFA left

■ Admiral balloon 7.0; 8.0/20 mm (MEDTRONIC)

3. Stenting

■ 7.0/40 or 8.0/40 mm Supera Interwoven Nitinol stent (ABBOTT)

Case 38 - PAR 01: male, 86-years (G-J)

Aorto iliac aneurysm - EVAR + Iliac branch device

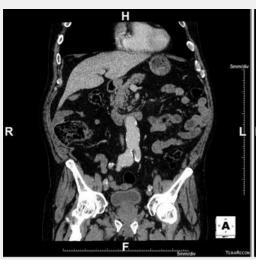
Operators: S. Haulon

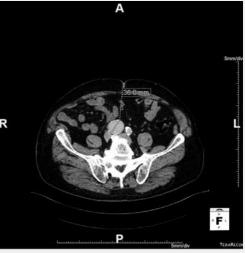
Clinical data: Right nephrectomy, pneumothorax, chronic renal insuffisency MDRD 46 ml/min

Risk factors: Smoking

Paraclinics: Echocardiography: normal

Supra aortic trunks US: normal





Procedural steps

- R: ZBIS (COOK) advanced into distal aorta, unsheath until tip of prelaoded catheter is released; advance 260 cm Terumo
- 2. L: advance 12F sheath + snare
- 3. L: snare 260 Terumo, through-and-through wire, advance 12F dilatator tip to tip of preloaded catheter secure both ends of Terumo wire with clamps
- **4.** L: unsheath ZBIS to release internal branch advance 12F sheath into ZBIS (pull and push), access hypogastric with parallel wire, advance 7F sheath-55 cm and bridging stent
- Release through and through wire, pull down ZBIS to position the branch at the IIA origin + bridging stent deployment
- **6.** Selective angiogram + ZBIS final deployment
- 7. L: insert and deploy bifurcated component
- 8. R: catheterize contro limb and deploy bridging ZSLE 16 limb
- 9. Coda balloon, completion angiogram, CBCT

Case 39 - LEI 16: male, 63 years (M-B)

Progressive infrarenal AAA

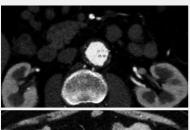
Operators: A. Schmidt, D. Branzan

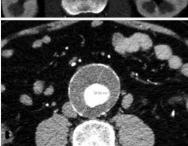
Clinical data: Progressive asymptomatic AAA, diameter max. 59 mm

Coiling of 3 lumbar arteries L2-L3 1/2018

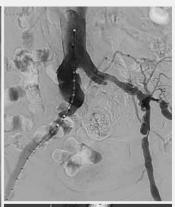
PAOD Rutherford 3, PTA left EIA 11/2007 and left SFA 2010

Risk factors: Artrial hypertension, hyperlipidemia, nicotine abuse (30Y) and renal impairment











Bifemoral percutaneous approach in local anaesthesia

■ Preclosing with 2 Proglide closure devices both sides (ABBOTT)

2. Guidewire positioning

■ Lunderquist GW 180 cm (COOK)

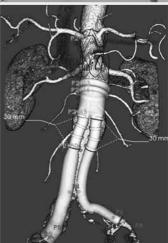
3. Implantation of a bifurcational stentgraft

- Ovation Stentgraft (ENDOLOGIX)

 Cannulation of the contralateral limb:
- 5F Amplatz Left diagnostic catheter (CORDIS/CARDINAL HEALTH)
- o.o35" soft angled short Radiofocus glidewire (TERUMO)

4. PTA

- Proximal seal: Reliant balloon (MEDTRONIC)
- Graft-bifurcation: 12/40 mm Admiral balloon (MEDTRONIC)



Planning

Case 40 - MUN 01: male, 77 years (W-A)

Double-Chimney-EVAR for abdominal aortic aneurysm with a PAU at the level of the renal arteries

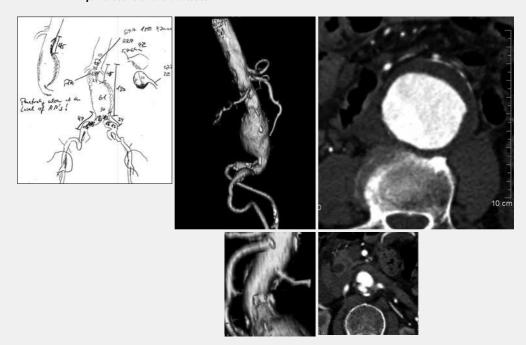
Operators: M. Austermann, M. Bosiers, K. Stavroulakis

Clinical data: Art. hypertension

PAD COPD

Present state: Growing aneurysm from 35 mm to >50 mm in 3 years

- 1. Cut down left axillary artery and double puncture
- 2. Placement of two 7 F Shuttle sheath from above
- Percutanous approach both groins Prostar XL 10F (ABBOTT)
 Placement of 14 F sheaths (COOK)
- 4. Cannulation of both renal arteries from above
- 5. Placement of Endurant bifurcated endograft just below the SMA (MEDTRONIC)
- **6.** Placement of the Chimney stent-grafts in both renal arteries
 - Atrium Advanta V 12 balloon-expandable covered stent (MAQUET GETTINGE-GROUP) or Viabahn VBX balloon expandable endoprosthesis (GORE)
- **7.** Closure of the accesses



Case 41 - PAR 02: male, 70 years (J-L-C)

Chronic aortic dissection – false lumen thoraco abdominal aneurysm evolution – 4-vessel FEVAR

Operators: S. Haulon

Clinical data: Acute type A aortic dissection open repair in 2014

Aortic arch aneurysm 09/2015: left common carotid subclavian by pass +

2 branches arch endograft

Risk factors: Smoking, hypertension, dyslipidemia, BMI >30

Obstructive sleep apnea syndrome, transient stroke

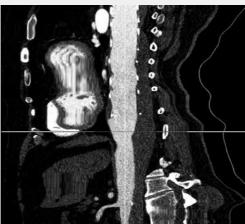
Paraclinics: PFT: restrictive syndrome

CTscan: thoraco abdominal aneurysm, 70 mm maximal diameter

Cardiac stress test: negative

Supra aortic trunks US: no significative lesion





- Percutaneous access R and L CFA with Proglide systems 100ULkg Heparin (Target ACT>250)
- 2. R: Dilatators up to 20F, insertion of TEVAR
- 3. L: 16F introducer + Pigtail angiocatheter
- 4. Aortic angiogram / TEVAR deployment
- 5. Insertion of FEVAR delivery system (COOK)
- **6.** Aortic angiogram / fusion regsitration + FEVAR deployment + access target vessels through fenestrations / bridging stents
- 7. ZBIS deployment (COOK)
- 6. Bifurcated component deployment
- 7. Completion angiogram + non injected CBCT

Case 42 - MUN 02: male, 77 years (B-H)

Preloaded FEVAR for a rapid growing juxtarenal aneurysm 61 mm diameter

Operators: M. Austermann, M. Bosiers

Clinical data: Art. hypertension, CAD, PAD

Present state: Rapid growing of a juxtarenal abdominal aortic aneurysm

from 45 mm up to 61 mm in 6 month.

Procedural steps

 Percutanous approach both groins (Prostar XL, ABBOTT). 14F sheats (COOK) both groins

2. Change for the Lunderquist-wire (COOK) on the right side and pig-tail-cath on the left side

3. Angiography to locate CT, SMA and RAs and use of the fusion-technology

4. Placement of the 3-fenestrated Zenith-endograft (COOK) via the right groin

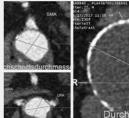
5. Cannulation of the renal arteries through the introducer sheath and the fenestrations by using the preloaded wire

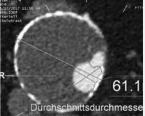
6. Cannulation of the SMA through the left access

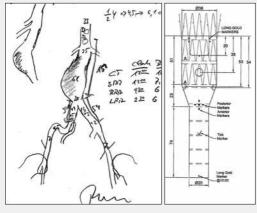
 Implantation of the bridging stentgrafts (Atrium Advanta V 12 balloon-expandable covered stent (MAQUET GETTINGE-GROUP)) after deployment of the Top-Stent and removal of the

preloaded wire

- 8. Removal of the introducer sheath
- **9.** Implantation of the bifurcated endograft and the iliac limbs
- 10. Closure of the accesses









Case 43 - FRA 01: female, 76 years (K-M)

Microwave ablation-HCC

Operators: K. Eichler, B. Panahi

Clinical data: HCC-lesion in liver segment 3 in alcoholic liver cirrhosis

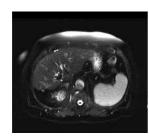
BCLC B

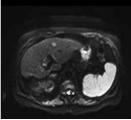
12/2014 atypical liver resection Seg 7 (G2,pT3a, Ro)

09/2016 microwave ablation seg 6 10/2016 microwave ablation seg 8

Present state: MELD score:6

CHILD-PUGH: A No ascites







- Pre-ablation imaging like CT (contrast enhanced)
- 2. Local anesthesia, analgosedation
- 3. One antenna is placed directly into the lesion
 - EMPRINT CA15L2, Short percutaneous Antenna with thermosphere technology (COVIDIEN)
 - Generator: EMPRINT (COVIDIEN)

Case 44 - JEN 02: male, 59 years (J-M)

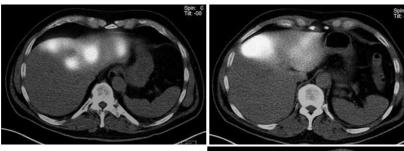
Radioembolization with Therasphere in recurrent liver metastasis of neuroendocrine tumor

Operators: R. Aschenbach, R. Drescher

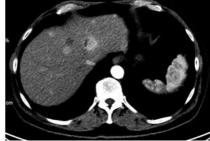
Clinical data: Liver only metastasis of neuroendocrine tumor, dominant left liver burden

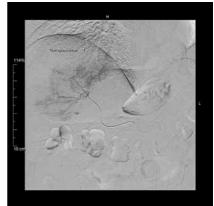
No risk factors, left liver first SIRT

No extrahepatic disease



- Puncture site: right groinSt. Jude (ABBOTT)
- 2. Placement of coaxial catheter in main hepatic artery
 - Cobra 4F, alternative SIM-1, (CORDIS/CARDINAL HEALTH)
- Placement of microcatheter in left hepatic artery therapy positions according to the evaluation session
 - Progreat 2.7F (TERUMO), alternative wire: Cirrus 14" (COOK)
- 4. Radioembolization
 - SIRT with Therasphere® (BTG)





Case 45 - JEN 03: male, 77 years (M-D)

Doxorubicin-DEB-TACE with 40µm Embozene Tandem of recurrent HCC after atypical liver resection 9/2017

Operators: I. Diamantis, R. Aschenbach

Clinical data: Singular HCC, intraoperative thermal ablation

Present state: First diagnosis of HCC in 9/2017, atypical resection, now recurrence,

tumor board decission: DEB-TACE Exclusion of extrahepatic disease

Procedural steps

1. Puncture site: right groin

■ St. Jude (ABBOTT)

2. Placement of coaxial catheter in the main hepatic artery

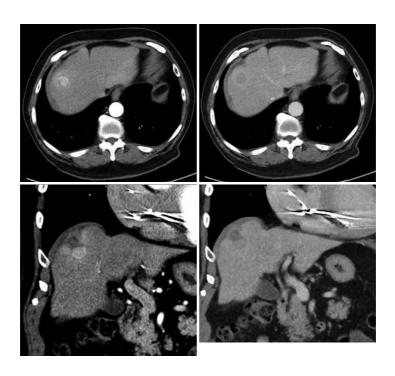
■ COBRA 4F, alternative SIM-1 4F both (CORDIS/CARDINAL HEALTH)

3. Placement of microcatheter in the feeding artery of HCC

■ Progreat 2.7F (TERUMO), alternative wire: Cirrus 14" (COOK)

- 4. DEB-TACE
- 5. Control angiogram
- 6. If necessary additional bland embolization

■ Embozene Tandem 40µm (BOSTON SCIENTIFIC)



Case 46 - FRA 02: female, 54 years (T-C)

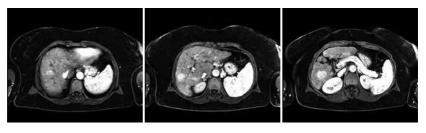
Conventional transarterial chemoembolization (cTACE) of hepatocellular carcinoma (HCC)

Operators: T. Gruber-Rouh, B. Bodelle

Clinical data: 54 year old patient with HCC lesions in liver segments 8, 8/5 and 6

12/2017: TACE

Risk factors: liver cirrhosis, hepatitis B, BCLC-Stage-B, Type 2 diabetes mellitus, hypertension



- 1. Right retrograde access
 - 5F sheath Introducer 2® (TERUMO)
- 2. Catheterization and DSA of celiac trunk plus indirect porotgraphy
 - 5 F Side-Winder catheter (TERUMO)
 - 0.035" angled guidewire (TERUMO)
- Selective catheterization of segmental and subsegmental branches of the hepatic artery in depending on location, size, and arterial feeding vessel of the target tumor
 - 2.8F coaxial microcatheter system Progreat (TERUMO)
- 4. Chemoembolization with mitomycin C and lipiodol
- 5. Puncture site closure with a percutaneous closure device
 - 6F Angio-Seal™ VIP (ST. JUDE MEDICAL)

Case 47 - TEA 03: male, 63 years (J-D)

SFA vessel prep and DCB

Operators: J. Rundback, K. Herman, V. Gallo

Clinical data: Status post kissing iliac stent placement in 2012,

now presents with recurrent lifestyle-limiting claudication in the right thigh and calf,

failed medical and exercise Rx

Risk factors: HTN, Dyslipidemia, former 2pk/day smoker stopped 2012

Duplex: 1/3/18 Mild right iliac in-stent restenosis and high grade distal right

superficial femoral above knee popliteal artery stenosis





- Antegrade right SFA access
 6F Slender™ sheath
- 2. Distal filter placement (Medtronic Spider)
- 3. Atherectomy, TBD, with filter placement
- 4. POBA for additional vessel prep (Medtronic Charger)
- 5. DCB (Medtronic In.Pact)
- 6. Any necessary additional procedures

Case 48 - TEA 04: female, 85 years (B-C)

CLI; Trans-pedal

Operators: K. Herman, J. Rundback, V. Gallo

Clinical data: Left heel and left great toe ulceration and pain at rest now with difficulty ambulating

Risk factors: DM, HTN, hyperlipidemia, emphysema

History: Revasc of SFA/pop on 1/3/18, Flex peripheral scoring catheter, DCB In.Pact Admiral

Failed revascularization of AT from antegrade approach.

Procedural steps

1. Left groin access

■ 4F TERUMO sheath

2. Angiogram and methylene blue injection into peroneal artery

3. DP access using US for guidance

■ 4F Pinnacle/Precision or 4F Pedal Access kit

4. Attempt to cross from retrograde access

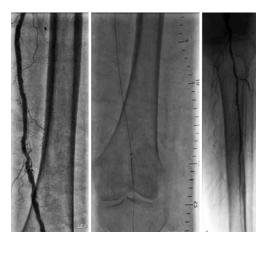
5. Atherectomy

 Laser (SPECTRANETICS-PHILIPS) vs. Orbital (CSI CARDIOVASCULAR SYSTEMS), either from antegrade or retrograde access

6. PTA

■ 2 or 2.5 mm x 300 mm catheter

7. Possible attempt to revascularize the pedal loop







Case 49 - JEN 04: male, 57 years (L-U)

Prostate artery embolization with 250µm Embozene in symptomatic benign prostatic hyperplasia

Operators: T. Franiel, R. Aschenbach, F. Bürckenmeyer

Clinical data: IPSS: 28, QoL: 6, IIEF-5: 11, prostatic volume: 72 ml, psa: 2.86 ng/l, Qmax: 4.2 ml/s

Present state: Lower urinary tract symptoms due to BPH, no successful medications

for more than 6 month, refusing operative therapy such as TUR

Exclusion of prostatic cancer

Procedural steps

1. Puncture site: right groin

■ St. Jude (ABBOTT)

2. Placement of coaxial catheter in distal aorta

■ RIM 4F (CORDIS) or alternative (MERRIT MEDICAL)
Alternative Wire: Cirrus 14" (COOK)

3. Large-FOV-dyna CT for determination of anatomy and origins of the prostatic arteries

4. Placement of microcatheter in the left prostatic artery for embolization

- Progreat 2.7F (TERUMO), alternative: Progreat 2.0F alpha (TERUMO), alternative SwiftNinja (MERRIT MEDICAL)
- Embozene 250µm (BOSTON SCIENTIFIC)

5. Placement of the microcatheter in the right prostatic artery for embolization

- Progreat 2.7F (TERUMO), alternative: Progreat 2.0F alpha (TERUMO), alternative SwiftNinja (MERRIT MEDICAL)
- Embozene 250µm (BOSTON SCIENTIFIC)

Case 50 - FRA 03: female, 59 years (B-H)

Transjugular intrahepatic portosystemic shunt (TIPSS)

Operators: A. Thalhammer, M. Nour Eldin, S. Fischer

Clinical data: Alcoholic liver cirrhosis with portal hypertension,

including refractory ascites and variceal bleeding

Risk factors: Type 2 diabetes mellitus, hypertension

Procedural steps

1. Insertion of 10F sheath into the right jugular vein

■ 10F x 17-3%4" sheath super Arrow-Flex® Psi Set, 45 cm, and tisue dilatator (ARROW INTERNATIONAL)

■ 0.035" angled guide wire (TERUMO)

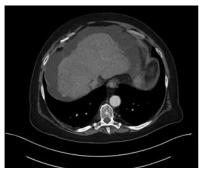
2. Access to the a hepatic vein (right or middle) by inserting a 5F multi-purpose catheter

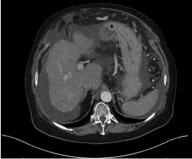
■ 5F MP A1 (CORDIS)

■ 0.035" angled guide wire (TERUMO)

3. Puncture of the portal vein under ultrasound or fluoroscopic control using a Tips puncture set

- Tips puncture set with a spezial nitinol guide wire; needle size: Ø 1.8 mm x 580 mm, 60° curved (OPTIMED)
- 0.035" straight guide wire (stiff type) (TERUMO)
- 4. Placement of stiff guide wire and a catheter into the portal venous system to produce a direct portogram and to measure the direct portal pressure
 - 4F Berenstein catheter (ANGIODYNAMICS)
 - Haemofix-Monitorin Kit Art/Ven BSS

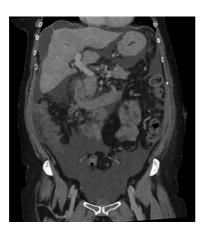




Case 50 - FRA 03 continued

Procedural steps (cont.)

- 5. Dilatation of the parenchymateous tract using an angioplasty balloon
 - 0.035" Supra Core 35 (ABBOTT VASCULAR)
 - 6F Armada 35 PTA catheter (ABBOTT VASCULAR)
 - Inflation device (MERIT MEDICAL)
- 6. Placement of the 10F sheath into the portal mainstem
 - 10 F Check Flo Performer® introducer (COOK)
- 7. Implantation the portovenous PTFE covered stent under fluoroscopic control
 - VIATORR 10 mm x 8 cm/2 cm; 10F (GORE)
- 8. Dilatation of stent using an angioplasty balloon
 - 0.035" Supra Core 35 (ABBOTT VASCULAR)
 - 6F Armada 35 PTA catheter (ABBOTT VASCULAR)
 - Inflation device (MERIT MEDICAL)
- 9. Direct portography and measure the pressure gradients between the portal vein and the inferior vena cava
 - 5F- MP A1 (CORDIS)
 - F Check Flo Performer® introducer (COOK)
- 10. Placement of a central venous catheter in the superior vena cava or right atrium
 - Mahurkar acute dual lumen catheter, 11.5F x 19.5 cm (COVIDIEN)



Case 51 - LEI 17: male, 64 years (K-F)

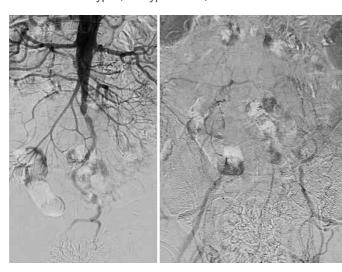
Aorto-iliac occlusion, Leriche-syndrome

Operators: S. Bräunlich, A. Schmidt, Y. Bausback

Clinical data: Critical limb ischemia, ulcerations left foot

Congestive heart-failure, EF 35%, NYHA II

Risk factors: Diabetes mellitus type 2, art. hypertension, current smoker



Procedural steps

1. Transbrachial approach

- 6F 90 cm Check-Flo performer sheath (COOK)
- 5F 125 cm diagnostic Judkins Right catheter (CORDIS/CARDINAL HEALTH)
- SupraCore 300 cm 0.035" guidewire (ABBOTT)

2. Passage of the occlusions

- Stiff angled 0,035" guidewire, 260 cm (TERUMO)
- Together with 5F-125 cm Judkins Right catheter

3. Bilateral groin access

- 7F 10 cm Radiofocus sheath (TERUMO)
- Snaring of the antegrade guidewire form above into the groin-sheath or
- Into 6F-Judkins-Right guiding catheter (CORDIS) inserted from below

4. PTA via the groin access bilateral

- SupraCore 300 cm 0,035" guidewire (ABBOTT)
- Admiral balloon 6.0/120 mm bilateral (MEDTRONIC)

5. Implantation of covered stents

- Viabahn 8.0/150 mm in kissing-technique (GORE)
- Reinforcement with balloon-expandable stents at the aortic bifurcation:
- Palmaz Genesis 8.0/79 mm balloon-expandable stents in kissing-technique (CORDIS)
- Bigraft covered stent for the medial sacral artery (BENTLEY)

Case 52 - TEA 05: male, 75 years (A-T)

SMA stenosis

Operators: J. Rundback, V. Gallo, K. Herman

Clinical data: Several-month history of postprandial pain,

although he does not have weight loss or fear of eating.

Risk factors: Hypertension, dyslipidemia, asymptomatic PAD

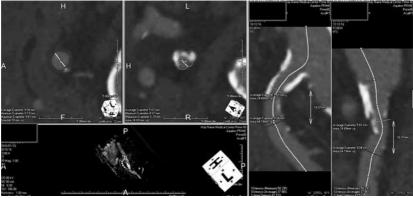
Procedural steps

2. Lateral aortography

3. Cross SMA, IVUS and pressures (Volcano, PHILIPS)

4. Direct stenting SES (Formula stent, COOK)

Femoral access, RDC guide (CORDIS)







Case 53 - LEI 18: male, 70 years (M-N)

Calcified CTO of the right SFA

Operators: S. Bräunlich, J. Schuster

Clinical data: PAOD Rutherford 3, walking capacity 50 m right, ABI right o.6, left o.8

PTA/stent of the left SFA 01/2018, of the left CIA 11/2011

CEA left 2008, AMI 1998, CABG 02/2017

Risk factors: Arterial hypertension, former smoker, hyperlipidemia, renal impairment

Angiography: During PTA left: severely calcifed occlusion of the right SFA

Procedural steps

1. Left groin retrograde and cross-over approach

■ IMA-diagnostic 5F catheter (CORDIS/CARDINAL HEALTH)

■ 0.035" angled soft Radiofocus guidewire, 190 cm (TERUMO)

■ 0.035" SupraCore guidewire, 190 cm (ABBOOTT)

■ 6F Balkin Up&Over sheath, 40 cm (COOK)

2. Passage of the occlusion right SFA

■ 0.035" Radiofocus angled stiff guidewire, 260 cm (TERUMO)

■ 0.035" CXC support catheter, 135 cm (COOK)

In case of failure guidewire passage from antegrade:

3. Retrograde approach via distal SFA

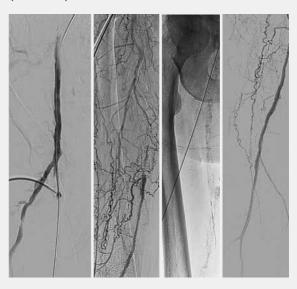
- 7 cm 21 Gauge needle (COOK)
- 0.018" V-18 Control guidewire, 300 cm (BOSTON SCIENTIFIC)
- 4F-10 cm Radiofocus introducer (TERUMO)
- Pacific Plus 4.0/40 mm balloon, 90 cm (MEDTRONIC)

4. PTA and treatment with DCB

- 6.0/40 mm Advance Enforcer balloon (COOK)
- Luminor DCB 6.0/120 mm (iVASCULAR)

5. Stenting on indication

■ 7/150 mm iVolution Self-Expanding stent (iVASCULAR)



Case 54 - LEI 19: male, 62 years (K-M)

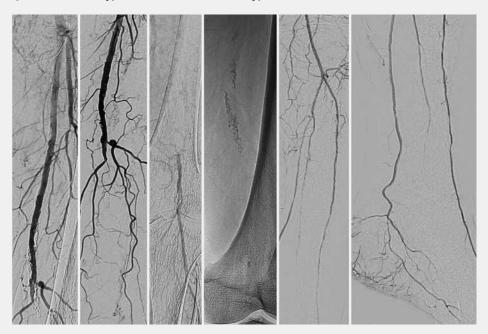
CTO of the distal SFA and Apop left

Operators: A. Schmidt, M. Ulrich

Clinical data: Severe claudication left calf, walking capacity 150 meters, ABI 0.5, Rutherford class 3

PTA / stenting right SFA 9/2017 elsewhere CAD with MI and PTCA 2002, TIA 9/2017

Risk factors: Art. hypertension, diabetes mellitus type 2, nicotine abuse



Procedural steps

1. Right groin and cross-over access

- IMA-diagnostic 5F catheter (CORDIS/CARDINAL HEALTH)
- 0.035" angled soft Radiofocus guidewire, 190 cm (TERUMO)
- 0.035" SupraCore guidewire, 190 cm (ABBOOTT)
- 6F Balkin Up&Over sheath, 40 cm (COOK)

2. Guidewire passage

- 5.0/100 mm Sterling OTW balloon, 90 cm (BOSTON SCIENTIFIC)
- 0.018" Victory guidewire, 18 gramm, 300 cm (BOSTON SCIENTIFIC)

3. Atherectomy for vessel-preparation

- Diamondback 360 Peripheral Orbital Atherectomy system (CSI CARDIOVASCULAR SYSTEMS)
- VANGUARD IEP peripheral balloon with integrated embolic protection (CONTEGO MEDICAL)

4. Direct stenting

■ Eluvia drug-eluting stent (BOSTON SCIENTIFIC)



Thursday, February 1, 2018 Case 55 - LEI 20: male, 65 years (R-B)

Severely calcified occlusion of right popliteal artery

Operators: A. Schmidt, M. Ulrich

Clinical data: PAD Rutherford 4 right, rest pain at night, walking capacity 10 m

Femoro-popliteal bypass right 2008 and recurrent reocclusion 2017 (11/17)

Failed recanalization attempt of the right popliteal 01/18

Risk factors: Former smoker, arterial hypertension, renal impairement, atrial fibrillation

Angiography: Occluded femoro-popliteal bypass right and severly calcified popliteal occlusion right

Procedural steps

1. Antegrade access right groin

■ 6F 90 cm Check-Flow Performer (COOK MEDICAL)

2. Antegrade guidewire passage

in casse of failure retrograde approach via the anterior tibial artery

■ 2.9F sheath (pedal puncture set) (COOK)

■ 0.014" CTO-Approach 25 gramm guidewire, 300 cm (COOK)

■ 0.018" CXI support catheter 90 cm (COOK)

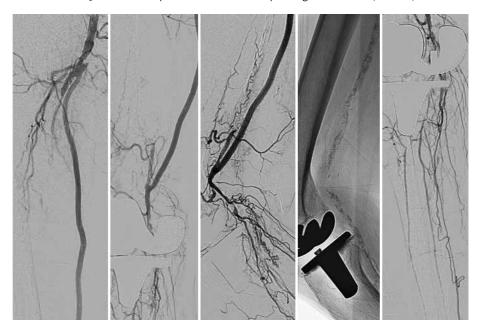
■ Advance Micro-Balloon 3.0/120 mm, 90 cm (COOK)

3. PTA of the popliteal artery occlusion

■ Pacific Plus 4.0/40 mm balloon, 90 cm (MEDTRONIC)

4. Stenting

■ 5.0/100 mm Supera Interwoven Self-expanding Nitinol stent (ABBOTT)



Case 56 - ABT 01: male, 75 years (B-P)

BTK and BTA recanalization

Operators: M. Manzi, L. M. Palena, C. Brigato

Clinical data: DM, hypertension, hyperlipidemia

Present state: Right foot: 3c TUC I°toe and 2c Tuc 2° and 3°

Procedural steps

1. US guided antegrade 6F 11 cm sheath

2. CO2 angiography

- 3. 4F Ber and V18 gw antegrade intraluminal recanalization attempt of pedal through AT
- 4. Second o,o14" gw in PT and lateral plantar artery antegrade recanalization attempt; retrograde distal PT if failure
- 5. POBA, Jetstream atherectomy (BOSTON SCIENTIFIC), Ranger DEB (BOSTON SCIENTIFIC) discussion
- **6.** US closure device deployment (6F Angio-Seal)





Fig. 1: SFA/POP

Fig. 2: BTK

Case 57 - LEI 21: male, 62 years (J-W)

Reocclusion of right SFA, in-stent-reocclusion

Operators: M. Ulrich, J. Schuster

Clinical data: PAOD Rutherford 3, painfree walking distance 50 m

Stent-PTA right SFA 03/2017; ABI right: 0,5, left: 1,0

Risk factors: Smoker, arterial hypertension, diabetes mellitus type 2

Duplex: ISR-occlusion of the right SFA

Procedural

steps

1. Left groin retrograde and cross-over approach

■ IMA-diagnostic 5F catheter (CORDIS/CARDINAL HEALTH)

■ 0.035" angled soft Radiofocus guidewire, 190 cm (TERUMO)

■ 0.035" SupraCore guidewire, 190 cm (ABBOOTT)

■ 6F Balkin Up&Over sheath, 40 cm (COOK)

2. Guidewire passage and thrombectomy

■ Rotarex 6F (STRAUB MEDICAL)

3. Filter placement

■ 6 mm Spiderfilter (MEDTRONIC) in PIII segment

4. PTA with DCBs

■ Ranger DCB 5.0/120 mm (BOSTON SCIENTIFIC)



Case 58 - LEI 22: male, 69 years (G-W)

Thrombotic occlusion of the right CIA

Operators: S. Bräunlich, J. Schuster

Clinical data: POAD Rutherford 3, walking capacity 200 m, sudden deterioration of symptoms,

ABI right o.6

Risk factors: Arterial hypertension, nicotine abuse (30PY)

Angio: Thrombotic iliac occlusion right

Procedural

steps

1. Right femoral approach

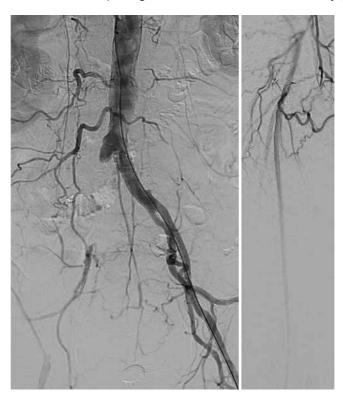
■ 7F 25 cm sheath (TERUMO)

2. Guidewire passage and thrombectomy

■ Rotarex 8F (STRAUB MEDICAL)

3. Stenting

- LifeStream covered stent for the common iliac artery (BARD)
- Covera Plus self-expanding covered stent for the external iliac artery (BARD)



Case 59 - LEI 23: female, 65 years (N-G)

Long SFA-occlusion right

Operators: S. Bräunlich, M. Matschuck

Clinical data: POAD Rutherford 3, walking capacity 200 m, ABI right 0.43

Asymptomatic high grade stenosis of brachiocephalic trunc

Risk factors: Smoker (40PY), arterial hypertension, hyperlipidemia

Procedural steps

1. Left groin retrograde and cross-over approach

■ IMA-diagnostic 5F catheter (CORDIS/CARDINAL HEALTH)

■ 0.035" angled soft Radiofocus guidewire, 190 cm (TERUMO)

■ 0.035" SupraCore guidewire, 190 cm (ABBOOTT)

■ 6F Balkin Up&Over sheath, 40 cm (COOK)

2. Passage of the occlusion right SFA

■ o.o18" Advantage guidewire (TERUMO)

■ o.o18" CXI support catheter (COOK)

3. Vessel preparation right SFA

■ Sterling balloon (BOSTON SCIENTIFIC)

4. Primary stenting

■ Eluvia DES (BOSTON SCIENTIFIC)

5. Postdilatation left SFA

■ Mustang balloon (BOSTON SCIENTIFIC)



Case 60 - BK 02: male, 53 years (M-P)

In-Stent reocclusion right SFA

Operators: E. Noory

Clinical data: PAOD Rutherford 3

Severe claudication right calf, walking capacity 50 meters

Recanalisation, rtPA-thrombolysis and stent implantation right prox-dist SFA 04/2011

Recanalisation and stent implantation right distal SFA 11/2004

Fogarty thrombectomy right distal SFA 2004

Testicular cancer, semicastratio and radio-chemotherapy 2003-2004

ABI: right o.6 after excercise test o.4

Risk factors: Nicotine abuse (25 PY) to 2006, hypercholertinemia

Duplex: Long instent reocclusion of right SFA





Instent reocclusion right SFA

Rekonstitution at prox pop. artery

Procedural steps

1. Left femoral retrograde and cross over approach

■ 6F 45 cm sheath

2. o.o35" or o.o18" TERUMO GW, supported by vertebral catheter, 5F

3. Rotarex thrombectomy

■ 6F (STRAUB MEDICAL)

- 4. Predilatation on indication (Cutting balloon)
- 5. Drug-coated balloon angioplasty

Case 61 - LEI 24: female, 75 years (P-H)

Left popliteal occlusion and BTK-CTO left, CLI

Operators: A. Schmidt, J. Schuster

Clinical data: PAOD Rutherford 5 left, forefeet ulcerations and infections,

restpain at night, mediasclerosis

Failed recanalization attempt 01/18 elsewhere

CAD, AMI, PTCA 2012

Risk factors: Arterial hypertension, hyperlipidemia

Angiography: Popliteal and BTK occlusions left

Procedural steps

1. Left groin antegrade approach

■ 6F 55 cm Flexor Check-Flo Sheath, Raabe Modification (COOK)

2. Guidewire passage, second attempt from antegarde

■ 0.014" CTO Approach 25 gramm 300 cm (COOK)

■ 0.018" CXI support catheter, 90 cm (COOK)

In case of failure of guidewire passage from antegrade:

3. Retrograde approach via the distal anterior tibial artery and PTA

■ 2.9F sheath (pedal puncture set) (COOK)

■ 0.014" Hydro-ST 300 cm guidewire (COOK)

■ 0.014" CTO-Approach 25 gramm guidewire, 300 cm (COOK)

■ 0.018" CXI support catheter 90 cm (COOK)

■ Advance 3.0/120 mm, 90 cm (COOK)

4. PTA of the popliteal artery

■ Advance LP balloon o.o18" (3, 4, 5 mm) (COOK)



Case 62 - LEI 25: male, 63 years (B-F)

ATA recanalization and dexamethason injection with a Bullfrog-device

Operators: A. Schmidt, S. Bräunlich

Clinical data: PAOD Rutherford 6 left, forefeet ulcerations, ABI 0.3 left

Renal imparement, kidney transplantation 2001, CAD

Risk factors: Diabetes mellitus type 2 with neuro- and angiopathy, arterial hypertension,

hyperlipidemia, former smoker

Procedural steps

1. Left antegrade access

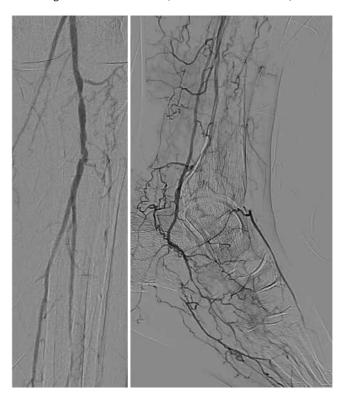
■ 6F 55 cm Flexor Check-Flo Introducer, Raabe Modification (COOK)

2. Guidewire passage of the ATA-CTO

- 0.014" Command ES guidewire, 300 cm (ABBOTT)
- 3.5/120 mm Armada 14 balloon (ABBOTT)

3. Arterial wall injection of dexamethason

■ BullFrog Micro-Infusion-Device (MERCATOR MEDSYSTEMS)



Case 63 - MUN 03: female, 65 years, (F-D)

OCT-guided atherectomy of Tosaka III ISR right SFA and distal popliteal stenosis

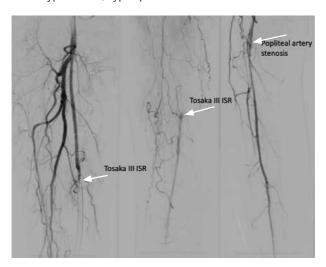
Operators: A. Schwindt, N. Abu-Bakr

Clinical data: Rutherford III right leg, painfree wd 50 m

ABI right leg 0,3

2012 nitinol stent right SFA

Risk factors: CVRF: hypertension, hyperlipidemia



Procedural steps

1. Left femoral access

■ 7F 45 cm Destination x-over sheath (TERUMO) to right CFA

2. Wire passage

o,o18" V18 wire (BOSTON SCIENTIFIC)
 and o,o35" Ouick-cross (SPECTRANETICS) support catheter

3. Filter placement

■ 4 mm Spiderfilter (MEDTRONIC) to peroneal artery

4. OCT-guided atherectomy

Pantheris 3.0 7F directional atherectomy catheter (AVINGER) of SFA ISR and popliteal artery

E Post PT∆

■ 5 x 120 mm paclitaxel eluting balloons, passeo lux (BIOTRONIK)

6. Filter removal

■ 0,035" Quickcross

7. Closure of access site

■ Proglide VCD (ABBOTT)

Case 64 - TEA o6: male, 66 years (O-S)

Transradial radiocephalic hemodialysis fistulogram and DCB

Operators: V. Gallo, J. Rundback, K. Herman

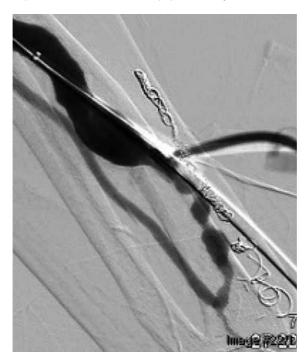
Risk factors: HTN, dyslipidemia, hypertension, former 2pk/day smoker stopped 2012

Type 1 diabetes mellitus

End stage renal disease on maintance hemodialysis via left radiocephalic AV fistula Atrial fibrillation, prior forced maturation, recurrent juxta-anastamotic stenosis

Duplex: 1/3/18 mild right iliac in-stent restenosis and high grade distal right

Superficial femoral above knee popliteal artery stenosis



- 1. US guided radial artery access (COOK)
- 2. 5F Slender sheath insertion (TERUMO)
- 3. POBA
- 4. POBA for additional vessel prepConquest high pressure balloon (BARD)
- 5. Bard Lutonix DCB
- 6. Any necessary additional procedures

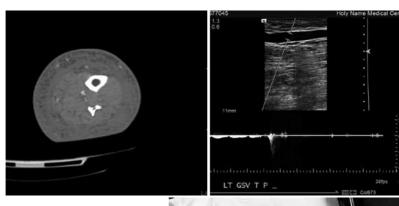
Case 65 - TEA 07: male, 70 years (D-R)

Pelvic venogram and superficial venous ablation

Operators: K. Herman, J. Rundback, V. Gallo

Clinical data: Chronic LLE swelling, prior LLE fem-pop bypass

Important items: CT images and clinical images below



- US guided access into L GSV■ 10F sheath (BOSTON SCIENTIFIC)
- 3. Pelvic venogram
- 4. IVUS
 - Volcano (PHILIPS)
- 5. Iliac vein stent
 - Wallstent (BOSTON SCIENTIFIC)
- 6. Post stent venogram and IVUS
- 7. GSV Ablation via one access site
 - Venoseal (MEDTRONIC)



Case 66 - BK o6: male, 64 years (T-B)

Combined antegrade and retrograde recanalisation right popliteal artery

Operators: A. Rastan

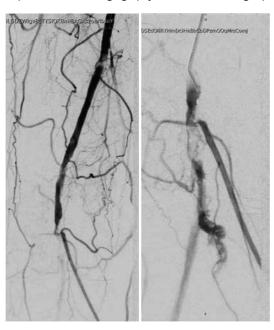
Clinical data: Claudication Rutherford-Becker 3

Unsuccessful recanalisation right popliteal artery with perforation 12/2017

Risk factors: Hypertension, tobacco use, hypercholesterolemia

Present state: ABI: 0.3

Duplex ultrasound/angiography: Occlusion of the right popliteal artery



- 1. Femoral access (cross-over)
 - o.o35" wire (TERUMO)
 - 6F 45 cm sheath (COOK)
- 2. Retrograde puncture ATA vs. ATP
- 3. Recanalisation attempt
 - o.o18" wire (BOSTON SCIENTIFIC, TERUMO)
 - 3 x 40 mm balloon (BOSTON SCIENTIFIC)
- 4. Pre-dilatation
 - DCB vs. POBA (MEDTRONIC, BOSTON SCIENTIFIC)
- 5. Stenting on indication
 - Supera (ABBOTT)

Case 67 - LEI 26: male, 64 years (N-M)

Occlusion right SFA after CEA right groin, flush-occlusion

Operators: A. Schmidt, J. Schuster

Clinical data: Chronic critical limb ischemia right forefoot, severe claudication right calf

Rutherford class 5, ABI right 0.46

PTA/stent of left SFA 12/2017, failed antegrade recanalisation attempt 01/2018 right

TEA right groin 8/2017 and left 11/2017

CAD, PTCA 2004

Risk factors: Diabetes mellitus type 2, art. hypertension, hyperlipidemia, former smoker

Procedural steps

1. Left groin retrograde and cross-over approach

■ IMA-diagnostic 5F catheter (CORDIS/CARDINAL HEALTH)

■ 0.035" angled soft Radiofocus guidewire, 190 cm (TERUMO)

■ 0.035" SupraCore guidewire, 190 cm (ABBOOTT)

■ 7F Balkin Up&Over sheath, 40 cm (COOK)

2. Right SFA CTO puncture

■ 18 Gauge 7 cm needle

■ 0.035" stiff angled Glidewire, 190 cm (TERUMO)

■ 6F – 10 cm Radiofocus-Introducer (TERUMO)

3. Passage of the CTO

Retrograde passage into the right CFA:

■ Pioneer-Plus Reentry-system (PHILIPS)

■ 0.014" Floppy ES guidewire, 300 cm (ABBOTT)

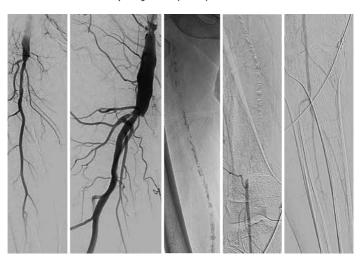
■ Snaring of the retrograde guidewire into the the cross-over sheath

4. PTA/stenting

■ Armada 35 5.0/100 mm balloon (ABBOTT)

■ Distal and proximal: Zilver PTX-DES (COOK)

■ SFA-ostium: Viabahn 7.0/250 mm (GORE)



Case 68 - LEI 27: male, 72 years (L-J)

Progressive descending thoracic aortic aneurysm

Operators: A. Schmidt, D. Branzan, Chang Shu

Clinical data: Progressive thoracic AAA (max. diameter 67mm)

Coiling of intercostal arteries to reduce the risk of spinal cord ischemia

during TEVAR in two sessions (3 arteries)

CAD

Risk factors: Arterial hypertension, hyperlipidemia



Procedural steps

Bilateral femoral access

■ Preloading of Proglide-Systems right (ABBOTT)

2. Positioning of guidewire

■ LunderQuist o.o35" 260 cm (COOK)

3. Implantation of 2 thoracic stentgrafts

- Ankura thoracic graft (LifeTech)
- Stengraft from left subclavian artery to the celiac trunk



Case 69 - PAR 03: female, 78 years (E-V)

Arch aneurysm – 3-branch arch endograft

Operators: S. Haulon, P. Amabile

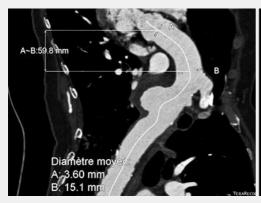
Clinical data: Appendicectomy / pulmonary lobectomy

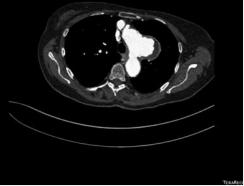
Present state: asymptomatic

Risk factors: Hypertension / smoking / dyslipidemia

Paraclinics: Echocardiography: LVEF 65% stress test negative

PTF: COPD





Procedural steps

- 1. Bilateral cervicotomy
- Percutaneous access R and L CFA with Proglide systems 100UI/kg Heparin (Target ACT>300)
- 3. L: Dilatators up to 22F + advance branched endograft to the arch
- 4. Aortography + fusion fine tuning
- 5. Branched endograft deployment under rapid pacing (COOK)
- **6.** From RCCA, access to the Inominate branch + deployment of the bridging stent
- 7. From LCCA, access to the carotid branch + deployment of the bridging stent
- 8. From the groin, access to the LSCA branch + artery + deployment of the bridging stent
- 9. Completion angiography + non injected CBCT
- 10. Close access sites

Case 70 - MUN 04: male, 77 years (S-L)

EVAR for a AAA with a hostile neck using endoanchors and chimney for the RRA

Operators: M. Austermann, M. Bosiers, K. Stavroulakis

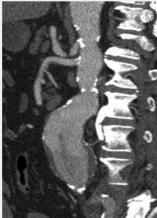
Clinical data: Art. hypertension

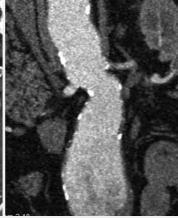
Diab. mell. II

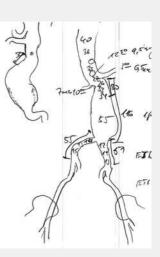
CAD - PTCA 1998 and 2015

SAS

Risk factors: Hostile abdomen, obesity







Procedural steps

- 1. Percutanous approach both groins
 - Prostar XL (ABBOTT)
 - Placement of 14F sheath (COOK)
- 2. Cut down left axillary artery and cannulation of the right renal artery Placement of a 7F sheath in the RRA
- 3. Placement of Endurant bifurcated endograft (MEDTRONIC) just below the left RA
- 4. Implantation of the Chimneygraft in the RRA from above
- Additional fixation of the proximal sealing zone with Heli-FX Endoanchors (MEDTRONIC)
- 6. Closure of the groin
 - Prostar XL (ABBOTT)
- 7. Closure of the axillary access

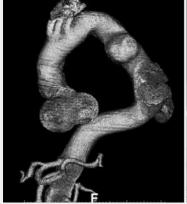
Case 71 - MUN 05: male, 78 years, (K-G)

TEVAR with the new GORE TAG Conformable Stent Graft with active control system for a 62 mm TAA

Operators: M. Austermann, M. Bosiers

Clinical data: Art. hypertension, PAD

Present state: 62 mm thoracic aneuysm with a penetrating ulcer and a small AAA 41 mm in diameter





25 4 36 36 36 36 76H 40 40 200 E 76H 40 40 150 E 76H 40 40 150 E

Procedural steps

1. Percutanous approach both groins

- 5F sheath left groin
- Prostar XL (ABBOTT) right groin
- Placement of 14F later 24F Dry-Seal-sheath (GORE) through the right groin
- 2. Implantation of the Gore C-TAG endograft with the active control system step by step
- 3. Positioning of the graft and deploiment up to 50% diameter
- Agiography, correction of the graftposition and the C-arm angulation, if necessary angulation of the graft
- Complete deploiment of the graft and possibly some more angulation in order to achieve ideal wall apposition
- 6. Final angiography, if needed post-dilation

7. Closure of the groin

- Right groin: Prostar XL (ABBOTT)
- Left groin: Angioseal (ST. JUDE)



Case 72 - PAR 04: male, 71 years (J-P-H)

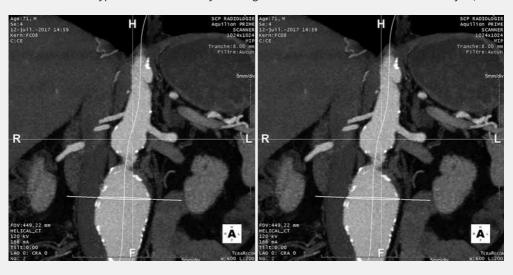
Type IV thoraco abdominal aneurysm – 5-vessel FEVAR

Operators: S. Haulon

Clinical data: No medical history

Risk factors: Smoking, hypertension

CT-scan: Type IV abdominal aneurysm / 2 right renal arteries / inferior mesenteric artery > 4 mm



- 1. Percutaneous access R and L CFA with Proglide systems
- Inferior mesenteric artery embolization with 6 mm Amplatzer 100UI/kg Heparin (Target ACT>250)
- L: 20F 25cm sheath in the LCFA over Lunderquist –
 Valve puncture with 6F and 7F 55cm + Pigtail angio catheter
- **4.** R: Dilatators up to 20F + insertion of fenestrated endograft
- 5. Aortic angiogram / Fusion registration / FEVAR deployment (COOK)
- 6. Access target vessels through fenestrations
- 7. Bridging stents deployment
- 8. Bifurcated component deployment
- 9. Coda inflation at overlap
- 10. Completion aortography + non injected CBCT

Case 73 - LEI 28: male, 57 years (W-F)

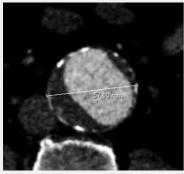
Coiling of segmental arteries to reduce the risk of paraplegia in FEVAR

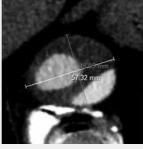
Operators: A. Schmidt, D. Branzan

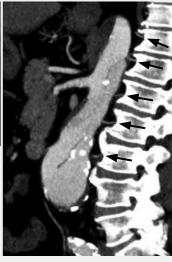
Clinical data: Progressive throraco-abdominal aneurysm

after Type B-dissection (diameter max. 61mm) Adipositas, congestive heart failure, NYHA II-III

Risk factors: Arterial hypertension, hyperlipidemia, adipositas







Procedural steps

. Right groin access

- 6F 25 cm sheath (TERUMO)
- 6F MACH 1 LIMA guiding catheter (BOSTON SCIENTIFIC)
- 5F SOS diagnostic catheter (MERIT MEDICAL)

2. Cannulation and embolisation of segmental arteries

- 0.014 PT2, 300 cm guidewire (BOSTON SCIENTIFIC)
- 2.7F Progreat Microcatheter, 130 cm (TERUMO)
- o.o18" pushable microcoils (COOK)

Case 74 - BK 03: male, 62 years (FG)

Recanalisation of a chronic CIA CTO and stenting of bilateral IIA stenoses

Operators: T. Zeller

Clinical data: PAOD Fontaine IIb / Rutherford 3

Recanalisation right SFA and proximal popliteal artery 12/2017 Recanalisation right popliteal and posterior tibial arteries o6/2014

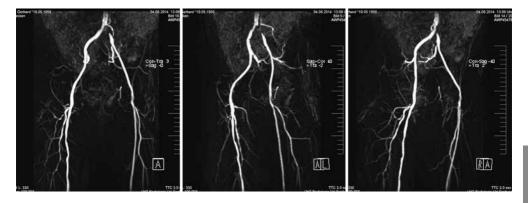
Persistant CTO left CIA and bilateral IIA stenoses

Risk factors: Smoking, hypertension, diabetes mellitus, hypercholesterolemia

Present state: Buttock, thigh and calf claudicatio left side

ABI: 0.8 / 0.4

MRA 2014: CTO of left CIA, high grade stenosis of bilateral IIA



Procedural steps

- Bilateral retrograde femoral access
 - Right side 45 cm, left side 11 cm
- 2. First crossing approach from contralateral side
 - 6F IMA- or 5 F SOS-catheter
- Additional retrograde crossing attempt in order to avoid impacting the left IIA origin (CART technique)
- 4. Predilatation of left CIA
- 5. Stent implantation left CIA
- 6. Stent implantation left IIA (right side on indication)
 - Promus Stent (BOSTON SCIENTIFIC)

Case 75 - LEI 29: male, 59 years (S-K)

CTO of the right SFA

Operators: S. Bräunlich and M. Ulrich

Clinical data: PAOD Rutherford 3, walking capacity 10 m

CAD; CABG MV-Reconstruction, 2010

NSTEMI 11/2107 with CPR, PTCA 11/17, ICM (LV-EF 40%)

Risk factors: Diabetes mellitus type 2, arterial hypertension, hyperlipidemia

Procedural steps

1. Left groin retrograde and cross-over approach

■ IMA diagnostic 5F catheter (CORDIS/CARDINAL HEALTH)

■ 0.035" angled soft Radiofocus guidewire, 190 cm (TERUMO)

■ 0.035" SupraCore guidewire, 190 cm (ABBOOTT)

■ 6F Balkin Up&Over sheath, 40 cm (COOK)

2. Passage of the occlusion right SFA

■ 0.035" Radiofocus angled stiff guidewire, 260 cm (TERUMO)

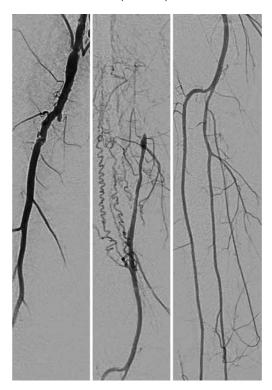
■ 0.035" CXC support catheter, 135 cm (COOK)

■ Exchange to o.o18" SteelCore guidewire (ABBOTT)

3. PTA and stenting on indication

■ Legflow drug-coated balloon (CARDIONOVUM)

■ VascuFlex Multi-LOC (B.BRAUN)



Case 76 - BK 04: female, 81 years (G-E)

Combined antegrade and retrograde recanalisation attempt of chronic calcified PTA & ATA occlusions left leg

Operators: T. Zeller

Clinical data: PAOD Fontaine IV / Rutherford 5 left leg

Chronic bilateral venous insufficiency

Intermittant atrial fibrillation

Unsuccessful recanalisation attempt of left PTA and ATA 04/2017

Chronic kidney diseases NKF III - IV (GFR 23-35 ml/min)

Risk factors: Diabetes mellitus, obesity

Procedural steps

1. Left antegrade femoral access, 6F

2. 5F STR guiding catheter (CORDIS)

3. Balloon guided antegrade crossing attempt

■ 0.014" Advantage wire (TERUMO) or 0.014" Victory 14 wire (BSC)

4. Predilatation on indication

5. Optional atherectomy

■ Rotablator (BSC)

6. Drug coated balloon angioplasty

■ Lotus (ACOTEC)

7. Stenting on indication



Case 77 - ABT 02: male, 60 years (C-N)

Distal AT calcified occlusion and long PT/Lateral plantar occlusion

Operators: M. Manzi, L. M. Palena, C. Brigato

Clinical data: DM, previous SFA stenting (2001)

re-treated with directional atherectomy for IS restenosis 2017

Present state: Ulcerations in IV and V toes TUC 2C right foot

Procedural steps

1. Right US guided antegrade 6F 11 cm sheath deployment

2. CO2 angiography

 AT antegrade o,o14" CTO gw intraluminal attempt, retrograde when failure; antegrade PT subintimal attempt

 AT Predilatation, Phoenix debulking atherectomy (PHILIPS), Stellarex DEB (SPECTRANETICS-PHILIPS); PT POBA

5. US guided closure device deployment (ANGIO-SEAL)



Case 78 - LEI 30: male, 54 years (S-K)

Calcified CTO of the left SFA and popliteal artery

Operators: A. Schmidt, M. Ulrich

Clinical data: PAOD Rutherford 3 left, painfree walking distance 150 m

PTA/stent of the right SFA 11/2017

Pseudoxanthoma elasticum (vascular, ocular and cerebral affection)

ABI right: 0.8; left: 0.3

PTA / stenting right SFA 11/2017

Risk factors: Arterial hypertension, CAD, hyperlipidemia

Angiography: During PTA right 11/17: occlusion of the left SFA and popliteal artery

Procedural steps

1. Right groin retrograde and cross-over approach

- IMA 5F diagnostic catheter (CORDIS/CARDINAL HEALTH)
- 0.035" soft angled Radiofocus guidewire, 190 cm (TERUMO)
- o.o35" SupraCore guidewire 190 cm (ABBOTT)
 7F 55 Check-Flo Performer Sheath, Raabe Modification (COOK)

2. Antegrade guidewire passage

- 0.035" Stiff angled Glidewire, 260 cm (TERUMO)
- CXC o.o35" support catheter, 135 cm (COOK)

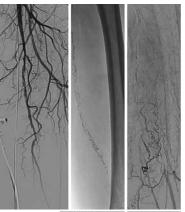
3. Retrograde guidewire passage

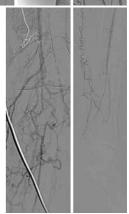
Access via the peroneal artery:

- 7 cm 21 Gauge needle (COOK)
- 0.018" V-18 Control guidewire, 300 cm (BOSTON SCIENTIFIC)
- 4F-10 cm Radiofocus Introducer (TERUMO)
- Pacific Plus 4.0/40 mm balloon, 90 cm (MEDTRONIC)

4. PTA and stenting

- 6.0/20 mm Admiral Xtreme balloon (MEDTRONIC)
- 7.0/20 Conquest non-compliant high pressure balloon (BARD)
- In case of inability to open the balloons fully implantation of a Viabahn 7.0/100 mm (GORE)
- Relining with Supera Interwoven Nitinol stent (ABBOTT)





Case 79 - ABT 03: male, 78 years (P-A)

Critical limb ischemia left, complex BTK CTOs

Operators: M. Manzi, L. M. Palena, C. Brigato

Clinical data: DM, dyalisis, kidney transplant, ischemic heart disease

Present state: Bilateral CLI with left toes gangrenes

Procedural steps

1. Retrograde access right CFA

■ 6F long sheath deployment and retrograde left P3 puncture + 6F 11 cm sheath

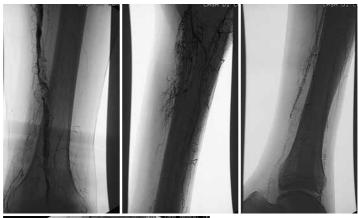
2. Presto technique for SFA and popliteal artery

■ Balloon P3 aemosthasis

3. Antegrade BTK and BTA reacanalization attempt

4. Discussion for debulking and DEB

5. Closure device





Case 80 - TEA 08: female, 83 years (F-G)

Deep venous arterialization

Operators: J. Rundback, K. Herman, V. Gallo

Clinical data: Non-healing right hallux tip gangrene

Risk factors: HTN, dyslipidemia, CAD, prior RLE revasc

Procedural steps

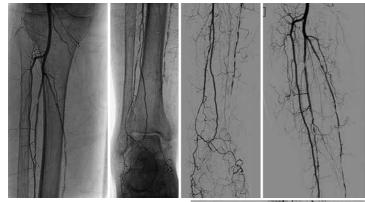
1. Antegrade RLE angio

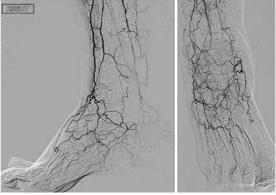
■ 6F slender sheath (TERUMO)

- 2. Retrograde pedal venous access (COOK)
- Retrograde snare placement in posterior tibial vein
 EN Snare (MERIT)
- 4. Outback (CORDIS) entry from posterior tibial artery to vein
- 5. Placement of stent graft

■ Viabahn (GORE) or Graftmaster (ABBOTT)

- 6. Flex angiotome or cutting balloon valvulotomy
- 7. Selective embolization if needed





Case 81 - LEI 31: male, 64 years (B-A)

Severely calcified BTK CTO left, CLI

Operators: A. Schmidt, J. Schuster

Clinical data: POAD Rutherford 5, Dig. I ulceration left, restpain at night,

walking capacity 20 m, ABI left 0.4 PTA/stenting left SFA and left ATA 05/17

CAD, CABG 2013

Risk factors: Arterial hypertension, diabetes mellitus type 2, hyperlipidemia

Procedural steps

1. Left groin antegrade approach

■ 6F 55 cm Flexor Check-Flo Introducer, Raabe Modification (COOK)

2. Guidewire-passage from antegrade

In case of failure retrograde approach via dorsal pedal artery:

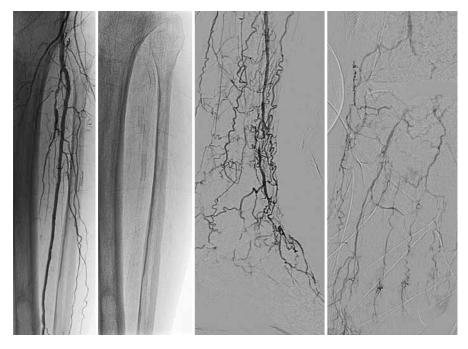
- 2.9F sheath (pedal puncture set) (COOK)
- 0.014" CTO-Approach Hydro guidewire, 300 cm (COOK)
- 0.018" CXI support catheter 90 cm (COOK)
- Advance Micro-Balloon 3.0/120 mm, 90 cm (COOK)

3. In case of failure antegrade approach via posterior tibial artery

- 0.018" Command 18 guidewire, 300 cm (ABBOTT)
- 0.018" Quick-Cross support catheter (SPECTRANETICS-PHILIPS)

4. PTA

■ 2.5/100 m Amphirion Deep ballon catheter (MEDTRONIC)



Case 82 - ABT 04: male, 65 years (L-G)

AT and PT recanalization with BTA intervention

Operators: M. Manzi, L. M. Palena, C. Brigato

Clinical data: DM, hypertension

Present state: Right CLI in previous 2°-3°-4°-5° amputation

plantar 2CTUC

Procedural steps

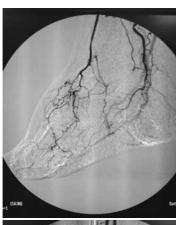
1. US guided antegrade Right CFA puncture and 6F 11 cm sheath deployment

2. CO2 angiography

Antegrade AT recanalization (V18 cw + 4F BER2)
 antegrade lateral plantar and arch recanalization (0,014 Command)

4. Discussion for DEB/POBA

5. US guided closure device deployment (ANGIO-SEAL)







Case 83 - BK 05: male, 71 years (S-W)

Combined antegrade and retrograde recanalisation left CIA, EIA, CFA and SFA

Operators: T. Zeller

Clinical data: PAOD Fontaine IIb / Rutherford 3

Recanalisation right EIA, CFA & DFA with persistant SFA occlusion 11/2017

Infrarenal AAA ABI: 0.6 / 0.4

Risk factors: Hypertension, ex-smoker, hypercholesterolemia

MRA: Occlusion of left CIA, EIA, CFA and SFA

Procedural steps

1. Retrograde right femoral access (45 cm sheath)

2. Retrograde puncture distal left SFA

3. Primarily retrograde recanalisation attempt

■ 0.018" or 0.035" Glidewire (TERUMO)

4. Stenting of iliac vessels

5. DCB angioplasty of femoral arteries with stenting on indication

■ BioMimics (VERYAN) or Supera (ABBOTT VASCULAR)





Case 84 - MUN o6: male, 71 years, (M-D)

Double chimney EVAR for a juxtarenal abdominal aortic aneurysm

Operators: A. Schwindt, K. Stavroulakis

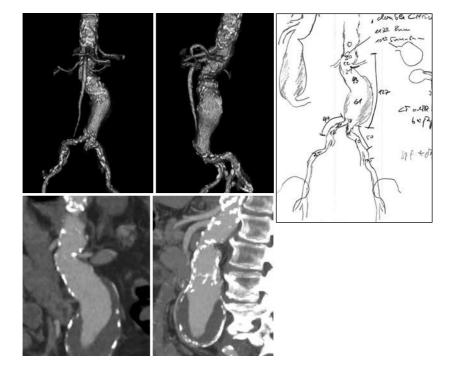
Clinical data: Art. hypertension

CAD – PTCA Riva 2001 Occlusion RCA

Occlusion right ICA and CAS left ICA some years ago Bleeding from a gastric ulcer after NSAR 2016

Present state: Progression of the aneurysm from 4.5 up to 61

- 1. Cut down left axillary artery and double puncture
- 2. Placement of two 7F Shuttle sheaths from above
- Percutanous approach both groins Prostar XL 10F (ABBOTT), placement of 14F sheaths (COOK)
- 4. Cannulation of both renal arteries from above
- 5. Placement of Endurant bifurcated endograft just below the SMA (MEDTRONIC)
- 6. Placement of the Chimney stent-grafts in both renal arteries
- 7. Closure of the accesses



Juxtarenal aortic aneurysm

Operators: A. Schmidt, D. Branzan

Clinical data: Incidental finding of a juxtarenal aortic aneurysm with progression to 75 mm

max. diameter

Coiling of intercostal and lumbar arteries before FEVAR to reduce the risk of spinal ischemia and prevent type II endoleak, coiling performed during production period

of the custommade device

Risk factors: Arterial hypertension, diabetes mellitus Type 2

chronic renal impairment, GFR 60 ml/min/1.73 m²

Procedural steps

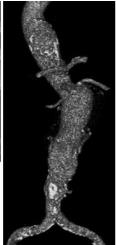
Bilateral femoral access and left axillar percutaneous access
 Preloading of Proglide-Systems (ABBOTT) for all 3 access-sites

2. Implantation of the CMD thoracoabdominal stentgraft (JOTEC)

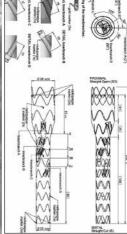
3. Implantation of E-ventus covered stents into the visveral arteries (JOTEC)

 Implantation of the bifurcated component with extension into the common iliac arteries









Case 86 - MUN 07: female, 65 years (H-W)

CMD-5-BEVAR for a thoracoabdominal aneurysm

Operators: M. Austermann, M. Bosiers, S. Mühlenhöfer

Clinical data: Cardiac fibrillation-anticoagulation,

art. hypertension,

ventilation disorders due to scoliosis of the spine-O2 therapy

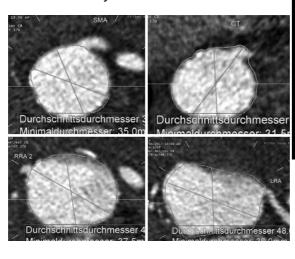
Present state: Growing TAAA, turned down for OR

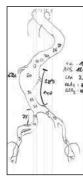
Procedural steps

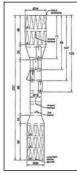
1. Percutanous approach both groins

■ (Prostar XL, ABBOTT) 14 F (COOK) both groins

- 2. Left axillary access 5F sheath via cut down
- Pull through wire between right femoral and axillary access.
 Pig tail catheter through the left groin for imaging.
 Registration of the Fusion technology
- Placement of the CMD-branched-endograft (COOK) with 5 branches with help of the Fusion system
- Placement othe the 12F Flexor sheath from above over the pull through wire
- 6. Closure of the groins in order to avoid SCI
- 7. Bridging of all the branches from the axillary access.Advanta, VBX, Viabahn
- 8. Closure of the axillary access









High grade stenosis of an arteria lusoria

Operators: S. Bräunlich, M. Ullrich

Clinical data: Pain and paresthesia right hand during elevation followed by dizziness and headache

RR right: 110/60 mmHg; RR left 140/80 mmHg

Risk factors: Arterial hypertension, former smoker (40 py), hyperlipidema, diabetes mellitus Typ II

Present state: Subclavian-steal syndrome with retrograde flow in the vertebral artery

No dysphagia

Procedural steps

1. Right brachial approach

■ 5F 25 cm sheath (TERUMO)

2. Right femoral approach

■ 7F 90 sheath, Flexor Check-Flo Introducer (COOK)

3. Passage of the lesion

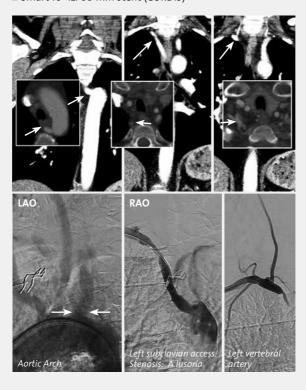
■ Snaring of the guide wire from femoral acces

4. Predilation

■ 8 mm Admiral balloon (MEDTRONIC)

5. Implantation of a self-expanding nitinol stent from femoral

■ Smart 10–12/60 mm stent (CORDIS)



Case 88 - LEI 34: female, 76 years (C-H)

Chronic occlusion iliac arteries TASC D and long SFA occlusion left

Operators: S. Bräunlich, M. Ullrich

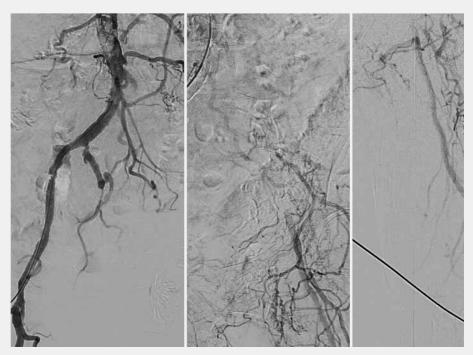
Clinical data: PAOD Rutherford 3, walking capacity 10 m left; ABI left 0.53

Risk factors: Arterial hypertension, diabetes mellitus type 2, hyperlipidemia

Chronic renal failure, GFR 40 ml/min/1.73 m2

CAD: NSTEMI and CABG 2009 Cerebral ischemia 1994

COPD



Procedural steps

1. Brachial approach

■ 6F 90 cm Check-Flo Performer (COOK)

2. Left femoral approach

■ 7 25 cm sheath (TERUMO)

3. Guidewire passage

- 0.035" stiff angled Glidewire, 260 cm (TERUMO)
- Pacific 5.0/120 omm-Ballon (MEDTRONIC)

4. Stenting

- LifeStream covered stent (common iliac artery) (BARD)
- Cover Plus covered stent (external iliac artery) (BARD)

Occlusion of the tibial trifurcation left

Operators: S. Bräunlich, M. Ulrich

Clinical data: PAOD Rutherford 3, claudication, walking capacity 100 m left, ABI left 0,68

Stenting SFA left (Supera) 2017, DEB angioplasty SFA right 2017 Angioplasty BTK arteries + stenting popliteal artery right 2014

Risk factors: Arterial hypertension, diabetes mellitus Type 2

Chronic renal impairment, GFR 60 ml/min /1.73 m2

Procedural steps

1. Left femoral retrograde and cross-over approach

■ 7 F 55 cm Check-Flo Performer, Raab Modification (COOK)

2. Guidewire passage and filter positioning in the peroneal artery

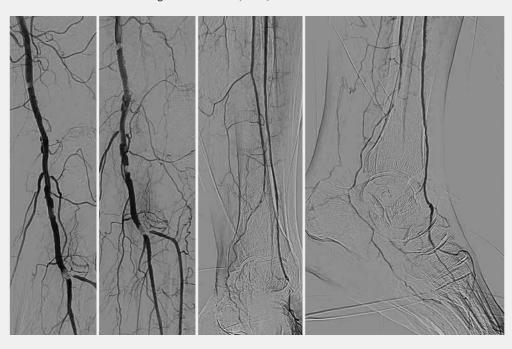
■ PT2 o.o14" guidewire, 300 cm (BOSTON SCIENTIFIC)

3. Atherectomy and PTA with DCBs

■ Jetstream SC (BOSTON SCIENTIFIC)

4. PTA with drug eluting balloons

■ Lutonix drug-coated balloon (BARD)



or your notes

For your notes	

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