

## MO-1 Progression of Small Artery Disease in Reintervention for Patients with Chronic Limb-threatening Ischemia Undergoing Inframalleolar Angioplasty

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### 【What's\_known?】

Although clinical importance of inframalleolar angioplasty for limb salvage have been reported in treatment of chronic limb-threatening ischemia (CLTI), there are few reports on progression of small artery disease (SAD), known as “below-the-arch” disease, after inframalleolar angioplasty.

### 【What's\_new?】

This study was a single center retrospective study. The consecutive 365 patients with CLTI accompanied by ischemic wound undergoing inframalleolar angioplasty between April 2010 and December 2020. SAD score was defined as follows; SAD 0 as no or mild stenosis, SAD 1 as significant stenosis, and SAD 2 as occlusion at least one lesion of pedal arch, metatarsal, digital, and calcaneal arteries. The inframalleolar target lesions were stenosis in 88% and occlusion in 12%. In 168 patients undergoing reintervention, restenosis and reocclusion of inframalleolar target lesions were 36% and 48%, respectively. In 109 patients with SAD 0-1 in initial procedure, the distal reference diameter  $\leq 1.0$  mm was significantly associated with progression of SAD score in reintervention (hazard ratio 2.80 [95% confidence interval 1.01-7.73],  $p = 0.047$ ) after multivariate analysis.

## MO-2 Contemporary Outcome of Target Lesion Revascularization on Restenosis Lesions after Drug-Coated Balloon intervention

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### 【What's\_known?】

Several studies reported the efficacy of drug coated balloon angioplasty; however, we experienced restenosis after the use of drug coated balloon (DCB). There were few reports on which strategy would be effective for the restenosis lesions after DCB intervention.

### 【What's\_new?】

This retrospective and multicenter study enrolled 33 patients (33 limbs) with restenosis after DCB intervention between January 2018 and September 2021. The overall patency after the revascularization was 63.8% at 12 months. The 1-year patency of DCB was the highest among three strategies (DCB 81.2%, Scaffold 48.2%, and POBA 30%,  $p=0.0375$ , log-rank). Freedom from CD-TLR showed similar results (DCB 86.7%, Scaffold 64.3%, and POBA 30%,  $p=0.0224$ , log-rank). Overall survival was similar among three strategies (DCB 77.5%, Scaffold 78.7%, and POBA 100%,  $p=0.743$ , log-rank). Cox proportional hazard analysis revealed popliteal artery involvement (Hazard ratio (HR) 6.56, 95% confidence interval (CI) 1.41-30.5,  $p=0.01$ ), CTO (HR 4.52 [1.01-20.2],  $p=0.04$ ), POBA (HR 7.97 [1.29-49.1],  $p=0.02$ ) were associated with the recurrence of the restenosis. The repeated use of DCB was acceptable for the restenosis lesion after DCB intervention.

### MO-3 Comparative 2-year clinical outcomes of paclitaxel-eluting stent and drug-coated balloon in large vessel femoropopliteal artery lesions

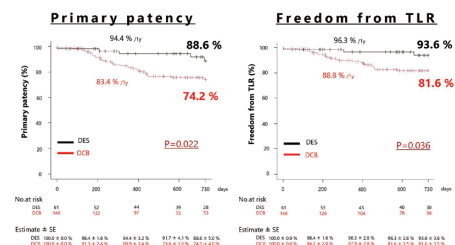
○Masanaga Tsujimoto, Takuya Haraguchi, Tsutomu Fujita  
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#### 【What's known?】

The efficacy of drug-eluting stent (DES) and drug-coated balloon (DCB) for femoropopliteal artery lesions has been well demonstrated. However, comparative studies of these drug-related device strategies for large femoropopliteal arteries are limited. This study aimed to compare the 2-year clinical outcomes of DES and DCB in large femoropopliteal lesions in real-world practice.

#### 【What's new?】

The current study is a single-center, retrospective, observational study. 176 patients (mean age 76.5 years, males 73.9%) with 207 lesions were treated using DES (n= 61) and DCB (n= 146) for large femoropopliteal lesions (distal reference vessel diameter  $\geq$  5 mm) from September 2018 to December 2020. The primary endpoint was 2-year primary patency (PP). Secondary outcome was freedom from target lesion revascularization (TLR). Baseline clinical and lesion characteristics were significantly similar between the two groups. The DES group had a higher 2-year PP than the DCB group (88.6% versus 74.2%,  $p=0.022$ ). The incidence of freedom from TLR in the DES group was significantly higher than that in the DCB group (93.6% versus 81.6%,  $p=0.036$ ). Consequently, 2-year clinical outcomes of DES treatment were superior to those of DCB treatment for large femoropopliteal lesions in real-world practice.



### MO-4 Clinical outcomes of high-dose vs. low-dose drug-coated balloon angioplasty in the contemporary femoropopliteal practice

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#### 【What's known?】

Clinical outcomes between high-dose (IN.PACT Admiral™) versus low-dose (Ranger™) drug-coated balloon (DCB) in the contemporary femoropopliteal (FP) practice has not been well studied.

#### 【What's new?】

**Methods:** This was a single center and retrospective study enrolling 646 lesions in 455 patients undergoing endovascular therapy with IN.PACT Admiral™ (485 lesions from 352 patients) or Ranger™ DCB (161 lesions from 103 patients) between February 2018 and January 2022. The outcome measure was primary patency. Predictors for loss of primary patency were also assessed by multivariate analysis.

**Results:** TASC C/D lesions (68% vs. 53%,  $P=0.012$ ), PACSS grade 4 lesions (27% vs. 18%,  $P=0.044$ ) was significantly higher and lesion length was significantly longer (20.1cm vs. 15.4cm,  $P<0.001$ ) in the low-dose DCB group. However, there was no significant difference in 12-month primary patency between high-dose and low-dose DCB (78.1% versus 75.7%,  $P=0.098$ ). After multivariate analysis, involving popliteal artery (Hazard ratio [HR]: 1.53,  $P=0.006$ ), chronic total occlusion (HR: 1.47,  $P=0.028$ ) and dialysis (HR: 1.36,  $P=0.043$ ) were significantly associated with loss of primary patency.

**Conclusion:** The current study showed that 12-month primary patency was not significantly different between high-dose and low-dose DCB angioplasty in the contemporary FP lesions.

## MO-5 Comparison of 3-year clinical outcome between low-dose and high-dose paclitaxel drug-coated balloon in endovascular therapy for femoropopliteal lesion

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### 【What's\_known?】

It has not been reported about comparison of 3-year clinical outcome between low-dose (LD) and high-dose (HD) paclitaxel drug-coated balloon (DCB) in endovascular therapy (EVT) for femoropopliteal lesion in real world.

### 【What's\_new?】

This study was a retrospective multicenter-registry enrolling consecutive 1378 patients (1777 lesions) treated at 5 hospitals in Kanagawa, Japan between July 2017 and June 2020 (evaluation of clinical outcome After eNDovascular therapy for feMoropopliteal ARtery disease in Kanagawa: LANDMARK registry). Of these, DCB angioplasty was performed in 477 patients (516 lesions). Propensity score-match analysis was performed to compare the clinical outcome between LD-DCB (Lutonix) and HD-DCB (IN.PACT admiral). A total of 155 matched pairs of lesions were analyzed after propensity score-matched analysis. Primary patency and freedom from target lesion revascularization at 3 years were similar between the two groups (LD-DCB vs. HD-DCB; 64% vs. 55%, p=0.55, and 63% vs. 64%, p=0.86, respectively). Consequently, there is no significant difference in the 3-year clinical outcome between LD-DCB and HD-DCB angioplasty for the femoropopliteal lesion.

## MO-6 Clinical outcome of drug coated balloon (IN.PACT and RANGER) for femoropopliteal artery disease

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### 【What's\_known?】

In clinical practice, drug-coated balloons are increasingly used in femoropopliteal artery lesions.

### 【What's\_new?】

Purpose: The purpose of this study was to evaluate clinical outcomes of drug coated balloon (IN.PACT and RANGER) for femoropopliteal artery disease.

Methods: A retrospective study was performed of 207 patients (263 lesions) who underwent EVT for femoropopliteal arteries presented from May 2018 to January 2022.

Results: The mean age of the patients was  $76 \pm 10$  years old and 58% of the patients were male. 61% of the patients had diabetes mellitus, 41% had renal failure on dialysis and 34% had chronic limb-threatening ischemia. 51% of the lesions were classified as A/B according to TASC II classification. 36% of the lesions were chronic total occlusion (CTO). Mean lesion length was 185mm. Primary patency rate was 75.9% at 1 year. Clinical driven target lesion revascularization free survival rate was 80.9% at 1 year. Primary patency rate was 78.7% in IN.PACT and 70.7% in RANGER respectively.

Conclusion: This study demonstrated favorable outcomes and safety for drug coating balloon.

## MO-7 Analysis about the frequency of distal emboli due to three kinds of paclitaxel-coated balloon in femoropopliteal artery using a laser doppler flowmetry

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### 【What's\_known?】

Several reports have shown that distal emboli of drug coated balloons (DCBs). Previously we have showed the frequency of distal emboli by IN.PACT Admiral® or LUTONIX® (Cardiovasc Interv Ther.2022 Jul;37(3):526-532). Ranger® DCB with new technology is available now. This time we conducted an analysis including Ranger® DCB.

### 【What's\_new?】

We analyzed 54 DCB cases. We used IN.PACT Admiral® for 17 cases, LUTONIX® for 17 cases and Ranger® for 20 cases. The exclusion criteria were DCB off-label use in Japan and Rutherford 5-6 cases. We evaluated distal emboli with laser-doppler-flowmetry-guidance (DEL). DEL was defined as the case that the blood flow of the first or the fifth toe dropped around DCB treatment.

48% cases (n=26) had DEL. The rate of DEL in each DCB was 47% for INPACT (n=8), 41% for LUTONIX (n=7), 55% for Ranger (n=11). DEL appeared significantly in poor BK run off and coronary artery disease cases. There was no relationship between DEL and drug dose. (DEL  $5911 \pm 3870\mu\text{g}$  vs non-DEL  $7714 \pm 4807\mu\text{g}$ ,  $p=0.17$ ) Among the three DCBs, Ranger group tend to have more patients with poor BK run off. (Ranger 40% vs the others 17%) There was no difference of the patency rate of a year between DEL (n=26) group and non-DEL (n=28).

## MO-8 The safety and efficacy of the direct oral anticoagulant for the patients with symptomatic femoropopliteal disease treated by endovascular therapy

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### 【What's\_known?】

The safety and efficacy of low dose rivaroxaban plus aspirin for the patient undergone endovascular therapy (EVT) was reported. However, that of conventional dose direct oral anticoagulant (DOAC) is not reported.

### 【What's\_new?】

This is a multicenter retrospective study. 226 patients (270 limbs) undergone EVT between July 2018 and June 2020 were enrolled. 220 patients (248 limbs) received conventional antiplatelet therapy without DOAC (Non DOAC group) and 16 patients (22 limbs) received DOAC therapy (DOAC group; 10 of the 16 were DOAC alone and the others were DOAC plus single antiplatelet) were compared about their outcome. 1 and 2-year primary patency did not differ between two groups (69.2% vs. 66.7%;  $p=0.813$  and 58.0% vs. 47.1%;  $p=0.331$ ). The Kaplan-Meier estimates of the 2-year Freedom from target lesion revascularization did not differ (68.8% vs. 66.7%; hazard ratio, 0.89, 95% confidence interval [CI], 0.36 to 2.21,  $p=0.80$ ). The outcome did not depend on lesion characteristics and finalize devices. One of the safety outcome, the incidence of BARC major bleeding was significant higher in DOAC group (2.9% vs. 18.5%; hazard ratio, 7.50; 95% CI, 1.87 to 30.0;  $p=0.004$ ). In conclusion, we might have to consider DOAC without antiplatelet therapy for high bleeding risk patients.

## MO-9 Successful deep venous arterialization in a CLTI patient with Burger's disease

○Kazuhiro Asano, Shunsuke Kojima, Tatsuya Nakama, Kotaro Obunai  
Tokyo bay Medical Center

### 【Case\_overview】

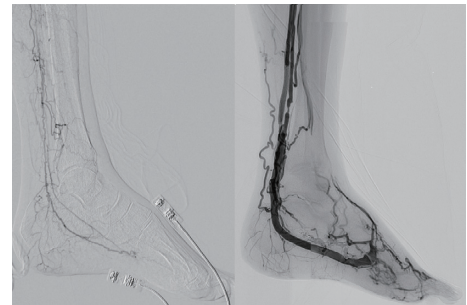
A 55-year-old man, previously diagnosed with Buerger's disease 4 years ago, developed a refractory ulcer on his left 1st toe 2 years ago and has been repeatedly treated with endovascular treatment (EVT) for chronic limb threatening ischemia (CLTI, Rutherford 5). Although the toe had to be amputated due to the progression of necrosis, repeating revascularization to maintain blood flow to the peripheral resulted in successful wound healing. Nine months later, follow-up angiography showed re-occlusion of the superficial femoral artery (SFA), but we postponed revascularization because the patient was asymptomatic. Another month later, he presented with a newly developed ulcer in the left dorsal area next to the 1st toe.

### 【Procedure\_summary】

We repeatedly performed revascularization to the left SFA, however, we could not observe sufficient blood flow for wound healing. We determined the situation as "no-option CLTI," and performed percutaneous deep venous arterialization (pDVA) for revascularization, creating an arteriovenous fistula between the plantar tibial artery and vein.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

After several additional angioplasties, blood flow to the wound gradually developed, leading to successful limb salvage. We will report this rare case of successful DVA in a CLTI patient with Buerger's disease, including the results of DVA cases in our hospital."



## MO-10 A case of successfully EVT from the upper extremity for CLTI with severe renal dysfunction and dementia

○Takafumi Fujita, Kaori Mine, Makoto Sugihara, Shinichiro Miura  
Fukuoka university hospital

### 【Case\_overview】

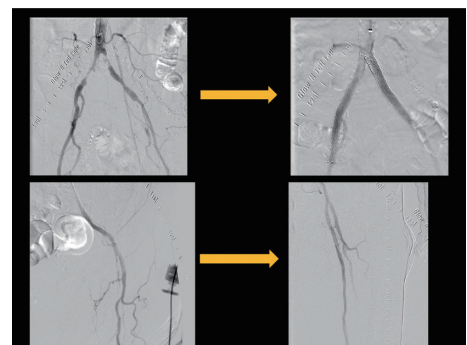
A 84 years old female, she was admitted to our hospital due to refractory ulcer of the left heel (W3,I3,f11,Wf11,CS4). She was suffered from chronic kidney disease grade4(Creatinine 1.69mg/dl, estimated GFR 22.6 ml/min/1.73m<sup>2</sup>) and cerebrovascular dementia (HDS-R 4 points, MMSE 13 points).

### 【Procedure\_summary】

The severe stenosis of bilateral CIA and left EIA, and occlusion of the left SFA was observed by echocardiography. It would be difficult to keep at rest postoperatively for her, so we selected the left brachial artery as approach site. Contrast agent was used only 20ml, and the approach alone was sufficient to complete the procedure.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

Thereafter wound healing was achieved through the wound management, demonstrating the usefulness and safety of the upper extremity approach EVT.



## **MO-11      A case of revascularization using various techniques for the left superficial femoral artery with advanced eccentric calcification**

○Hideki Ebina, Yohei Yamamoto, Kei Fujiwara, Hirokazu Konishi  
Tokyo Metropolitan Tobu Chiiki Hospital

### **【Case\_overview】**

A 67-year-old woman who had a severe stenosis lesion in her left superficial femoral artery (SFA) was scheduled for endovascular intervention.

### **【Procedure\_summary】**

Angiography revealed a severe eccentric calcified lesion (calcified nodule) in the proximal of the left SFA. At first, we tried to do the ARCADIA technique. However, any wires could not be penetrated the center of the calcified nodule. Second, we switched to the bamboo spear technique and approached the calcified lesion by puncturing from the distal SFA using the needle, however, the needle could not be penetrated the lesion. Third, we debulked the calcified nodule by using the Crossbow technique. However, the CROSSER was slipped by the calcified lesion. Finally, we decided to do the Crossvac technique. This technique was successful to debulked the lesion. Then the lesion was dilatated using a 5 mm diameter balloon and obtained enough lumen area. However, bleeding was observed from the distal SFA which was caused by puncturing the distal SFA during the bamboo spear technique. We punctured the hematoma by using a 22G needle and hemostasis was successfully achieved by injecting thrombin into the hematoma.

### **【Clinical\_time\_course\_and\_implication\_ (or\_perspective)】**

Finally, a 6 mm diameter stent was developed in the SFA, and the procedure was completed.

## **MO-12      A case of bidirectional biopsy forceps approach for calcified CFA lesion**

○Daisuke Yamazaki  
Akita Cerebrospinal and Cardiovascular Center

### **【Case\_overview】**

A 76-year-old female with intermittent claudication in her left ankle-brachial index (ABI) of 0.79, and a computed tomography angiogram showed a severe calcified lesion in common femoral artery (CFA).

### **【Procedure\_summary】**

A 6Fr PARENT sheath was inserted via the right femoral artery. A 0.014-inch guidewire was passed through the CFA, and a CROSSER catheter ablated the CFA lesion. In addition, biopsy forceps ablated the CFA lesion about 15 times. However, it was difficult to control the biopsy forceps because of iliac artery flexion. A 6Fr sheath was inserted via the left posterior tibial artery, and the biopsy forceps ablated the CFA calcified lesion in a retrograde fashion. Retrograde biopsy forceps approach ablated more calcified plaques than antegrade approach, and final angiogram showed no stenosis flow without balloon dilatation and stent implantation.

### **【Clinical\_time\_course\_and\_implication\_ (or\_perspective)】**

After the procedure, ABI improved into 1.07 and the patient discharged with neither any symptoms nor complications. Once in a while it is difficult to control biopsy forceps for ablation in calcified CFA because of the iliac artery flexion. Retrograde approach may make it easy to control biopsy forceps.



## MO-13 Successful Endovascular treatment for CTO Bilateral Iliaca with IVUS

○Mohammad Reza Juniery Pasciolly

RSUD AL Ihsan Provinsi Jawa Barat - FK Unisba

### [Case\_overview]

60 year female, bilateral rest leg pain, no ulcer or wound with chest pain ( stable angina pectoris), history acute coronary syndrome with symptom heart failure, risk factor hypertension,

### [Procedure\_summary]

Access used bilateral femoralis artery and left brachial artery, use IVUS, device wire CTO 11G and 20 G system 014 ( Haldberd and V-14) and 2 wire terumo hydrophilic 035, microcathether use Rubicon 035 -> Cross CTO Bilateral iliac with use intraluminal and subintimal technique are failed,change technique puncture calcified with fromback terumo hydrophilic huide with advance from access brachial artery, its wire catch with snaring, then use IVUS target MLA more 12 and MSA more 100%, Predilatation ballon 5.0/100 ; 6.0/80 ( all bilateral), deployed stent bilateral iliac with BES 8.0/120 ; Kissing Balloon 9.0/40 (bilateral), Final Angiography showed by figure

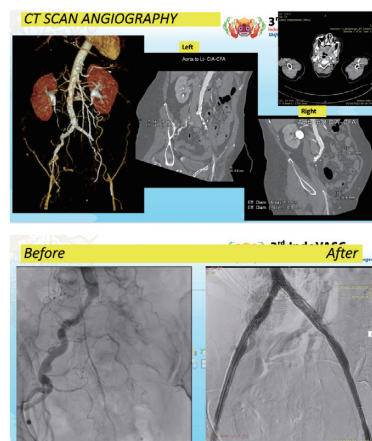
### [Clinical\_time\_course\_and\_implication\_(or\_perspective)]

Complex peripheral intervention need technology, technique, and therapy.

Intravascular Imaging and atherectomy mus do it the future procedure endovascular intervention ( like coronary have stable)

Aortoiliac TASC D can manage with endovascular with technology ( IVUS & Atherectomy), experience operator, and selection device stent.

IVUS can prevent complication during procedure endovascular, also ivus can measure size, morphology vessel, and sizing device.



## MO-14 The risk factors of "worsening target lesion failure (WTLF) " after endovascular therapy for femoropopliteal lesion

○Yuta Azumi, Tatsuya Nakama, Kotaro Obunai, Hiroyuki Watanabe

Tokyo Bay Medical Center

### [What's\_known?]

Use of drug technology is reasonable for endovascular therapy of femoropopliteal lesion (FP-EVT), due to the adequate patency. However, in daily clinical practice, some target lesion failure (TLF) cases show severer clinical and/or angiographic condition than the original before the intervention. The predictors of "worsening target lesion failure (WTLF)" after FP-EVT is unclear.

### [What's\_new?]

The aim of this study is to clarify the predictors of WTLF after FP-EVT. Total 292 lesions (194 patients), underwent FP-EVT with drug technologies (DES: 104, DCB: 188) were retrospectively reviewed. We defined WTLF as TLF with acute limb ischemia symptom or occlusion of the lesion which had been stenosis at the initial treatment. During the follow-up period (median: 568 days), 13 WTLFs were observed. Of these, 9 (8.7%) cases were treated with DES and 4 (2.1%) were with DCB at the initial treatment ( $p=0.01$ ). Cases with WTLF had severer and longer calcification (bilateral calcification: 84.6% vs 47.7%,  $p=0.007$ ; calcium length:  $162 \pm 74$ mm vs.  $85 \pm 11$ mm,  $p=0.005$ ). Multivariate analysis showed DES use (Hazard ratio (HR): 4.66 [1.28-16.92]) and bilateral calcification (HR: 7.21 [1.04-50.14]) were independently associated with the occurrence of the WTLF.

For severly calcified stenotic lesions, use of DES includes possibility of WTLF and may be better to avoid.

## MO-15 A case of ablating the in-stent superficial femoral artery by various methods using an excimer laser atherectomy catheter

○Kazuho Ukai, Haruya Yamane, Kuniyasu Ikeoka, Yasunori Ueda  
National Hospital Organization Osaka National Hospital

### 【Case\_overview】

A 79-year-old female with hypertension complained of unhealed ulcer on her right foot. She received endovascular treatment (EVT) with drug-eluting stent in her right proximal superficial femoral artery (SFA) 2 years before. However, they occluded within 1 year. Additional EVT for in-stent occlusion (ISO) in right SFA with drug-coated balloon kept only 6 months patency because conventional treatment couldn't obtain a sufficient acute luminal gain. We planned additional EVT using an excimer laser atherectomy (ELA) to acquire a sufficient luminal gain.

### 【Procedure\_summary】

The initial angiogram demonstrated an ISO of her right SFA. First, we passed the lesion and ablated the ISO components using an ELA catheter. However, a severe stenosis in the proximal SFA remained. Although we managed to ablate the lesion, all antegrade procedures did not work since the tip of ELA catheter could not reach the target. Finally, we attempted to deliver the ELA catheter from retrograde approach through an ipsilateral posterior tibial artery. The shaped ELA catheter without guidewire could reach and ablate the target, resulting in successful dilation. The final angiogram showed the good results.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

She was discharged without any complications. Her ulcer was successfully cured in one month after EVT.

## MO-16 A case of angioscopic observation of in-stent occlusion of Stentgraft and DES placed in SFA-CTO lesions

○Shunsuke Maruta, Tomomi Koizumi  
Mito Medical Center

### 【Case\_overview】

The patient was an 82s woman diagnosed CLTI (Rutherford criteria:5) one year ago. We performed EVT for Lt SFA CTO lesion and deployed Eluvia; 6.0 × 40mm and 6.0 × 120mm for CFA distal to SFA mid, and Viabahn; 6.0 × 250mm for SFA mid to distal. After EVT, wound healing was obtained, but one year later, the left limb had blue toe again, Angiography showed in-stent occlusion in almost all of Lt SFA.

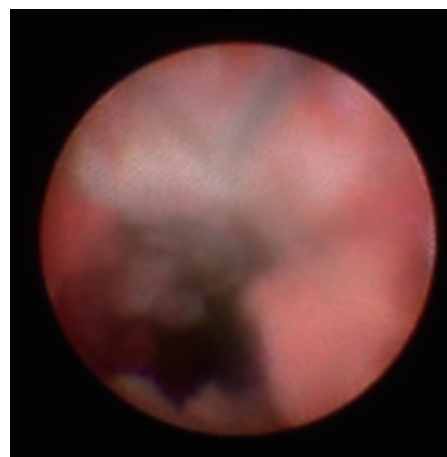
### 【Procedure\_summary】

Angioscope showed a large amount of white thrombus in distal Viabahn, but from mid to proximal Viabahn contained a small amount of thrombus. And the Eluvia had a large amount of white and red thrombus.

6Fr JR 4.0 was used to aspirate a thrombus in the stents and a large number of thrombi, especially from Viabahn, could be aspirated. After aspiration, Angioscopy showed the thrombus in Viabahn had decreased considerably, but a large amount of thrombus still remained in Eluvia. POBA for the Viabahn was performed with 6mm diameter balloon and new Viabahn; 6.0 × 150mm was overlapped with the Eluvia to prevent thromboembolism. And POBA for Lt SFA distal to popliteal artery was performed with IN. PACT; 6.0 × 120mm.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

Good blood flow was obtained from Lt SFA to BTK and blue toe was improved.





## MO-17 Association between high bleeding risk and 2-year mortality in patients with chronic limb threatening ischemia

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<sup>1)</sup> Ogaki Municipal Hospital, <sup>2)</sup> Nagoya Heart Center, <sup>3)</sup> Ichinomiya Municipal Hospital, <sup>4)</sup> Central Japan International Medical Center, <sup>5)</sup> Shizuoka General Hospital

### 【What's\_known?】

Patients with chronic limb-threatening ischemia (CLTI) have a high bleeding risk (HBR) and mortality rate. The 2-year life expectancy is an important factor in deciding appropriate treatment strategy. This study aimed to assess the influence of HBR on the prognosis of CLTI patients.

### 【What's\_new?】

A total of 259 CLTI patients who underwent endovascular therapy (EVT) (mean age, 76.2 years; male, 62.9%) between January 2018 and December 2019 were evaluated. The Academic Research Consortium for HBR (ARC-HBR) criteria were applied to each patient, and the ARC-HBR scores were calculated. All-cause mortality increased significantly with increase in the ARC-HBR score. Cox multivariate analysis revealed a significant association between high ARC-HBR scores and the risk of all-cause mortality within two years. The ARC-HBR score could predict 2-year mortality in patients with CLTI who underwent EVT. Thus, this score can help determine the best revascularization strategy for CLTI patients.

## MO-18 Longitudinal Changes of Skin Perfusion Pressure in Patients with for Chronic limb-threatening Ischemia after Endovascular Therapy

○Takahiro Tokuda<sup>1)</sup>, Yasuhiro Oba<sup>1)</sup>, Keisuke Hirano<sup>2)</sup>

<sup>1)</sup> Nagoya Heart Center, <sup>2)</sup> Toyohashi Heart Center

### 【What's\_known?】

Objective

Skin perfusion pressure (SPP) is established as a standard microcirculation measurement tool for evaluating the ischemic status of critical limb-threatening ischemia (CLTI). SPP after endovascular treatment (EVT) is known to rise up to 1 month, but changes after that remains unclear. The aim of this study is to clarify SPP changes over time after EVT.

### 【What's\_new?】

Methods

This study was a single-center, retrospective, and observational study. Patients with CLTI after EVT were analyzed between April 2019 and July 2022. The changes of SPP after EVT were compared every 1 month up to 3 months, and also evaluated according to their comorbidities.

Results

A total of consecutive 87 patients were recruited in current study. The mean age was  $73.3 \pm 12.2$  year old and the percentage of male, diabetes, and hemodialysis were 65.5%, 82.8%, and 85.1%. Preprocedural dorsal and planter SPP were  $33.9 \pm 14.7$  and  $33.4 \pm 13.1$  mmHg. Each SPP values decreased significantly month by month up to 3 months. (dorsal SPP at 1,2,3,month:  $59.6 \pm 20.3, 48.3 \pm 20.9, 39.7 \pm 14.7, p < 0.05$ ; planter SPP at 1,2,3,month:  $57.3 \pm 18.2, 48.2 \pm 15.6, 40.5 \pm 15.3, p < 0.05$ ) There were no significant differences in terms of changes of SPP stratified by their comorbidities.

Conclusions

SPP after EVT significantly decreased every 1 month up to 3 months and their changes did not differ stratified by their comorbidities.

## MO-19 A case of impaired renal artery blood flow due to atypical mechanisms associated with aortic dissection

○Junya Arai, Makio Muraishi, Tatsuya Nakama  
TokyoBay Urayasu Ichikawa Medical Center

### 【Case\_overview】

A 46-year-old male was admitted to our hospital with a diagnosis of type B aortic dissection. Despite one week of conservative therapy, symptoms progressed and the ascending aorta was dilated, so David grafting and total arch replacement was performed. He need hemodialysis because of acute kidney injury after operation and follow up CTA disclosed left renal enhancement loss due to static left renal artery obstruction.

### 【Procedure\_summary】

A 8-Fr sheath was inserted into right femoral artery, 8-Fr JR 4.0 guiding catheter was engaged and 0.014-inch guidewire was crossed the left renal artery. IVUS showed partial avulsion of left renal artery and VIABAHN 6.0x50mm was deployed to cover avulsed renal artery. The final angiography showed successful revascularization.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

Renal function improved and dialysis was no longer necessary. Follow up CTA revealed the improvement of left renal enhancement.

## MO-20 Mid-term target vessel and limb outcomes between intravascular-derived and conventional endovascular therapy to revascularization in chronic limb-threatening ischemia (CLTI) patients

○Saritphat Orrapin<sup>1,2)</sup>, Boonying Siribumrungwong<sup>1,2)</sup>, Thoetphum Benyakorn<sup>1,2)</sup>, Kanoklada Srikuea<sup>1,2)</sup>

<sup>1)</sup> Vascular Surgery Division, Department of Surgery, Faculty of Medicine, Thammasat University, Pathum Thani, Thailand,

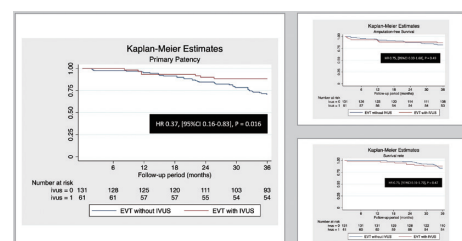
<sup>2)</sup> Thammasat University Center of excellence for Diabetic foot care (TU-CDC), Thammasat University Hospital, Pathum Thani, Thailand

### 【What's\_known?】

To investigate the efficacy of intravascular ultrasound (IVUS)-derived endovascular therapy (EVT) for chronic limb-threatening ischemia (CLTI) patients with the infrainguinal occlusive disease compared with conventional EVT without IVUS-guidance.

### 【What's\_new?】

The retrospective study of CLTI patients with tissue loss who treated by EVT in Thammasat University Hospital from August 2017 to July 2022 were conducted. 192 limbs from 188 patients (100 men; mean age 69.6 years) were performed infrainguinal EVT. 61 limbs (31.7%) were performed IVUS-derived EVT. The survival analysis and Cox-proportional hazard model (mean follow-up 28 months) estimated higher 3-year primary patency with than without IVUS use. (HR 0.37, [95%CI 0.16-0.83], P = 0.016). IVUS resulted in significantly better primary patency at 3-years (88.52% vs. 70.99, P = 0.008). For short-term primary patency, Amputation free survival (AFS) and survival rate were comparable. Smoking, high grade of the Society for Vascular Surgery Lower Extremity Threatened Limb Classification System based on Wound, Ischemia, and foot Infection (SVS-Wiffl score) and circumferential calcification more than 180° of the vessel wall were significant risk factors for primary patency loss (P<0.05). In summary, the IVUS-derived EVT in CLTI patients appears to be associated with higher mid-term primary patency rate. However, the clinical outcome of AFS and survival rate were comparable.



## MO-21 Long-term prognostic risk score for CLTI including nutritional state

○Yoshiteru Okina<sup>1)</sup>, Tamon Kato<sup>1)</sup>, Yasushi Ueki<sup>1)</sup>, Takashi Miura<sup>2)</sup>, Yushi Oyama<sup>3)</sup>, Naoto Hashizume<sup>4)</sup>, Daisuke Yokota<sup>5)</sup>

<sup>1)</sup>Shinshu University School of medicine, <sup>2)</sup>Nagano Municipal Hospital,

<sup>3)</sup>Cardiology Shinonoi General Hospital, <sup>4)</sup>Nagano red-cross Hospital, <sup>5)</sup>Iida Hospital

### 【What's\_known?】

Chronic limb-threatening ischemia (CLTI) is well known for its poor prognosis. Although nutritional state is reportedly related to outcome, few studies have considered a long-term prognostic score for CLTI that includes nutritional status.

### 【What's\_new?】

From the I-PAD registry, a total of 125 patients with CLTI were analyzed. We searched for prognostic predictors including nutritional status for amputation-free survival (AFS) to develop a scoring system for CLTI prognosis. Cox multivariate analysis revealed >71 years of age, female, Geriatric Nutritional Risk Index score <92 points, heart failure, and anemia (<13.0 g/dL in men and <12.0 g/dL in women) to be significant prognostic predictors for AFS (all p<0.05). We designed scoring system using these five items, and calculated the weighted risk score for each prognostic factor (0 to 11 points), and divided the cohort into the high score group (≥4 points) and low score group (<4 points). The AFS at 5 years was significantly higher in the low score group (64.6% vs. 10.5%, p<0.001). The area under the receiver operating characteristic curve was 0.81 for 5-year AFS. A lower prognostic score incorporating nutritional state may indicate a better long-term prognosis in CLTI patients.

## MO-22 The contribution of endovascular therapy to improvement of physical ability in patients with chronic limb-threatening ischemia

○Norikiyo Oka, Yo Iwata, Kota Usami, Yoshiyuki Onaga, Hironao Sudo, Kazunobu Iitaka, Rie Aoyama, Hikaru Ishiwaki, Shinichi Okino, Shigeru Fukuzawa  
Funabashi Municipal Medical Center

### 【What's\_known?】

#### Background

Physical activities of patients with chronic limb-threatening ischemia (CLTI) depends on not only their state of lower limbs, but also their general condition and social background. They are often sick and frail, and have some comorbidities, thus we sometimes experience difficulties in treatment.

Today, though we perform foot care including endovascular therapy (EVT) for CLTI patients, its effect on improvement or maintenance of their physical ability has not been sufficiently validated.

### 【What's\_new?】

#### Methods

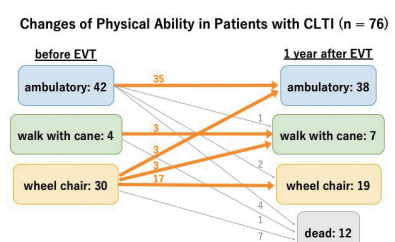
We retrospectively identified 91 patients who underwent EVT for CLTI in our hospital between January 2019 and December 2021. We collected their backgrounds and clinical characteristics, and investigated the changes of physical ability before and 1 year after EVT.

#### Results

Fifteen of 91 patients were excluded due to lack of follow-up data, so 76 patients were eligible for analysis. At the time of EVT, 42 patients were ambulatory, 4 patients could walk with cane, 30 patients used wheelchair. One year later, 12 patients were already dead and 64 patients survived. In summary, 61 patients had their physical ability improved or maintained.

#### Conclusion

Although CLTI patients are at high risk for mortality, EVT is useful for improvement or maintenance of their physical ability.



## **MO-23 The association between nutritional status and clinical outcomes in chronic limb-threatening ischemia patients with wound undergone endovascular therapy**

○Keisuke Shoji, Kenshi Ono, Naotoshi Wada, Tetsuya Nomura, Natsuya Keira,  
Tetsuya Tatsumi

Department of Cardiovascular Medicine, Kyoto Chubu Medical Center

### **【What's known?】**

In CLTI patients undergoing EVT, the association between malnutrition based on several nutritional indices and clinical outcome has been unclear.

### **【What's new?】**

We assessed 64 limbs of 59 CLTI patients with wound undergone EVT from April 2017 to March 2021. Nutritional status was evaluated using the geriatric nutritional risk index (GNRI), controlling nutritional status (CONUT) score, and prognostic nutritional index (PNI), respectively. Malnutrition was defined as  $GNRI < 82$ ,  $CONUT \geq 7$ , or  $PNI \leq 40$ . We evaluated the associations of wound healing (WH) and amputation-free survival (AFS) at 12 months with the malnutrition before EVT. Malnutrition was observed in 23 patients (39.0%) as indicated by GNRI, 20 (33.9%) by CONUT, 41 (69.5%) by PNI, respectively. One-year WH rates were 92.4%, 85.6%, and 91.3% in patients without malnutrition, compared with 46%, 60.1%, and 75.1% with malnutrition ( $p=0.015$ ,  $0.22$ , and  $0.007$ ). One-year AFS rates were 71.1%, 67.3%, and 52.7% in patients without malnutrition, compared with 50.6%, 54.8%, and 71.2% with malnutrition ( $p=0.10$ ,  $0.04$ , and  $0.56$ ). Multivariate regression analysis demonstrated that malnutrition based on GNRI was one of the significant predictors of low 1-year WH rate (OR: 0.09, 95%CI: 0.01-0.81,  $p=0.03$ ). In conclusions, nutritional status in CLTI patients before EVT, especially based on GNRI, might be a predictor of WH.

## **MO-24 Long-term prognosis of Critical Limb-Threatening Ischemia (CLI) patients after achievement of complete wound healing**

○Natsumi Yanaka, Shinsuke Mori, Yoshiaki Ito, Masahiro Yamawaki,  
Norihiro Kobayashi, Masakazu Tsutsumi, Yohsuke Honda, Kenji Makino,  
Masafumi Mizusawa, Shigemitsu Shirai, Kohei Yamaguchi, Takahide Nakano

Saiseikai Yokohama City Eastern Hospital, Department of Cardiology

### **【What's known?】**

Background: Prognosis of CLTI patients is known to be poor. However, improvement of mid-term prognosis had been indicated after wound healing in the previous study.

### **【What's new?】**

Objective: This study aimed to show long-term prognosis of CLTI patients after achievement of wound healing.

Methods: We enrolled 195 CLTI patients who were treated in our hospital by endovascular therapy (EVT) and achieved complete wound healing between April 2007 and December 2017. The primary endpoint was overall survival at five years. The secondary endpoints were limb salvage and CLI recurrence rates at five years.

Results: Overall survival rates at one year, three years, and five years were 77%, 52%, and 36% respectively; no patient underwent major amputation once complete wound healing had been achieved; rates of CLI recurrence were 2%, 11%, and 19% respectively. On multivariate Cox proportional hazard analysis, HD (hazard ratio: 2.02; 95% confidential interval 1.39-2.92;  $p<.001$ ) and non-ambulatory status (hazard ratio 2.12; 95% confidential interval 1.41-3.12,  $p<.001$ ) were indicated to be independent predictors of mortality.

Conclusions: Mortality of CLTI patients at five years was high even after achievement of complete wound healing. However, CLI recurrence rate was low, and no patient underwent major amputation once complete wound healing had been achieved.

## MO-25 A Complex Case of Acute Limb Ischemia with Huge Aortic Mass

○Daisuke Sato<sup>1)</sup>, Kazuki Tobita<sup>1)</sup>, Syuhei Uchida<sup>1)</sup>, Eiji Koyama<sup>1)</sup>, Yusuke Tamaki<sup>1)</sup>, Hirokazu Miyashita<sup>1)</sup>, Yusuke Gunji<sup>2)</sup>, Nobuhisa Koderu<sup>1)</sup>, Takayoshi Yamashita<sup>1)</sup>, Kenichiro Noguchi<sup>2)</sup>, Masato Murakami<sup>1)</sup>, Shigeru Saito<sup>1)</sup>

<sup>1)</sup>Department of Cardiology, Shonan Kamakura General Hospital, Kanagawa, Japan,

<sup>2)</sup>Department of Cardiovascular surgery, Shonan Kamakura General Hospital, Kanagawa, Japan

### 【Case overview】

A 53-year-old man with past medical history of hyperlipidemia referred to our hospital with a pain in the right limb two days ago. A computed tomography revealed a thromboembolic occlusion of the right popliteal artery and defects in the thoracic ascending aorta and abdominal aorta.

### 【Procedure summary】

The patient underwent emergent endovascular therapy (EVT) with thrombus aspiration and stent implantation. Four days after admission, the patient underwent urgent aortic arch replacement to prevent the risk of additional embolization. Acute re-occlusion in popliteal artery occurred after surgery, but recanalization was achieved with EVT. The histopathological exam for the aortic mass revealed non-malignant tissue. Anti-platelet therapy and anti-coagulant therapy were taken, and he was discharged about 1 month later. Atrial fibrillation was detected and was treated with catheter ablation after leaving hospital. His lower extremity arteries have passed without recurrence in six-month follow-up.

### 【Clinical time course and implication (or perspective)】

In this case, etiology of embolization was suspected of huge aortic mass, and the combination therapy with anti-coagulation therapy, EVT and aortic arch replacement lead to successful treatment without severe embolisms. The case of huge mass in aortic arch is very rare, so literature discussion and differential diagnosis are also included and presented here.

## MO-26 A partially failure case of the catheter thrombectomy for the acute elbow thrombosis

○Eiji Karashima, Takeshi Arima, Hirotaka Noda, Shioto Yasuda, Takeo Kaneko  
Shimonoseki City Hospital

### 【Case overview】

The case was a 75-years-old female with atrial fibrillation. She admitted to our hospital because of the sudden onset of the left hand pain and pale. The ultrasonography revealed the left elbow thrombus, 5000 units of heparin was injected at the emergency room. After the injection of heparin, the symptom of her hand was partially improved. Computed tomography angiography also revealed the left elbow thrombus, while the distal side of the elbow arteries were also detected. Because of these findings, surgical thrombectomy was not selected. However, medical treatment could not improve the symptom, catheter thrombectomy was performed at the next day of the hospitalization.

### 【Procedure summary】

The glide sheath slender 6-Fr was inserted from the left radial artery and thrombectomy was performed from the sheath. Before the thrombectomy, thrombus was not shown in her radial and ulnar artery. After the thrombectomy, the thrombus was completely removed from the elbow to the radial artery. However, because the ulnar artery was not protected, some of the thrombus was moved into the ulnar artery and could not remove it.

### 【Clinical time course and implication (or perspective)】

There was some suggestion for the catheter thrombectomy for the elbow thrombus, we want to present this case in JET2023.



## MO-27 An Early Fracture of Elongated Drug-eluting Stents Deployed from a Thin-walled Sheath in a Treatment of Leriche Syndrome Extending to Superficial Femoral Artery beyond Common Femoral Artery

○Yuji Ohno<sup>1)</sup>, Naoki Hayakawa<sup>2)</sup>, Takaaki Matsuoka<sup>1)</sup>, Yasuhiro Aoki<sup>1)</sup>, Naotaka Hashiguchi<sup>1)</sup>

<sup>1)</sup>Japanese Red Cross Narita Hospital, <sup>2)</sup>Asahi General Hospital

### 【Case\_overview】

A 70s male presented with unhealed gangrene of his right leg and left foot. Computed tomography (CT) revealed occlusion of the distal aorta extending to the right external iliac artery (EIA) and the left superficial femoral artery (SFA) beyond the common femoral artery (CFA).

### 【Procedure\_summary】

We inserted a thin-walled sheath (Parent select 5082, Medikit) from the left popliteal artery and punctured the left brachial artery and the right CFA. The lesion on the right side could be passed by a 0.014-inch guidewire retrograde. Then, we punctured the occluded left CFA and successfully passed the left side occlusion with a bidirectional approach. We put bare nitinol stents from the distal aorta to the bilateral EIA. After iliac treatment, we crossed the occluded SFA and the CFA with a bidirectional approach and intravascular ultrasonography guidance. We put drug-eluting stents. However, stents were elongated due to resistance in the thin sheath. Two weeks after this treatment, CT revealed the fracture of the elongated stents. We put additional drug-eluting stents at the site of the fracture.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

After three months, all wounds were healed. Complex procedures require multiple puncture sites. Downsizing of sheaths can help reduce complications, but special attention must be taken.

## MO-28 Successful preserving artery by cover stent on profunda femoral pseudoaneurysm due to penetrating femoral neck fracture in undergoing anticoagulation

○Setthy Teng<sup>1)</sup>, Sorracha Rookkapan<sup>2)</sup>, Keerati Hongsakul<sup>2)</sup>

<sup>1)</sup>Khmer Soviet Friendship Hospital, <sup>2)</sup>Songklanagarind Hospital

### 【Case\_overview】

An 84-year-old woman is on anticoagulation due to sub-acute DVT. Was transferred to ER department after falling and then presenting swelling ecchymosis at the left thigh and unstable hemodynamical condition. She was diagnosed with a perforated Femoral artery pseudo-aneurysm with a huge hematoma at a challenging location then she was successfully treated by a cover stent

### 【Procedure\_summary】

Through 6Fr sheath 60cm cross over from Right CFA. BER II 5fr catheter was engaged to the ostium of the profunda. Showed a pseudoaneurysm 20x16mm without extravasation. The neck of FAP is difficult to identify possibly at one of the branches of profunda, after that Balloon occlusion technique by Ultraverse 035 BD 4.0x40mm was succeeded to find out the feeding artery. Then Begraft stent 5.0x38mm was deployed at the same landing zone of the balloon to avoid non-target embolization.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

Finally, embolization was successful without visualization of the Pseudo-aneurism sac. IVC filter also was insertion. Anticoagulation was holding. Successfully orthopedic surgery with hematoma removal was done on 5th day.

Trans arterial embolisation technique including cover stent plays an important role in the acute management of FAP. Indication and success rate varies depending on anatomy, localization, clinical condition with the availability and experience of each center



## MO-29 A case of thrombotic lesion in SFA requiring unexpected multidisciplinary therapy and EVT in the absence of urokinase

○Shoichiro Furukawa, Shujiro Inoue, Hiroki Sakai, Takayuki Uchida  
Aso Iizuka Hospital

### 【Case\_overview】

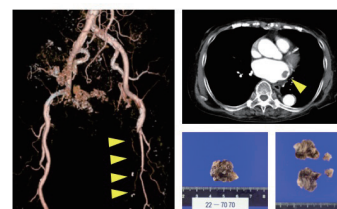
An 86-year-old woman on hemodialysis was admitted due to intermittent claudication. Duplex revealed thrombotic occlusion lesion of left superficial femoral artery (SFA) to popliteal artery (POP). She had a history of atrial fibrillation, and the onset was relatively acute, so embolism was also considered. A contrast-enhanced CT revealed an incidental mass lesion in the left atrial.

### 【Procedure\_summary】

Left atrial thrombectomy was performed as a semi-emergency thoracotomy to prevent embolism. The mass was pathologically thrombotic. Anticoagulant therapy was also used, but claudication symptoms remained, we performed EVT in the absence of urokinase. We had no choice but repeated POBA and thrombus aspiration. Finally, thrombus remained in the POP, but blood flow to the periphery was confirmed, and EVT was finished.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

Postoperatively, her claudication improved and no further embolism occurred. 2 months later, patency was preserved by 3D-CT. Transthoracic echocardiography on admission did not reveal a left atrial thrombus, but it was incidentally detected on CT. In a clinical course in which embolism is still suspected, it is necessary to search for the source of embolism and prevent recurrence. A simple procedure may also have contributed to the favorable outcome, although thrombotic lesions are difficult to treat in the absence of urokinase.



## MO-30 CO2 Angioscopy for Femoropopliteal Occlusive Disease; A First Case Report

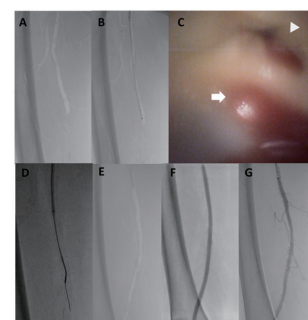
○Yusuke Sato  
University of Fukui Hospital

### 【Case\_overview】

CO2 angiography is an alternative method for endovascular therapy (EVT) in patients who are ineligible for contrast media, such as severe renal dysfunction. Moreover, previous studies reported that CO2 may be a visible alternative to contrast media and low-molecular-weight dextran in EVT procedures using optical frequency domain imaging. A male in his 60s with a history of severe renal dysfunction presented gangrene in his toes (W2, I2 FII, WIII CS4). MR angiography revealed a total occlusive lesion in his right superficial femoral artery (SFA).

### 【Procedure\_summary】

Therefore, we performed EVT for the SFA lesion using CO2 angiography. A 6-french guiding sheath was inserted via the right common femoral artery. A 0.014-inch guidewire did not pass through the proximal cap of the SFA lesion. After that, we checked the morphology of the proximal cap using angioscopy (Zemporshe™ angioscopic catheter; OVALIS, Osaka, Japan). We attempted CO2 angioscopy; Namely, blood flow was blocked using CO2 with manual compression of the ipsilateral femoral artery. CO2 angioscopy clearly showed a small pouch of the proximal cap (Fig1C, Arrow). Then, a stiff 0.014-inch guidewire penetrated this proximal cap site and crossed the SFA lesion.



### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

Our case suggests the possibility of CO2 as a novel agent for angioscopy.

## MO-31 Re-intervention for physician-modified inner-branched endovascular repair failure

○Shingo Tsushima, Tsuyoshi Shibata, Yutaka Iba, Tomohiro Nakajima,  
Junji Nakazawa, Akihito Ohkawa, Itaru Hosaka, Ayaka Arihara,  
Nobuyoshi Kawaharada  
Sapporo Medical University

### [Case overview]

Especially in cases of high surgical risk, physician-modified inner-branched endovascular repair (PMiBEVAR) for thoracoabdominal aortic aneurysms is an effective treatment. Complications are expected as physician-modified stent-grafts have a complex structure, and these complications require management.

A 75-year-old man presented to our hospital with a thoracoabdominal aortic aneurysm. Due to the high surgical risk, we performed a PMiBEVAR.

### [Procedure summary]

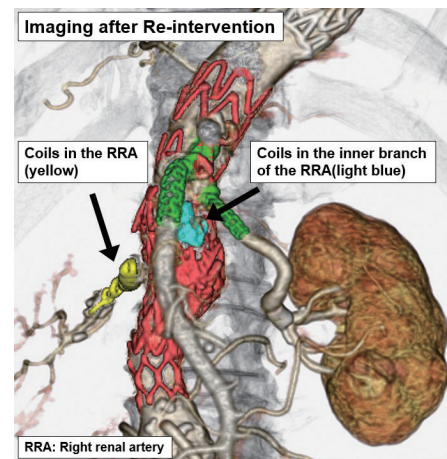
The stent-graft was partially unloaded then four fenestrations for the celiac artery, the superior mesenteric artery (SMA), and the bilateral renal arteries (BRA) were made. The three inner branches of the SMA and the BRA were attached to the fenestration.

The physician-modified stent-graft was advanced into the thoracoabdominal aorta via the right femoral artery. The bridging stent of the SMA was deployed from the inner branch. A similar procedure was performed for the left renal artery. The bridging stent could not be placed in the right renal artery (RRA). Therefore, we placed coils in the RRA, and the inner branch was occluded by deploying the aortic cuff in the physician-modified stent-graft.

Postoperative computed tomography angiography revealed an endoleak from the inner branch of the RRA. Re-intervention was performed with embolization for the inner branch using coils.

### [Clinical time course and implication (or perspective)]

Imaging after re-intervention showed successful endoleak obliteration.



## MO-32 Massive iliofemoral deep vein thrombosis post pharmacomechanical catheter-directed thrombolysis in a 11-year-old boy diagnosed with Multisystem inflammatory syndrome in children (MIS-C)

○Meng-Ying Lu, Chang-Hsien Yu  
Taitung Mackay Memorial Hospital

### [Case overview]

A 11-year-old boy was admitted to ICU due to diarrhea, fever, and shock, and Multisystem inflammatory syndrome in children (MIS-C) was diagnosed. Hemodynamic support with levophed IV pump via right femoral centr line was prescribed. On the 10th day of hospital course, right leg swelling pain occurred, and CT revealed massive thrombosis from distal IVC to right popliteal vein (Figure). Dualtherapy with Enoxaparin and Aspirin were failed, so mechanical thrombectomy was performed on the 25th day.

### [Procedure summary]

Initially, right poplitea vein approach failed due to organized hard thrombus, so we performed mechanical thrombectomy (angiojet) via right femoral vein approach, and flossed the thrombus from right iliac vein to distal IVC. For contralateral approach, we caught the wire deriving from left femoral vien at IVC, and then pulled the wire to right femoral vein, then toqued wire to right distal SFV. After setting up the route from left femoral vein to right SFV, we performed mechanical thrombectomy from right iliac to right SFV. Final angiography revealed TIMI II to III venous flow form SFV to IVC.

### [Clinical time course and implication (or perspective)]

It's the first published case of MIS-C complicated with massive DVT treated by mechanical trombectomy. Besides, we performed bilateral femoral contralateral approach for right DVT.



## MO-33

# The optimal skin perfusion pressure for wound healing in patients with chronic limb-threatening ischemia

○Yosuke Hata<sup>1)</sup>, Osamu Iida<sup>1)</sup>, Shin Okamoto<sup>1)</sup>, Takayuki Ishihara<sup>1)</sup>, Kiyonori Nanto<sup>1)</sup>, Takuya Tsujimura<sup>1)</sup>, Taku Toyoshima<sup>1)</sup>, Naoko Higashino<sup>1)</sup>, Sho Nakao<sup>1)</sup>, Mitsuyoshi Takahara<sup>2)</sup>, Toshiaki Mano<sup>1)</sup>

<sup>1)</sup>Cardiovascular Center, Kansai Rosai Hospital,

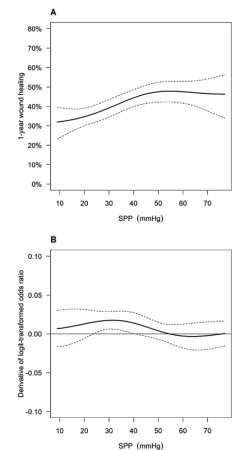
<sup>2)</sup>Department of Metabolic Medicine, and Department of Diabetes Care Medicine, Osaka University Graduate School of Medicine

### [What's\_known?]

Several studies have shown that skin perfusion pressure (SPP) would be a stratification tool for wound healing in patients with chronic limb-threatening ischemia (CLTI). On the other hand, it has been reported that patient backgrounds such as hemodialysis, ambulatory status, cardiac function, and wound severity are significantly associated with wound healing. However, the optimal postprocedural SPP after revascularization adjusted by patient background is unclear.

### [What's\_new?]

This retrospective single-center study included 926 CLTI patients with ischemic wound undergoing endovascular therapy (EVT) between April 2010 and December 2020 with pre- and postprocedural SPP measurement. The primary outcome measure was 1-year wound healing rate after EVT without any reintervention. The association between postprocedural SPP and wound healing was investigated using a generalized propensity score (GPS) method. The dose-response function of SPP for wound healing was developed using the GPS-adjusted Cox proportional hazards regression model. The GPS-adjusted dose-response function showed that SPP was associated with 1-year wound healing (see figure). The 1-year wound healing rate was estimated to be 46.4% (95% CI, 41.5%-50.9%) for the 3rd quartile of SPP (higher than 45 mmHg) versus 38.2% (33.5%-42.5%) for the 1st quartile (lower than 28 mmHg), with a hazard ratio of 1.30 (95% CI, 1.08-1.56; p=0.007).



## MO-34

# Comparison of subsequent inframalleolar bypass surgery and repeated endovascular therapy for delayed wound healing in patients with chronic limb-threatening ischemia

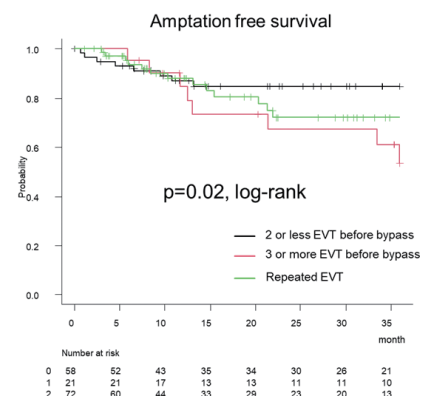
○Riho Suzuki, Yutaka Dannoura, Naoya Asakawa, Takao Makino, Hisashi Yokoshiki  
Sapporo city general hospital

### [What's\_known?]

BEST-CLI study showed bypass-first strategy was more effective for patients with CLTI than EVT, but it is difficult to perform bypass surgery for all patients because of their characteristics and shortness of surgeons, then we tend to choose EVT-first strategy. However, there are few reports about the comparison of conversion to inframalleolar bypass surgery and repeated EVT.

### [What's\_new?]

This single-center retrospective study enrolled 151 limbs with ischemic ulcers; 79 underwent subsequent inframalleolar bypass after EVT and 72 underwent EVT that repeats more than once between June 2015 and December 2020. The primary endpoint was 3-year amputation-free survival. The bypass patients were younger at baseline (68.3 vs 72.4, p<0.01), with the higher rate of Rutherford 6 (57% vs 35%, p<0.01). The average number of EVT before bypass surgery was 2.03. The amputation-free survival was similar between the two groups (subsequent bypass 74.7% vs repeated EVT 72.0%, p=0.54, log-rank). In the bypass group, the amputation-free survival was higher with 2 or less EVT before surgery than with 3 or more (84.8% vs 53.5%, p<0.01, log-rank), and similar results were obtained when the repeated EVT group was included (p=0.02, log-rank). The timing of conversion from EVT to bypass surgery is very important.



## MO-35 Clinical Outcomes by Wifl Classification in Japanese Patients with Chronic Limb-Threatening Ischemia Undergoing Endovascular Therapy

○Tatsuro Takei<sup>1)</sup>, Norihiko Ohura<sup>2)</sup>, Natsuko Tomimura<sup>3)</sup>, Toshiko Ninomiya<sup>1)</sup>, Takuro Kamiyama<sup>1)</sup>, Teruhisa Senokuchi<sup>1)</sup>, Kazunari Kitazono<sup>1)</sup>, Takashi Kajiya<sup>1)</sup>, Junichiro Takaoka<sup>1)</sup>, Nobuhiko Atsuchi<sup>1)</sup>

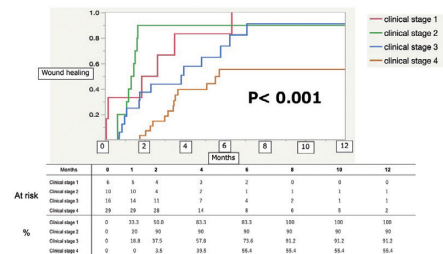
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### 【What's\_known?】

There are so far few reports on wound healing rates by clinical stage of Wifl classification in Japanese cohorts.

### 【What's\_new?】

Sixty-one patients (mean age 74.7, male 68.9%) diagnosed with chronic limb-threatening ischemia (CLTI) who underwent endovascular therapy from April 2021 to October 2022 were retrospectively analyzed in a single center. Of these patients, 54.1% are on maintenance dialysis and 44.3% are not ambulatory. After stratifying the patients by Wifl classification, there were 6 patients in clinical stage 1, 10 patients in clinical stage 2, 16 patients in clinical stage 3, and 29 patients in clinical stage 4, respectively. The wound healing rate at 12 months for all patients was 76.5%. The wound healing rates at 12 months for each severity of Wifl classification were 100% for clinical stage 1, 90% for clinical stage 2, 91.2% for clinical stage 3, and 55.4% for clinical stage 4 ( $p < 0.001$ ). Among the Japanese cohort of CLTI patients with severe backgrounds, the wound healing rate was favorable in clinical stages 1-3 of the Wifl classification. However, the wound healing rate was significantly lower in the clinical stage 4 cohort than in the other stages.



## MO-36 The efficacy of the pain control using continuous sciatic nerve block for patients with chronic limb-threatening ischemia

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### 【What's\_known?】

BACKGROUND: Pain relief plays one of the most important roles in the wound care of patients with chronic limb-threatening ischemia (CLTI). Wound pain not only worsens the patient's quality of life, but also disturbs wound cleansing, which can result in delayed wound healing.

### 【What's\_new?】

In our institution, local anesthesia was used during painful procedures in addition to regularly or as needed analgesic medication, however its effectiveness was temporary and pain relief throughout the day was difficult. Recently, good pain control has been achieved with the use of continuous sciatic nerve block (CSNB). This study aimed to evaluate the efficacy and safety of CSNB compared with conventional pain management.

METHOD: CSNB group (n=11) from January 2021 to August 2022 and Control group (n=16) from January 2016 to December 2019 were evaluated for the successful pain relief after debridement.

RESULT: The patient characteristics were 81.5% on hemodialysis, 74.1% of diabetes mellitus, and there was not significantly difference in the patient backgrounds. The successful pain relief rate as an efficacy endpoint was significantly higher in the CSNB group (CSNB 81.8% VS Control 18.8%,  $p=0.00195$ ).

CONCLUSION: CSNB is a safety and useful technique for the pain control in the wound care of CLTI patients.



## MO-37 Clinical Outcome of Renal Foot in Patients with End-Stage Renal Disease and Chronic Limb-Threatening Ischemia after Endovascular Therapy

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### 【What's\_known?】

The current study reported that the end-stage renal disease (ESRD) patients frequently exhibit the arterial disease pattern of the “renal foot”.

### 【What's\_new?】

The clinical outcome of “renal foot” was unclear. The aim of this study was to investigate the clinical outcome of “renal foot” in patients with ERS and chronic limb-threatening ischemia (CLTI) after endovascular therapy (EVT).

We enrolled a total of 119 consecutive CLTI patients (147 limbs) who underwent EVT between February 2008 and December 2017. we divided into two groups according to the renal foot or not. The “renal foot” was defined as a specific angiographic pattern of lower extremity arterial disease that demonstrated the concurrent significant stenosis in both the posterior tibial artery (PTA) and lateral plantar artery. The primary outcome was wound healing at 2 years. In procedural characteristics, successful EVT for PTA was significantly lower in renal foot group (24% vs. 51%,  $P<0.01$ ). Kaplan-Meier curve analysis revealed that the wound healing at 2 year was significantly lower in the renal foot group (33% vs. 59%;  $p=0.02$ ).The presence of “renal foot” significantly worsens the clinical outcome in patients with ERS and CLTI after EVT.

## MO-38 Are there seasonal differences in the frequency of CLTI in subtropical Okinawa?

○Jun Nakazato, Yuji Shimabukuro, Tetsuya Asato, Nobuhito Yagi, Tadayoshi Miyagi, Takanori Takahashi, Minoru Wake

Okinawa Chubu Hospital

### 【What's\_known?】

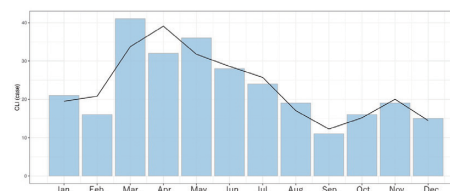
Background: Critical limb-threatening ischemia (CLTI) is an advanced stage of lower extremity arterial disease (LEAD) with a high risk of major amputation and a poor prognosis. It has been reported that CLTI occur more frequency in winter and spring in Honshu, Japan, but there are no reports of CLTI in the subtropical zone (Okinawa). We aimed to determine where seasonal differences in CLTI incidence exist in Okinawa, where the average winter temperature is more than 10 degrees higher than other area in Japan.

Method: We evaluated a single center database at Okinawa Chubu Hospital of 278 consecutive CLTI cases undergoing endovascular therapy for LEAD between January 1, 2015 and December 31, 2022. The monthly incidence was assessed according to the cumulative number of cases in each month. The data were fitted to a nonlinear regression model with a harmonic function.

### 【What's\_new?】

Results: Significant seasonal variation was observed in the incidence of CLTI ( $p<0.01$ ). It was higher in the period from winter to spring, and lower in the period from summer to autumn.

Conclusions: In subtropical Okinawa, as in Honshu, the number of EVT cases for CLTI is high from winter to spring and low summer to fall.



## MO-39 High GLASS FP grade is positively associated with wound healing in patients with CLTI undergoing EVT only for femoropopliteal disease

○Takashi Yanagiuchi, Taku Kato, Shunpei Ushimaru, Hirokazu Yokoi  
Rakuwakai Otowa Hospital

### 【What's\_known?】

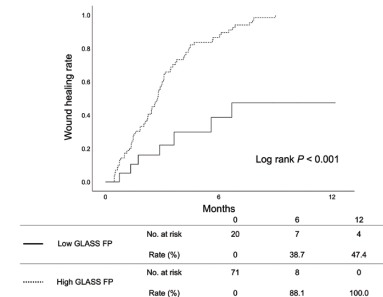
CLTI is often associated with infrapopliteal (IP) lesions, but there are a certain number of patients with CLTI who undergo only femoropopliteal (FP) revascularization due to a relatively preserved IP blood flow.

### 【What's\_new?】

The current retrospective single-center study analyzed 91 consecutive de novo CLTI limbs treated via EVT only for FP lesions from January 2017 to May 2021. IP arterial anatomical characteristics did not show any significant difference between the low and high GLASS FP groups. The cumulative wound healing rate was significantly higher in the high GLASS FP group (grade 3 or 4, n = 71) than in the low GLASS FP group (grade 1 or 2, n = 20) (88% vs. 39% at 6 months; p < 0.001). Multivariate analysis revealed that low WIfI clinical stage (stage 1 or 2) (hazard ratio [HR] 2.33; 95% confidence interval [CI] 1.32–4.17) and high GLASS FP (HR 5.18; 95% CI 1.99–13.51) were independent factors for wound healing.

High GLASS FP grade was positively associated with wound healing after EVT only for FP lesions.

Figure: Cumulative wound-healing rate after EVT for FP lesions based on limb stratification by the GLASS FP grade.



## MO-40 Drug-coated balloon versus drug-eluting stent in patients with chronic total occlusion of the superficial femoral artery by all intraluminal wiring

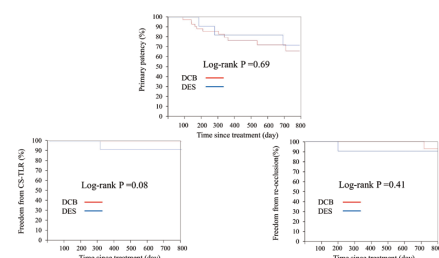
○Yuki Shima, Akihiro Ikuta, Kazunori Mushiake, Hiroyuki Tanaka, Kazushige Kadota  
Kurashiki Central Hospital

### 【What's\_known?】

Previous clinical reports of superficial femoral artery (SFA) chronic total occlusion (CTO) cohorts showed feasible results for drug-coated balloon (DCB), but the results included fairly high bailout stent rates. In addition, there is no consensus on whether an intraluminal or subintimal wiring is superior for treating SFA CTO. We aimed to compare the clinical outcome of DCB and drug eluting stent (DES) in SFA CTO lesion treated by all intraluminal wiring.

### 【What's\_new?】

This study was conducted as a single-center, retrospective cohort study. We enrolled 54 patients undergoing initial EVT for SFA CTO lesions between June 2018 and December 2022. In the 54 cases, 43 case were treated with DCB and 11cases were treated with DES. The primary endpoints were 2 year primary patency and freedom from: (1) clinically driven target lesion revascularization (CD-TLR), and (2) re-occlusion. Kaplan-Meier analysis showed that there were no significant difference between two groups. DCB with intraluminal wiring showed two year clinical outcomes comparable with DES for CTO of the SFA, even without bailout stents.



## MO-41 Clinical impact and endothelialization after thromboendarterectomy with Bovine Pericardium Patch closure; case series

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### 【What's\_known?】

Thromboendarterectomy (TEA) is the gold-standard treatment for common femoral artery (CFA) lesions. A bovine pericardial patch (BPP) has been available for TEA procedure since 2021 in Japan. However, the clinical outcome of TEA with BPP in LEAD patients remains unclear. We sought to assess the primary patency rate and examine the grade of neointimal endothelialization (NE) after the TEA procedure. We hypothesized that puncturing BPP is relatively safe if NE is efficiently formed.

### 【What's\_new?】

<Methods>This was a retrospective single-center study that enrolled 33 symptomatic CFA lesions which received TEA with BPP from January to November 2022. Among the 33 lesions, 10 lesions were followed up using optical frequency domain imaging (OFDI) at different phase after the TEA.

<Results>The 6-month primary patency rate was 97.0% (32/33). Complications include surgical site infection requiring reintervention (3.0%, 1/33), lymphorrhea (6.1%, 2/33). The OFDI showed the followings; 1) no NE at 1 week after TEA, 2) partial NE at 3-4 weeks after TEA, 3) complete homogeneous NE at 8 weeks after TEA.

<Conclusions>TEA with BPP for CFA lesions showed excellent short-term durability in the real-world setting. Based on the OFDI findings, puncturing the BPP 8 weeks after TEA might be safe.

## MO-42 Outcomes of thrombectomy concomitant with endovascular therapy for Acute limb ischemia: A Retrospective Analysis of 66 Consecutive Limbs

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Atsuhiko Koya<sup>2)</sup>

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### 【What's\_known?】

Objective: Some patients could achieve technical success by thrombectomy alone. However, we should consider that some thrombi might be difficult to remove. Hybrid operation for acute limb ischemia (ALI) is required for better revascularization.

### 【What's\_new?】

Methods: We analyzed consecutive limb in 66 patients with ALI between January 2018 and December 2022 treated at our hospital. Results: The mean patient age was 79.1 years. 19 patients (28.8%) had atrial fibrillation, 35 (53.0%) had peripheral arterial disease, 2 (3.2%) had popliteal Aneurysm, 2 (3.2%) had Cancer. Patients treated with urgent surgical thrombectomy only were 15 (22.7%), thrombectomy +EVT 42 (63.6%), non- thrombectomy 9 (13.6%). Embolism was more likely to be treated with thrombectomy alone. There was no significant difference between outcomes of thrombectomy alone and thrombectomy +EVT. The overall survival rate was 80.0% at 30days. The most frequent cause of death was MNMS (n=4) and sepsis (n=3). The overall primary patency rate was 75.6% at 12 months. The re-intervention free survival rate was 80.5% at 12 months. A major amputation could not be avoided in 3 patients.

Conclusions: The hybrid operation of thrombectomy and EVT was required in thrombosis. But there was no significant difference between outcomes of thrombectomy alone and thrombectomy +EVT.

## MO-43 Novel two-stage procedure of aorto-bi-iliac stent-graft implantation performed in patients with abdominal aortic aneurysm and unilateral-iliac CTO

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Makoto Sekiguchi<sup>1)</sup>, Akito Miyajima<sup>1)</sup>, Syuuichi Hasegawa<sup>1)</sup>, Shizuya Shintomi<sup>2)</sup>

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### 【What's\_known?】

Patients with an abdominal aortic aneurysm and unilateral-iliac artery occlusion are generally treated with aorto-uni-iliac stent-graft implantation with femorofemoral bypass. However, it is more invasive than aorto-bi-iliac stent-graft implantation and poses patency issues.

### 【What's\_new?】

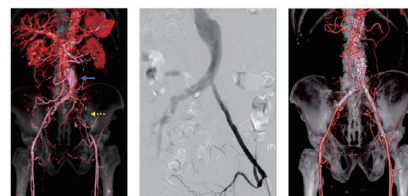
Therefore, we performed two-stage procedure of aorto-bi-iliac stent-graft implantation after endovascular treatment (EVT) for the iliac CTO.

We report 3 cases of procedure.

Firstly, an EVT for the unilateral-iliac CTO was performed by cardiologists.

An OPTIMO PPI was inserted from the femoral artery to prevent the distal embolism. After a guidewire passage, thrombectomy and balloon angioplasty were performed without stent because of interfering with stent-graft implantation. A few days later, aorto-bi-iliac stent-graft implantation was performed by cardiovascular surgeons.

After the procedure, no endoleak and good patency were obtained in both cases.



## MO-44 Variations of the Common Femoral Artery With the Lower Extremity Occlusive Arterial Disease Patients

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### 【What's\_known?】

Lower extremity arterial disease (LEAD) has been increasing along with the rise of diabetes and chronic kidney disease. When endovascular therapy (EVT) is indicated, the common femoral artery (CFA) is a typical puncture site. Puncture of the CFA is associated with a certain rate of complications such as pseudoaneurysm, arteriovenous fistula, and retroperitoneal hematoma, which can be fatal. In cerebral angiography with CFA puncture, Ho-Young Ahn et al. reported that the puncture site should be divided into 6 zones (Zone 0-5) based on the location of the femoral head, and recommended that the puncture site be in Zone 3. On the other hand, there have been few studies about LEAD patients, so we examined preoperative Computed-Tomography Angiography (CTA) of patients underwent EVT at our hospital over two years.

### 【What's\_new?】

The superior margin of the CFA was 3.4% (4/116) in Zone 0, 37.1% (43/116) in Zone 1, 45.7% (53/116) in Zone 2, and 13.7% (16/116) in Zone 3. Based on these results, puncture at Zone 3 may be a risk for high puncture in LEAD patients. Therefore, preoperative CTA may lead to safe puncture. If CTA could not be performed, complications may be avoided by performing the puncture below Zone 3.

## **MO-45 Percutaneous Transluminal Renal Angioplasty with Distal Radial Artery Approach**

○Shuhei Uchida, Eiji Koyama, Yusuke Tamaki, Hirokazu Miyashita,  
Takayoshi Yamashita, Kazuki Tobita  
Shonankamakura General Hospital

### **【What's\_known?】**

Percutaneous Transluminal renal angioplasty (PTRA) via upper arm approach is more suitable due to its progressive and coaxial to the renal artery. However, bleeding complications are common with the brachial artery approach. In addition, radial artery occlusion (RAO) is a problem with the radial artery approach.

### **【What's\_new?】**

We demonstrated the efficacy and safety of PTRA via distal radial artery (DRA) approach compared with conventional radial artery (CRA) approach.

From January 2016 to October 2022, 134 patients undergoing PTRA were retrospectively analyzed. The cases with brachial approach (n=20) and the femoral approach (n=11) were excluded. The cases with distal radial approach (n=55) and the conventional radial approach (n=48) were included. The primary endpoint was procedure success, and the secondary endpoint were procedure data and vascular access site complications. There was no significant difference of procedure success and vascular access site complications between DRA approach group and CRA approach group. No RAO and 5.5 % access site occlusion were confirmed in DRA approach group.

DRA approach was suitable even in PTRA. RAO rate might decrease via DRA approach.

## **MO-46 Pre-closure technique for percutaneous veno-arterial extracorporeal membrane oxygenation decannulation using Perclose ProGlide at bedside, with a total solution**

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### **【What's\_known?】**

The arterial cannula decannulation during weaning of VA ECMO can be achieved with surgical cutdown or with percutaneous method. Previous reports about percutaneous decannulation were mostly using post-closure method, or assisted with endovascular balloon occlusion. The post-closure method is accompanied with technical difficulty and some failure rate. Reports about pre-closure method is rare. The use of closure device Perclose ProGlide before cannulation of the VA ECMO might facilitate the decannulation process.

### **【What's\_new?】**

Method: one ProGlide was used before percutaneous VA ECMO cannulation, and the suture limbs were carefully fixed and hidden for further decannulation. During decannulation, a 0.035" wire was inserted into the arterial cannula and the cannula was changed with a new ProGlide closure device. The arterial closure was accomplished with totally two ProGlides.

Result: During 2021 and 2022, VA ECMO weaning was performed on 22 patients by a single surgeon. 9 patients received surgical cutdown, 1 received post-closure method, and 12 patients received pre-closure technique. Technique successful rate was 100%, and the average operation time and blood loss were significantly lower in the pre-closure group. The use of Pre-closure technique was efficient, safe with low complication rate in selected patients.



## MO-47 Changes of plaque properties in femoropopliteal arterial lesions caused by balloon angioplasty: analysis of integrated backscatter intravascular ultrasound

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Department of Cardiovascular Medicine, Osaka Metropolitan University Graduate School of Medicine

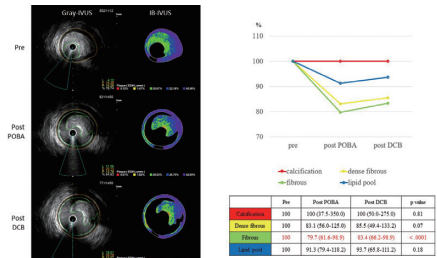
### 【What's\_known?】

Background: Little is known about the changes in plaque properties caused by plain old balloon angioplasty (POBA).

Methods: Between April 2021 and November 2022, cases in which drug-coated balloon angioplasty was performed for denovo femoropopliteal arterial lesions under high-resolution IVUS guidance in our institute were included in this study. Target lesions were retrospectively analyzed at 1-cm interval by integrated backscatter method. A total of 48 cross sections in which the external elastic membrane could be evaluated over 270° in a short-axis image were analyzed.

Results: More lipid pools were observed in occluded lesions than in stenotic lesions. Fibrous plaques were significantly compressed after POBA to 79.7% (61.6-98.9 %) of their sizes before POBA, and a larger %lumen area after POBA was associated with a larger balloon size (p=0.0002) by linear regression analysis.

Conclusions: Fibrous plaques were mainly compressed after POBA in femoropopliteal arterial lesions, and a larger balloon size may be useful for obtaining a larger %lumen area after POBA.



### 【What's\_new?】

Current study suggests that the lipid pool may be difficult to obtain optimal lumen gain, and a larger balloon size may be useful for obtaining a larger %lumen area after POBA.

## MO-48 The efficacy of drug-coated balloons for the smaller shunt vessels of dialysis patients

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Kita-Harima Medical Center

### 【What's\_known?】

In.PACT AV Access trial reported that drug-coated balloon angioplasty is useful for the treatment of stenotic lesion in hemodialysis patients in the point of the decrease of the shunt restenosis compared to the standard balloon therapy. The trial reported that the targeted-lesion reference diameter (TRD) was 7.2mm. We often perform the PTA for the smaller shunt vessels in the patient of the small build, undeveloped shunt or vasculitis. Even if the PTA is success, the rate of shunt restenosis within 90 days is not low. It is unknown about the efficacy of DCB for small shunt with TRD less than 5 mm.

### 【What's\_new?】

We analyzed 52 consecutive patients who underwent PTA for shunt stenosis with TRD less than 5 mm (mean TRD, 4.6 mm). A thirty-six patients were treated with the standard balloon therapy, and the 16 patients with the DCB.

Shunt patency was significantly higher in the DCB group than the standard therapy group. (90 days: 100% vs. 58.4%, p<0.01; 180 days: 69.7% vs. 33.3% p<0.01.). Although there was one death in each group during the observation period, PTA with the use of DCB for the smaller shunt is considered to be more effective than standard therapy in preventing restenosis.

## MO-49 The impact of severe medial calcification of below knee artery estimated by optical frequency domain imaging

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### 【What's\_known?】

The calcified lesion is one of the problems of endovascular treatment. We often treated chronic limb-threatening ischemia with calcified lesions in below-the-knee (BTK) arteries. However, BTK calcified lesions have been little known.

### 【What's\_new?】

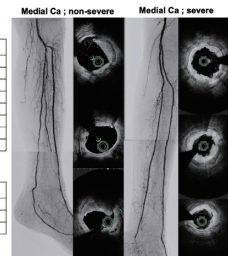
A consecutive 46 CLTI patients treated with BTK lesions with optical frequency domain imaging (OFDI) were enrolled. We divided them into severe medial calcification cohorts (n=22), defined as over 180° calcification of the media, and non-severe medial calcification defined as under 180° calcification or none of the media (n=24). We compared the post-procedural minimum lumen area (MLA) in 3 sections (proximal, mid, and distal part). Consequently, Balloon angioplasty for BTK lesions with severe medial calcification may be less effective than non-severe medial calcification.

Table 1: Patient and lesion characteristics

	Non-severe media calc (n=24)	Severe media calc (n=22)	p
Age	76.5 ± 8.9	71.8 ± 7.7	0.07
Hypertension, n (%)	22 (91.7)	20 (90.9)	1.00
Diabetes mellitus, n (%)	20 (83.3)	15 (68.2)	0.31
Dissecting aortic aneurysm, n (%)	17 (70.8)	15 (68.2)	1.00
Hemodialysis, n (%)	14 (58.3)	17 (77.3)	0.22
Balloon dilation, mm	2.80 ± 0.21	2.80 ± 0.23	1.00
Spring balloon, n (%)	10 (41.7)	14 (63.6)	1.00
CTO, n (%)	22 (91.7)	19 (86.4)	0.34

Table 2: Post-procedural minimum lumen area (MLA)

	Non-severe media calc (n=24)	Severe media calc (n=22)	p
Proximal MLA, mm <sup>2</sup>	0.83 ± 0.31	0.80 ± 0.32	0.909
Mid MLA, mm <sup>2</sup>	0.80 ± 0.42	0.65 ± 0.26	0.000
Distal MLA, mm <sup>2</sup>	0.95 ± 0.16	0.82 ± 0.26	0.002



## MO-50 Risk factors for early mortality after major amputation of peripheral artery disease

○Mitsuo Sobajima, Teruhiko Imamura, Akira Oshima, Yohei Ueno, Hiroshi Onoda, Ryuichi Ushijima, Hiroshi Ueno, Koichiro Kinugawa  
The Second Department of Internal Medicine, Toyama University

### 【What's\_known?】

**Background:** Patients with PAD undergoing major amputation have a very poor prognosis, whereas its risk factors of early mortality after major amputation have not been well known.

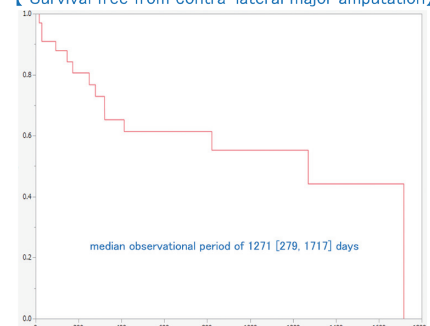
### 【What's\_new?】

**Methods:** Consecutive patients with PAD who received major amputations between 2017 and 2022 were retrospectively included. Impacts of baseline characteristics upon 30-day mortality following the major amputation were investigated.

**Results:** A total of 33 patients (72 ± 13 years, 63% men) received 41 major amputations (30 below knees and 11 above knee) for 36 CLTI and 5 ALI. Of them, 4 patients (12.1%) expired during the 30-day observational period following the surgery due to 3 heart failures or 1 septic shock. All deceased patients had bilateral CLTI, congestion in Chest X-rays, lower systolic blood pressure (sBP) (94 ± 14 vs 127 ± 21 mmHg), and more reduced LVEF (38.8 ± 9.9 vs 55.6 ± 14.8%) compared to the survivors (p < 0.05 for all). Survival free from contra-lateral major amputation at one year was 65.2% (median observational period of 1271 [279, 1717] days).

**Conclusion:** Patients with bilateral CLTI and heart failure with low sBP and low LVEF are at high risk of 30-day mortality following major amputation. Perioperative-specific observation by cardiac experts would be highly recommended for such a cohort.

【 Survival free from contra-lateral major amputation 】



## MO-51 Clinical feasibility of the novel endovascular therapy with AnteOwl WR intravascular ultrasound guided for below-the-knee chronic total occlusion

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### 【What's\_known?】

Background:Revascularization with endovascular therapy (EVT) for complex below-the-knee (BTK) chronic total occlusion (CTO) is still remains one of the most difficult problems. AnteOwl WR (AnteOwl) is a novel intravascular ultrasound (IVUS) with, crossable catheter, high resolution, and good navigation.

### 【What's\_new?】

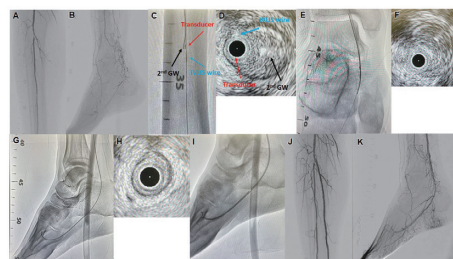
Method:This was a single-center, retrospective study. From November 2020 to November 2022, we analyzed 65 BTK CTOs in which the AnteOwl IVUS-guided approach was attempted after failure of conventional antegrade approach. The primary endpoint was clinical success. The secondary endpoints were, the number of guidewires (GW), fluoroscopy time, complications.

Result: Anterior tibial artery was 66.2%, peroneal artery was 9.2%, and posterior tibial artery was 24.6%. CTO length was  $228.2 \pm 93.7$ mm. Outflow absent was 38.5%. J-BTK CTO score of 2/3, 4/5, and 6 were 43.1%, 36.3%, 1.5%. Clinical success was 95.4%.

Antegrade only was 63.1%. The number of GW was  $3.4 \pm 1.4$ . Fluoroscopy time was  $72.3 \pm 32.5$ min.

Procedural complication was 7.7%.

Conclusion: Our study showed a very high clinical success despite the difficulty of BTK CTO, including many cases with poor run-off vessels. We report as a new possibility for BTK CTO intervention.



## MO-52 Middle-term outcomes of snare piercing technique for chronic total occluded lower extremity disease

○Hirokazu Miyashita, Kazuki Tobita, Shuhei Uchida, Eiji Koyama, Yusuke Tamaki, Takayoshi Yamashita, Shigeru Saito  
Shonan Kamakura General Hospital

### 【What's\_known?】

Various crossing techniques for femoropopliteal chronic total occlusion (CTO) have been introduced, however, it could be challenging to successfully enter the true distal lumen.

### 【What's\_new?】

The snare piercing technique is one of the re-entry techniques using a Gooseneck snare (Medtronic). In this technique, the Gooseneck snare is inserted into the sub-intimal lumen, which is beside the true distal lumen from the antegrade access site. A needle is inserted from the skin across the target artery, piercing and passing through the snare loop. After that, a guidewire is inserted into the needle, and the needle is withdrawn. The snare was closed and withdrawn, and the wire externalized through the femoral access. Subsequently, the microcatheter is advanced from the antegrade access site along the externalized guidewire. Careful wiring from the antegrade side using the microcatheter to re-enter the target distal lumen is performed.

We performed this technique for 14 CTO cases. All the procedures succeeded in re-entering the true distal lumen. No procedure-related complication was observed. The median follow-up length was 12 months, and two clinical-driven target lesion revascularizations were required.

The snare piecing technique can be an option for challenging CTO cases, which other re-entry techniques failed to cross.

## MO-53 The efficacy and complications of distal puncture in the treatment of chronic total occlusion of the femoropopliteal artery. DIPLOMA study

○Yuichiro Hosoi<sup>1)</sup>, Yuki Katagiri<sup>1)</sup>, Michinao Tan<sup>2)</sup>, Shuko Iwata<sup>2,3)</sup>, Riho Suzuki<sup>5)</sup>, Yuki Tanaka<sup>4)</sup>, Mamoru Miyazaki<sup>1)</sup>, Yutaro Kasai<sup>1)</sup>, Hiroki Bouta<sup>1)</sup>, Go Takenouchi<sup>1)</sup>, Seizi Yamazaki<sup>1)</sup>

<sup>1)</sup>Sapporo higashi tokusyukai hospital, <sup>2)</sup>Tokeidai memorial hospital,

<sup>3)</sup>Nayoro city general hospital, <sup>4)</sup>Hokko memorial hospital, <sup>5)</sup>Sapporo city general hospital

### 【What's\_known?】

Endovascular therapy is known as a main treatment method for the chronic total occlusion (CTO) of the femoropopliteal artery. However, the primary success rate of antegrade conventional wire strategy is not so high. Retrograde approach with distal site access is an attempt to increase the wire crossing rate. Yet, its efficacy and safety are unclear.

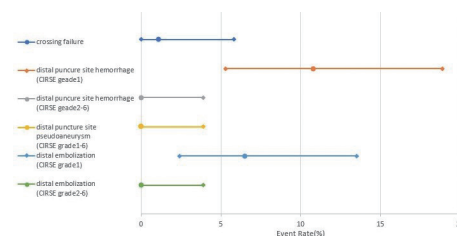
### 【What's\_new?】

In this multicenter retrospective study, all patients undergoing Endovascular therapy for femoropopliteal CTOs with retrograde approach using distal site access between July 2019 and July 2022 were screened. Lesions with acute or subacute thrombosis, restenosis, anastomosis of bypass surgery, and extensive infection were excluded. We've aimed to evaluate the wire crossing rate and occurrence rate of complications (distal puncture site hemorrhage, pseudoaneurysm, distal embolization, and others).

In total, 94 lesions from 87 patients were included in this study. The mean age was  $74.5 \pm 9.0$  years old.

41 patients (47%) were female. 38 lesions (40%) were Rutherford stage 4 to 6. The primary success rate was 99%. Complications were reported 23% cases with 16% related to distal access, and all of related cases were CIRSE grade 1.

The retrograde puncture access seemed to be effective and safety treatment option of the femoropopliteal CTOs



## MO-54 Clinical result of combination therapy of DES with DCB (DWD) in femoropopliteal artery

○Tomofumi Tsukizawa, Masahiko Fujihara, Yuko Yazu  
Kishiwada Tokushukai Hospital

### 【What's\_known?】

#### Background

Although spot stenting is inferior to full coverage stenting, combination of drug-eluting stent (DES) and drug-coated balloon (DCB) strategy is unclear.

### 【What's\_new?】

#### Methods

This single-center, retrospective study examined data from a clinical database of 60 consecutive patients who underwent combination therapy of DES with DCB for symptomatic femoropopliteal artery April 2019 to December 2022. We excluded 8 patients because of separate lesion.

#### Results

Average age was 76 years. Dialysis patients were 19.2% and 34.6 % were chronic limb-threatening ischemia. Average lesion length was 270mm and 82.7% were chronic total occlusion (CTO). Severe calcification of PACSS classification 3 or 4 was 27.0%. The used DCB of 78.8% were IN.PACT and 21.2% were Ranger. As the primary outcome, primary 1year patency was 94.9% (95%CI: 80.8- 98.7%) and freedom from TLR was 97.9% (95%CI: 85.8%- 99.7%).

#### Conclusion

We reported clinical result of combination therapy of DES with DCB. Compared with previous reports that combination therapy of spot stent strategy, drug combination therapy was good and acceptable.

## MO-55 Efficacy of drug coated balloon for small femoropopliteal artery

○Tomofumi Tsukizawa, Masahiko Fujihara  
Kishiwada Tokushukai Hospital

### 【What's\_known?】

Although the effectiveness of DCB for femoropopliteal artery has been reported, treatment for small vessels is still challenging.

### 【What's\_new?】

#### Methods

This single-center, retrospective study examined data from a clinical database of 35 consecutive patients who treated with DCB for small femoropopliteal artery defined as reference vessel diameter less than 5mm from January 2020 to December 2021.

#### Results

Average age was 75.7 years. Dialysis patients were 40.0% and 60.0% were chronic limb-threatening ischemia. Average lesion length was 157.7mm and 37.1% were chronic total occlusion (CTO). Severe calcification of PACSS classification 3 or 4 was 34.3%. The used DCB of 57.1% were IN.PACT and 42.9% were Ranger. As the primary outcome, primary 1-year patency was 81.1% (95% CI: 60.1-91.7%) and freedom from CD-TLR was 92.9% (95% CI: 74.3-98.2%). As the secondary outcomes, ROC curve analysis found the cutoff value of postprocedural MLA as predictors for preventing 1-year restenosis to be 9.40 mm<sup>2</sup> with an AUC of 0.579. And multivariate analysis indicated severe dissection more than type D was remained as predictor for 1-year restenosis (HR: 14.14; 95% CI: 1.81-110.4; p=0.0115).

#### Conclusion

Treatment for small vessels is still challenging, but severe dissection and smaller MLA can be a predictor.

## MO-56 Comparison of Limb Outcome between Hemodialysis and Non-hemodialysis Patients following Heparin-bonded Stent Graft Implantation for Femoropopliteal Lesion from LANDMARK registry

○Kazuki Tobita<sup>1</sup>, Syuhei Uchida<sup>1</sup>, Eiji Koyama<sup>1</sup>, Yusuke Tamaki<sup>1</sup>, Hirokazu Miyashita<sup>1</sup>, Takayoshi Yamashita<sup>1</sup>, Keisuke Hishikari<sup>2</sup>, Shinsuke Mori<sup>3</sup>, Tatsuki Doijiri<sup>4</sup>, Yasutaka Yamauchi<sup>5</sup>, Shigeru Saito<sup>1</sup>

<sup>1</sup>Shonan Kamakura General Hospital, <sup>2</sup>Yokosuka Kyosai Hospital,

<sup>3</sup>Saiseikai Yokohama City Eastern Hospital, <sup>4</sup>Yamato Seiwa Hospital, <sup>5</sup>Takatsu General Hospital

### 【What's\_known?】

#### Background

Patients on hemodialysis (HD) who underwent endovascular therapy had poor limb prognosis. Heparin-bonded covered stent improved the patency of femoro-popliteal lesions. However, the effect to patients on HD is still unknown.

### 【What's\_new?】

#### Method

This study was a retrospective multicenter-registry enrolling consecutive 1378 patients (1777 lesions) treated at 5 hospitals in Kanagawa between July 2017 and June 2020 (evaluation of LANDMARK registry). We analyzed the patients underwent a heparin-bonded covered stent implantation. Primary outcome was defined as primary patency, and secondary Outcome was defined as target lesion revascularization (TLR), major amputation, surgical reconstruction and acute thrombotic occlusion.

#### Result

heparin-bonded stent graft implantation was performed in 116 patients and 170 lesions (HD vs non-HD; 37 vs 79 patients, 51 vs 119 lesions). Mean age was 76.3 years and chronic life-threatening ischemia included in 26.3%. Mean vessel diameter and lesion length were 6.0 mm and 26.8 cm. Primary patency is similar between two groups (HD vs non-HD; 15.7 vs 20.2%, p=0.61). TLR was similar between two groups (HD vs non-HD; 13.7 vs 19.3%, p=0.56). Surgical reconstruction, acute thrombotic occlusion and acute thrombotic occlusion were not different too.

#### Conclusion

The limb outcome following implantation of heparin-bonded covered stent with and without hemodialysis was similar.



## MO-57 **Clinical performance of rotational atherectomy for the treatment of femoropopliteal artery lesions with severe calcification**

○Naoko Higashino, Osamu Iida, Mitsutoshi Asai, Shin Okamoto, Takayuki Ishihara, Kiyonori Nanto, Takuya Tsujimura, Yosuke Hata, Taku Toyoshima, Sho Nakao, Toshiaki Mano

Kansai Rosai Hospital Cardiovascular Center

### **【What's\_known?】**

Combination treatment with Jetstream Atherectomy System and drug-coated balloon have been shown sustained patency.

### **【What's\_new?】**

**Objective:** This study was sought to investigate clinical performance of the Jetstream Atherectomy System (JS) for the treatment of femoropopliteal (FP) artery lesions with severe calcification using an imaging device.

**Methods:** This was single center and retrospective observational study. Seventeen FP lesions with severe calcification in 13 patients with lower extremity arterial disease (LEAD) were treated with the JS followed by balloon angioplasty and drug-coated balloon (DCB) treatment. Outcome measure was initial success defined as % diameter stenosis (DS) <30%, which evaluated by quantitative vascular analysis (QVA). Intravascular ultrasound (IVUS) evaluation was done complementally.

**Results:** Average age was  $73 \pm 14$  years and chronic limb threatening ischemia was found in 30.8%. Mean lesion length was  $74.1 \pm 39.7$  mm and chronic total occlusion was observed in 5.9%. The initial success rate was 88.2% (15/17). %DS significantly decreased from  $71 \pm 12\%$  to  $39 \pm 13\%$  and minimum luminal area significantly increased from  $2.9 \pm 1.9$  mm<sup>2</sup> to  $11.3 \pm 5.3$  mm<sup>2</sup> after stand-alone JS treatment (both,  $P < 0.001$ ). Neither bailout stenting nor bypass conversions were required.

**Conclusions:** Clinical performance of JS was acceptable for the treatment of femoropopliteal artery lesions with severe calcification.

## MO-58 **Application of paclitaxel-coated device dose not impact on clinical outcomes of patients with chronic limb-threatening ischemia in everyday practice**

○Masaya Kusuda, Yosuke Hata, Osamu Iida, Mitsutoshi Asai, Shin Okamoto, Takayuki Ishihara, Kiyonori Nanto, Takuya Tsujimura, Taku Toyoshima, Naoko Higashino, Sho Nakao, Toshiaki Mano

Kansai Rosai Hospital

### **【What's\_known?】**

Although a meta-analysis demonstrated application of paclitaxel-coated devices (PTXDs) increased risk of death and major amputation after the endovascular therapy (EVT) of lower extremity artery disease (LEAD), this mainly included patients with claudication presenting trial-based lesions and impact of PTXDs on patients with chronic limb-threatening ischemia (CLTI) presenting real-world lesions has not been well studied.

### **【What's\_new?】**

This single-center retrospective study evaluated 659 CLTI patients with tissue loss presetting femoropopliteal lesions primarily undergoing EVT with PTXDs between January 2014 and December 2020. The outcome measures were all-cause mortality and major adverse limb event (MALE). Cumulative incidence analyzed by Kaplan-Meier method demonstrated that 2-year all-cause mortality was not significantly different between 2 groups (PTXDs group: 28.9% vs. non-PTXDs group: 35.3%,  $p=0.15$ ) while the cumulative incidence of MALE was significantly lower in the PTXDs group than in the non-PTXDs group (8.2% vs. 16.5%,  $p=0.02$ ). Multivariate analysis revealed PTXDs were significantly associated with neither MALE (HR: 0.50 [0.24-1.06],  $p=0.07$ ) nor all-cause mortality (HR: 0.86 [0.57-1.28],  $p=0.45$ ). The current study revealed that application of paclitaxel-coated device dose not impact on clinical outcomes of patients with CLTI in everyday practice

## MO-59 The real-world experience of drug-coating balloons and drug-eluting stents for femoropopliteal lesions

○Ming-Lung Tsai<sup>1,2)</sup>

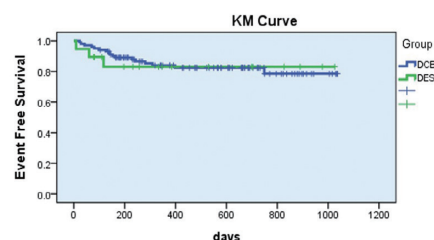
<sup>1)</sup>New Taipei TuCheng Municipal Hospital, <sup>2)</sup>Chang-Gung Memorial Hospital

### 【What's\_known?】

The application of drug-coating balloons or drug-eluting stents for peripheral vascular disease provided better clinical outcomes than traditional balloon angioplasty. However, the real-world comparison of these two drug-coating devices is limited.

### 【What's\_new?】

We collected patients with peripheral artery diseases who received angioplasty with drug coating devices for femoropopliteal lesions since Jan. 2020. 176 cases were collated, with 20 cases of drug-eluting stents and 156 cases of drug-coating balloons. 79% of patients with diabetes mellitus and 52% with end-stage renal disease received renal replacement therapy. In addition, 82% of patients maintained primary patency during the follow-up period. Patients who received DES were with less clinical events.



## MO-60 Impact of Ultrascore Percutaneous Transluminal Angioplasty Balloon Catheter on Vessel Preparation of Long Femoropopliteal Lesions

○Kohei Yamaguchi, Shinsuke Mori, Shigemitsu Shirai, Masafumi Mizusawa, Kenji Makino, Yohsuke Honda, Masakazu Tsutsumi, Norihiro Kobayashi, Masahiro Yamawaki, Yoshiaki Ito

Department of Cardiology, Saiseikai Yokohama City Eastern Hospital

### 【What's\_known?】

Several studies have demonstrated optimal vessel preparation methods for femoropopliteal (FP) lesions to prevent severe angiographic dissection and maximize acute lumen gain.

### 【What's\_new?】

83 limbs with long FP lesions (lesion length  $\geq 150$ mm) underwent percutaneous transluminal angioplasty (PTA) using long balloons (balloon length  $\geq 150$ mm) were enrolled to our study. The limbs were classified into 2 groups: 22 limbs underwent PTA with long Ultrascore PTA balloons (Ultrascore group) and remaining 61 limbs with conventional long balloons (conventional group). Angiographic outcomes between those two groups were compared.

The rate of limbs containing chronic total occlusion in target artery segment reached 68% and 52% ( $p=0.45$ ) for the Ultrascore and conventional groups, respectively. The procedural characteristics comprised balloon length  $241 \pm 75$  and  $206 \pm 59$  mm ( $p=0.03$ ) and diameter  $5.2 \pm 0.7$  and  $4.7 \pm 0.7$  mm ( $p<0.01$ ) in the Ultrascore and conventional groups, respectively. After PTA, the rate of severe dissection (NHLBI grade C or higher) was 14% and 38% ( $p=0.03$ ) and percent diameter stenosis was  $23 \pm 18$  % and  $38 \pm 23$  % ( $p<0.01$ ) for the Ultrascore and conventional groups, respectively.

In conclusion, Ultrascore PTA balloon catheter may be useful for PTA of long FP lesions compared to conventional long balloons, leading to optimal vessel preparation.

## **MO-61 The complication of Switch-back technique cases using Optimo PPI sheathless kit**

○Takashi Miwa, Michinao Tan, Masaya Katagiri, Takashi Katayama, Kazushi Urasawa  
Tokeidai Memorial Hospital

### **【Case\_overview】**

Optimo is the unique guiding sheath with occlusion balloon at the tip of itself. The occlusion balloon protecting for distal embolization can be inflated continuously. The standard method of Optimo is a retrograde insertion into the ipsilateral CFA, when iliac artery has thrombotic lesion.

### **【Procedure\_summary】**

However, an approach site will be a problem when iliac artery lesion with thrombi and SFA lesion are both target lesions. Just a contralateral approach can't protect distal embolization. Bi-lateral approach can protect distal embolization by using Optimo, but insertion of guiding catheter into bi-lateral CFA will be a little bit invasive for the patient, and if distal embolization occur, it is a little bit difficult to deal.

### **【Clinical\_time\_course\_and\_implication\_(or\_perspective)】**

We experienced two EVT cases that both SFA and iliac lesion had thrombotic stenosis or occlusion performed with Switch-back technique using Optimo.

## **MO-62 Impact of Laser Atherectomy to Obtain Luminal Area in Endovascular Treatment of Femoropopliteal Artery In-Stent Restenosis**

○Haruya Yamane, Yasunori Ueda  
National Hospital Organization Osaka National Hospital

### **【What's\_known?】**

Femoropopliteal artery in-stent restenosis (FP-ISR) had shown its poor outcome after endovascular treatment (EVT). EVT with excimer laser atherectomy (ELA) showed preferable results in FP-ISR compared to conventional treatment. However, the accurate assessment of ELA effect by intravascular imaging modalities is poorly conducted.

### **【What's\_new?】**

A total of 18 patients (age  $75 \pm 6$  years, male 59%, diabetes 59%, hemodialysis 35%, stent length  $24 \pm 6$  cm) with FP-ISR classified Tosaka3 (in-stent occlusion) who underwent EVT with recording of intravascular ultrasound (IVUS) from April 2020 to January 2023 were retrospectively analyzed. Cross-sectional IVUS images were evaluated by 1cm intervals. The stent area and luminal area were measured and luminal to stent area ratio (L/S ratio) was calculated. EVT with ELA was performed in 8 patients. The number of analyzed cross-sectional images were 123 in ELA group and 141 in conventional treatment group. Although stent area was similar ( $31.1 \pm 4.9\text{mm}^2$  vs.  $29.7 \pm 4.6\text{mm}^2$ ,  $p=0.13$ ), luminal area ( $19.4 \pm 4.0\text{mm}^2$  vs.  $14.1 \pm 3.4\text{mm}^2$ ,  $p<0.001$ ) and L/S ratio ( $0.63 \pm 0.10$  vs.  $0.48 \pm 0.11$ ,  $p<0.001$ ) were significantly larger in ELA group. The incidence of cross-sectional images with L/S ratio  $<0.5$  was significantly lower in ELA group (8.3% vs. 51.5%,  $p<0.001$ ). IVUS assessment demonstrated that EVT with ELA is effective to acquire a greater luminal area.

## MO-63

# The Relationship Between Postprocedural Fractional Flow Reserve and Short-term Outcome After Endovascular Therapy for Femoropopliteal Artery Disease

○Masafumi Mizusawa, Shinsuke Mori, Tomoya Fukagawa, Toshihiko Kishida, Kohei Yamaguchi, Shigemitsu Shirai, Kenji Makino, Yohsuke Honda, Masakazu Tsutsumi, Norihiro Kobayashi, Masahiro Yamawaki, Yoshiaki Ito  
Saiseikai Yokohama-city Eastern Hospital

[What's\_known?]

Background:

In Japan, drug-coated balloon (DCB) has been become a common therapeutic option for femoropopliteal artery disease. In endovascular therapy for peripheral artery disease, angiographic and intravascular ultrasound (IVUS) findings have been the major evaluation items. Recent study showed severe dissection and smaller minimum lumen area evaluated by IVUS was one of independent predictors for restenosis. On the other hand, it was reported poststenting fractional flow reserve (FFR) is useful for predicting restenosis in femoropopliteal artery disease as with coronary artery disease.

[What's\_new?]

Method:

Our retrospective study was conducted examining 44 patients (32 males, mean age  $74 \pm 9$  years) undergoing endovascular therapy (EVT) for 50 lesions with DCB for femoropopliteal arteries from July 2021 to July 2022. We measured postprocedural FFR at popliteal artery by injection 30mg of papaverine as hyperemia and investigated the relationship between these FFR values, IVUS finding and restenosis at 12 months using receiver operating characteristic (ROC) curve analysis.

Results:

In 7 cases, restenosis was observed at 12 months after EVT. The threshold of postprocedural FFR for restenosis was 0.94, with an area under the curve (AUC) value of 0.73 (sensitivity 83%, specificity 60%).

Conclusions:

Postprocedural FFR might be useful in predicting restenosis after EVT.

## MO-64

# Impact of switching from dual antiplatelet therapy to dual pathway inhibitor therapy on occurrence of repeat thrombotic occlusion after revascularization for femoropopliteal in-stent occlusion

○Sho Nakao, Osamu Iida, Mitsutoshi Asai, Shin Okamoto, Takayuki Ishihara, Kiyonori Nanto, Takuya Tsujimura, Tsujimura Hata, Taku Toyoshima, Naoko Higashino, Toshiaki Mano  
Kansai Rosai Hospital Cardiovascular Center

[What's\_known?]

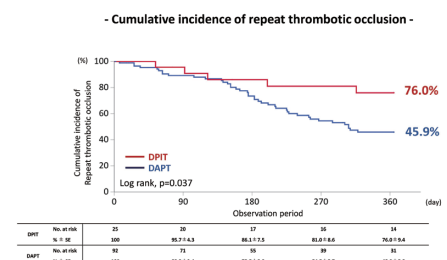
Little is known about whether DPIT reduces repeat thrombotic occlusion after occurrence of femoropopliteal (FP) in-stent occlusion (ISO).

[What's\_new?]

We retrospectively studied 117 limbs (chronic limb-threatening ischemia [CLTI]: 52%, chronic total occlusion: 74%) in 110 symptomatic patients with LEAD (male: 55%, diabetes mellitus: 49%) due to FP-ISO between August 2012 and October 2021. We compared the clinical outcomes of patients who were switched from dual antiplatelet therapy (DAPT) to DPIT with those who continued DAPT (DPIT group: 25 limbs, DAPT group: 92 limbs) after FP-ISO endovascular therapy (EVT). The outcome measure was repeat thrombotic occlusion, and Cox proportional hazards regression models were used to identify prognostic factors.

The 1-year cumulative incidence of repeat thrombotic occlusion was significantly lower in DPIT group ( $54.1 \pm 5.8\%$  vs.  $74.0 \pm 9.4\%$ ,  $p=0.037$ ). Multivariate analysis revealed that DPIT (HR: 0.34,  $P=0.004$ ) was significantly associated with a reduced risk of repeat thrombotic occlusion, whereas higher age (HR: 1.05,  $P=0.006$ ) and poor BTK run-off (HR: 4.77, 95%CI 1.76-12.91,  $P=0.002$ ) significantly increased the risk.

In conclusion, the current study revealed that switching from DAPT to DPIT after EVT for FP-ISO reduced the risk of repeat thrombotic occlusion, while higher age and poor BTK run-off increased the risk.



## MO-65 The Clinical Experience of Percutaneous Deep Venous Arterialization for Chronic Limb-threatening Ischemia Patients

○Kunihiko Nishian, Masashi Fukunaga, Machiko Nishimura, Reiko Fujiwara,  
Daizo Kawasaki  
Morinomiya Hospital

### 【What's\_known?】

**Purpose:** Whether percutaneous deep venous arterialization (pDVA) is effective for patients with chronic limb-threatening ischemia (CLTI) patients with no-endovascular or surgical options due to creation of an arteriovenous fistula (AVF).

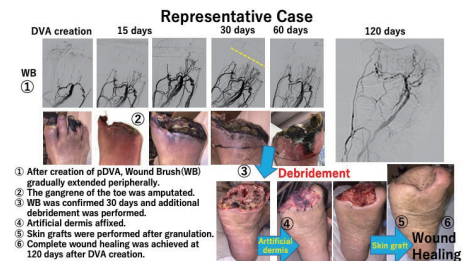
### 【What's\_new?】

**Methods:** A total of 7 limbs in 6 CLTI patients were treated with pDVA between posterior tibial artery (PTA) and posterior tibial vein. All patients presented with nonhealing ulcers and long chronic total occlusion with poor plantar artery runoff. Technical success was defined as successful AVF creation and wound perfusion. Patients' characteristics, procedure details, limb and wound outcomes were retrospectively evaluated.

**Results:** Technical success was observed in all patients without any complications. Diabetes and hemodialysis were main comorbidities. Only 1 case had an AVF creation at the proximal PTA, and 6 cases at the distal PTA.

A patient was treated with self-expanding covered stent and 2 patients treated with nitinol stent which were deployed at the level of AVF. 4 cases were treated with only balloon angioplasty. 2 major amputations were performed during this study periods (limb salvage rate 74%). Complete wound healings were achieved in 4 limbs (57%).

**Conclusion:** Although the success rate of pDVA is high, further studies are needed to improve clinical outcomes.



## MO-66 Instructions for use based anatomy may attenuate the beneficial effect of statin therapy on long-term mortality after endovascular aneurysm repair for patients with abdominal artery aneurysm

○Taku Toyoshima<sup>1)</sup>, Osamu Iida<sup>1)</sup>, Toru Ide<sup>2)</sup>, Kazuo Shimamura<sup>2)</sup>, Yosuke Hata<sup>1)</sup>, Shin Okamoto<sup>1)</sup>, Takayuki Ishihara<sup>1)</sup>, Kiyonori Nanto<sup>1)</sup>, Takuya Tsujimura<sup>1)</sup>, Naoko Higashino<sup>1)</sup>, Mano Toshiaki<sup>1)</sup>, Shigeru Miyagawa<sup>2)</sup>

<sup>1)</sup> Kansai Rosai Hospital,

<sup>2)</sup> Department of Cardiovascular Surgery, Osaka University Graduate School of Medicine

### 【What's\_known?】

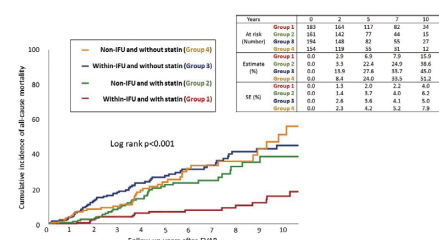
The aim of this study was to investigate the impact of statin therapy on long-term mortality after endovascular aneurysm repair (EVAR) for patients with abdominal artery aneurysm (AAA).

### 【What's\_new?】

**Methods:** A multi-center and retrospective study included 693 patients (age: 74 ± 8 years) with AAA (aneurysm diameter: 49.4 ± 10.2 mm) who underwent EVAR from December 2007 to December 2018. The outcome measure was mortality.

**Results:** The mean follow-up duration was 5.4 years. Statin was administered to 49.6% of patients. Five-year mortality was significantly lower in patients with statin than in those without statin (14.1% versus 25.9%, P<0.001). Multivariate analysis demonstrated that statin therapy was negatively associated with mortality (hazard ratio [HR]: 0.52, P<0.001), while over 80 years old (HR: 2.45, P<0.002), malignant tumor (HR: 1.54, P=0.026) and eGFR<30 (HR: 2.18, P=0.004) were positively associated with mortality. Interaction analysis revealed that the association of statin therapy with mortality varied significantly by instruction for use (IFU)-based anatomy (P<0.001).

**Conclusion:** The current study revealed that statin therapy significantly reduced the risk of mortality after EVAR for patients with AAA. However, its impact may attenuate by IFU-based anatomy.



## MO-67 Salvage of Ruptured Abdominal Aortic Aneurysm by Using 100% Endovascular Strategy: a 5-year single center experience

○Chia Ying Lin, MingLi L Li

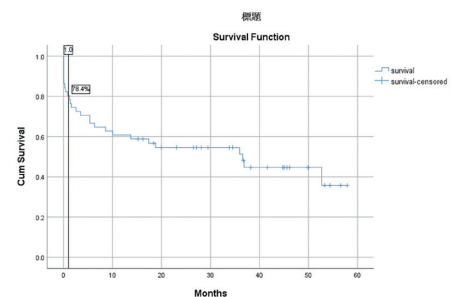
China Medical University Hsin-Chu Hospital

### 【What's\_known?】

Endovascular aneurysm repair (EVAR) has been used to salvage patients with ruptured abdominal aortic aneurysm (rAAA) with smaller chance of ischemic colitis and lower peri-operative mortality in contrast to open repair.

### 【What's\_new?】

In our 61 cases of all ruptured AAA from the past 5 year, we achieved 30-day bowel ischemia of 4% and 30-day mortality of 21.6%, comparable to those in the Cochrane systemic review study. However, six of them whom were covered bilateral renal artery all resulted in early mortality. This study is an alarm to the 100% endovascular strategy.



## MO-68 Innovative Use of Capturex® Device to identify the Aortic True Lumen and Visceral Branches during TEVAR for Stanford B Aortic Dissection

○Suet Yan Ong<sup>1)</sup>, Pei Shi Lew<sup>2)</sup>, Derek Chunyin Ho<sup>2)</sup>, Darryl Mingjun Lim<sup>3)</sup>

<sup>1)</sup> Surgical Resident, Department of General Surgery, Changi General Hospital, Singapore,

<sup>2)</sup> Consultant, Department of Vascular Surgery, Changi General Hospital, Singapore,

<sup>3)</sup> Director, Department of Vascular Surgery, Changi General Hospital, Singapore

### 【What's\_known?】

Identification of the true lumen during TEVAR can be challenging in complicated Stanford B aortic dissection. We present a case where Capturex® was used to identify the true lumen and visceral branches during an emergency TEVAR.

### 【What's\_new?】

A 62-year-old male presented with acute Stanford B aortic dissection with intimal flap arising just distal to the left subclavian artery causing aortic occlusion from the level of celiac axis. Bilateral femoral cutdown was performed for access. A transverse arteriotomy was performed on the left common femoral artery (CFA). There were 2 lumens in the CFA. To ensure access to the true lumen, left brachial artery access was obtained and a wire was passed down smoothly to the left CFA. Capturex® was deployed within the true lumen and runs were done to identify the visceral branches. TEVAR stents were deployed from distal to proximal, sparing the celiac axis, to the left carotid artery, covering the left subclavian artery.

Post-operatively, patient recovered well and was discharged to a community hospital for rehabilitation. Surveillance CT showed graft patency 4 years after operation.

Capturex® can be used to identify true lumen and visceral branches in situations where direct wire cannulation of the true lumen is difficult.



## MO-69 Critical limb threatening ischemia is a residual bleeding risk factor among patients with lower extremity artery disease

○Takahiro Tokuda<sup>1)</sup>, Naoki Yoshioka<sup>2)</sup>, Akio Koyama<sup>3)</sup>, Takehiro Yamada<sup>4)</sup>, Kiyotaka Shimamura<sup>5)</sup>, Ryusuke Nishikawa<sup>5)</sup>

<sup>1)</sup>Nagoya Heart Center, <sup>2)</sup>Ogaki Municipal Hospital, <sup>3)</sup>Ichinomiya Municipal Hospital, <sup>4)</sup>Central Japan International Medical Center, <sup>5)</sup>Shizuoka General Hospital

### 【What's known?】

#### Objective

Lower -extremity artery disease (LEAD) is known as one of high bleeding risk factors. The aim of this study is to identify bleeding risk factors in patients with LEAD after endovascular treatment (EVT).

### 【What's new?】

#### Methods

This study was multicenter, retrospective, and observational study. A total of 732 patients with LEAD after EVT was analyzed between January 2018 and December 2019. Predictive bleeding risk factors were explored using cox regression analysis with differential models.

#### Results

In model 1, we detected BMI < 18.5, prior heart failure, anemia (<11g/dl), low platelets (<10\*10<sup>4</sup>/μl), chronic kidney disease and critical limb threatening ischemia (CLTI) as predictive bleeding risk factors (hazard ratio [HR] 1.95; 95% confidence interval [CI] 1.08-3.38; p=0.03; HR 2.51; 95% CI 1.49-4.14; p<0.01; HR 2.73; 95% CI 1.66-4.52; p<0.01; HR 2.66; 95% CI 1.01-5.84; p=0.05; HR 2.61; 95% CI 1.33-5.74; p<0.01; HR 1.85; 95% CI 1.13-3.04; p=0.01). In model 2 and model 3, CLTI was an independent risk factor for bleeding as well as high bleeding risk. (Model 2: HR 2.11; 95% CI 1.30-3.46; p < 0.01, Model 3: HR 2.58; 95% CI 1.60-4.19; p < 0.01)

#### Conclusions

CLTI is a predictive risk factor for bleeding among patients with LEAD.

## MO-70 Characteristics of cases we studied TAVI of Peripheral Artery Disease (PAD) who underwent TAVI at our hospital from 2018

○Maki Ohira, Kenji Suzuki, Toshiyuki Takahashi, Tasuku Hasegawa, Naoki Hirata, Ayaka Endo, Makoto Takei, Yuki Fujii, Hirohisa Harada, Naoki Fujimura, Satoshi Ohtsubo, Takahito Ito

Tokyo Saiseikai Central Hospital

### 【What's known?】

The number of patients with AS over the age of 60 in Japan is estimated to be about 2.84 million, of which about 560,000 have severe AS. The most common causes of AS are calcification of valves.

### 【What's new?】

We studied TAVI cases since May, 2018 retrospectively, and there were 74 TAVI cases and 2 BAV cases.

Puncture methods was 46cases, and cutdown methods was 28 cases, but cutdown was mostly in the early stages of introduction, and most recent cases were puncture. Mean age was 81 ± 11 years old, and male was 41%, DM was 39%, CKD was 36%, HL was 51%, HT was 78%. Mean ABI was 0.98 ± 0.10. PCI was performed in 31% of cases and PAD in 32%, EVT procedure was needed in 11cases (15%), puncture site repair was 2 cases, and approach dilation was 5 cases.

Conclusion: Very atherosclerotic TAVI cases had fewer PAD lesions than we expected. EVT technique was mandatory with TAVI procedure.

## MO-71 Interwoven nitinol stents to treat juxta-anastomotic stenosis with severe calcification: a retrospective study

○Chai Hock Chua  
Shin Kong Memorial Hospital

### 【What's\_known?】

Implantation of a Supera stent to treat juxta-anastomotic stenosis in radiocephalic arteriovenous fistula is a promising treatment for failing AVFs with encouraging primary and secondary patency and low reintervention rate. However, there is unknown whether Supera stent is still benefit for those AVFs with severe calcified juxta-anastomotic stenosis.

### 【What's\_new?】

This retrospective study was conducted over 15 patients (mean age 69.2 years, range 45-85; 10 men) who had a failing AVF due to severe calcified juxta-anastomotic stenosis treated with interwoven Supera stent between May 2019 and November 2022. Overall mean follow-up was 14 months. Primary and secondary patency rates were over 90% at 6 and 12 months. No AVFs were found in acute thrombosis during the follow-up. Reintervention rate was low.

## MO-72 Comparison of Newly-placed Stent Graft and Previously-placed Stent Graft at “Vein-Graft Junction” for Dysfunctional Arteriovenous Graft: A Retrospective Review of a Single Center in Taiwan

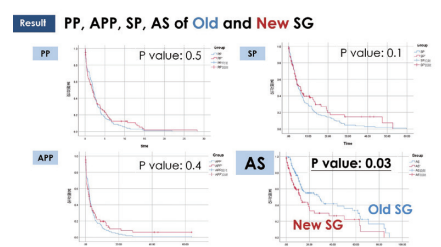
○Mingli L. Li  
China Medical University, Taiwan

### 【What's\_known?】

Stent graft (SG) for elastic vein-graft-junction stenosis has been proved effective to manage dysfunctional arteriovenous graft. SG-related edge stenosis is a new risk of target lesion revascularization. Further SG placement for new edge stenosis might be useful, but no available data to prove its effectiveness and cost-effectiveness.

### 【What's\_new?】

This retrospective study compared patency and cost-effectiveness of 105 newly-placed SGs with previously-placed SGs putting on dysfunctional arteriovenous grafts with VGJ lesions in past 10 years. The primary, assisted primary and secondary patency of newly-placed SGs were not statistically better than previous SGs. On contrast, the access survival was found significantly reduced which making this move not cost-effective.



## MO-73 Improving healing wound ulcer and saving limb with Jetstream in patient critical limb threatening ischemia

○Mohammad Reza Juniery Pasciolly

RSUD AL Ihsan Provinsi Jawa Barat - FK Unisba

### [Case\_overview]

70 year male, ulcer metatarsalis digiti 1, rest pain with commorbid Post PCI LAD, LCx, RCA, History rutin haemodylisis 2 times per week, risk factor hypertension, dyslipidemia, Physical examination no bulse INfrapoplitea bilateral and poplitea, Ankle brachial index 0,8 /0 5 CT ANgiography Femoroplitea and Infrapoplitea disease, Echocardiography EF 70%

### [Procedure\_summary]

Access contralateral approach right femoralis artery guide selection vessel femoralis and infrapoplitea with IVUS target MLA more 12 and MSA more 100% -> angiography no distal run off infrapoplitea -> IVUS and atherectomy ( JETSTREAM) SFA-ATA / PTA with device -> Balloon 2.0/150 ; 3.0/220-> for infrapoplitea

### [Clinical\_time\_course\_and\_implication\_ (or\_perspective)]

Complex peripheral intervention need technology, technique, and therapy

Intravascular Imaging and atherectomy mus do it the future procedure endovascular intervention ( like coronary have stable)

We need large meta analysis trial cut off MLA for SFA and Infrapoplitea in ASIAN Population  
Severe Calcified peripheral artery disease with degree 180-360 degree need atherectomy device,  
No distal run off infrapoplitea TASC D -> can manage with endovascular with technology ( IVUS & Atherectomy), experience operator, and selection device stent.



## MO-74 Rheolytic Thrombectomy across the Pedal-Plantar Loop in Acute Limb Ischaemia – A Case Report

○Pei Shi Lew, Darryl Mingjun Lim

Changi General Hospital

### [Case\_overview]

A 65-year-old male, presented with acute left lower limb pain of 6-hour duration. His foot was cold and peripheral pulses were not palpable. He has history of recurrent left ventricular thrombus complicated by embolic events. CT showed cutoff at the tibio-peroneal trunk (TPT) and mid-distal anterior tibial artery (ATA), with minimal opacification distally.

### [Procedure\_summary]

Percutaneous thrombectomy was performed. Downhill femoral access was obtained. Diagnostic angiogram showed cutoff at the TPT and distal ATA. Pulse spray and rheolytic thrombectomy was performed, using the AngioJet Solent™ Omni catheter to the TPT, followed by angioplasty with Jade™ balloon. The ATA was crossed antegrade easily, indicating the acute nature of the thrombus. Outflow run showed occlusion of the dorsalis pedis artery (DPA) with patent arch. Wire was passed antegradely across the arch into the lateral plantar artery (LPA). Pulse spray and thrombectomy was performed, with the AngioJet Solent™ Omni catheter, from the DPA, across the arch into the LPA. The catheter was maneuvered across the arch without difficulty. The vessels were subsequently angioplastied. Completion angiogram showed good flow down the ATA and PPL.

### [Clinical\_time\_course\_and\_implication\_ (or\_perspective)]

Post-operatively, patient's symptoms resolved. He was started on anticoagulation and bridged to warfarin. He was discharged well 6 days after operation.



## **MO-75 Successful EVT using single site approach of TAI in CLTI patient considered difficult to select conventional approach site**

○Yui Takaiwa, Hideaki Aihara  
Tsukuba Medical Center

### **【Case\_overview】**

60s male was with ischemic multiple ulcers on his right limb and he could not extend his knee joint due to joint contracture caused by lower limb pain.

### **【Procedure\_summary】**

It was impossible to choose a conventional access site for EVT. Because not only were there massive calcified nodules in his bilateral common femoral artery, but also his right knee joint was not extended. Therefore, we decided to perform a trans-ankle intervention (TAI). A Parent Select Sheath (5082) was placed in the right posterior tibial artery. Using 018 GW, 018 WINGMAN, 018 Balloon and DCB, EVT for severe calcified lesion from CFA to POP was successfully completed in one go.

### **【Clinical\_time\_course\_and\_implication\_(or\_perspective)】**

After EVT, his pain was relieved and he can stretch his right joint a bit more. Moreover, his ulcers also are improving trend. TAI is considered to be a useful strategy in the absence of a conventional access site.

## **MO-76 Percutaneous DVA was effective in no-option CLTI patient who developed heel ulcer caused by repeated distal bypass graft occlusion within a short time of period: A case report**

○Tomonari Takagi, Akira Miyamoto, Takuya Okada, Ryouji Kuhara,  
Masahiro Fukuda, Yasutaka Yamauchi  
Takatsu General Hospital

### **【Case\_overview】**

55s male on hemodialysis had undergone the distal bypass from the left popliteal artery to the posterior tibial artery (PTA) ten years earlier. He had repeated acute graft occlusions within a brief span, resulting in ulceration of the heel.

### **【Procedure\_summary】**

Emergency EVT successfully reopened the occluded graft, but only the medial plantar artery (MPL) was contrasted below the ankle joint, and blood flow to the heel ulcer was poor. Since the lateral plantar artery feeding the heel could not be recanalized, we attempted percutaneous DVA from the occluded PTA to the plantar vein. The occluded PTA was dilated proximal to the distal anastomosis of the graft with a 3.0-mm balloon, and a snare was inserted anterogradely from the distal posterior tibial vein. An arteriovenous fistula (AVF) was created by percutaneously skewering the inflated balloon and the snare at the ankle with a 20G needle. A guidewire was passed through the AVF to the plantar venous arch and the plantar vein was dilated with a 3.5mm cutting balloon to valvulotomy. The final angiography showed good flow from the left PTA to the pedal vein and good flow from the graft to the left MPA.

### **【Clinical\_time\_course\_and\_implication\_(or\_perspective)】**

Two weeks later, complete wound healing was achieved.

## MO-77 Mid-term outcomes of endovascular interventions of critical lower-limb ischemia in uremia patients

○Chai Hock Chua  
Shin Kong Memorial Hospital

### 【What's\_known?】

Peripheral arterial disease is common in patients with end-stage renal failure. Many reports have showed the poor survival and high amputation rate in ESRD patient compared with non-ESRD patients with critical limb ischemia. In this retrospective analysis, a total of 45 uremia patients was conducted with endovascular angioplasty to treat critical limb ischemia. Limb-salvage rate, reintervention rate and major adverse limb-event outcomes will be reported

### 【What's\_new?】

This retrospective study aimed to reveal the clinical outcome of uremia patient with critical limb ischemia treated with endovascular angioplasty. The risk factors for amputation in this patient group will be investigated and reported. The combination of critical limb ischemia and end-stage renal failure carried a poor medium-term survival. Aggressive endovascular angioplasty, however, allow the majority of these patients to avoid major limb amputation.

## MO-78 First case critical limb ischemia use stealth 360 orbital atherectomy for Infrapoplitea lesion

○Mohammad Reza Juniery Pasciolly  
RSUD AL Ihsan Provinsi Jawa Barat - FK Unisba

### 【Case\_overview】

77 yo female with symptoms CLTI rutherford VI gangrened digits 1-3 sinistra, risk factor hypertension, dyslipidemia, Coronary Angiography : CAD 3 VD, Echocardiography EF 60% with global normokinetic, CT SCAN Calcified femoropoplitea and Infrapoplitea

### 【Procedure\_summary】

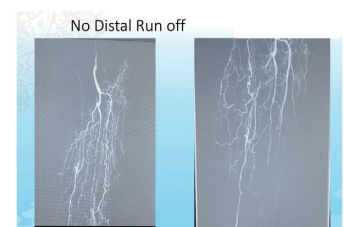
Access contralateral approach right femoral artery -> atherectomy with orbital atherectomy stealth 360 1.5 classic crown -> Poplitea and p-dTibialis anterior-Posterior -> Balloon 2.0/150 & Balloon 3.0/200 for ATA & PTA -> Balloon 5.0/150 for Poplitea and SFA -> DCB Poplitea-SFA Lutonix 5.0 /100 and Lutonix 6.0/100

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

Intravascular Imaging and atherectomy must do it the future procedure endovascular intervention (like coronary) have stable.

Severe Calcified peripheral artery disease with degree 180-360 degree need atherectomy device, one of device atherectomy is stealth orbital atherectomy

Severe calcified lesion still have problem for wound healing, TLR and free amputation for saving limb critical limb ischemia. We can manage with endovascular with technology (IVUS & Atherectomy), experience operator, and selection device stent.



## MO-79 A case report of Horner's syndrome after subclavian artery aneurysm stenting

○Yim Ping Wong  
Pok Oi Hospital

### 【Case overview】

A 60-year-old woman presented with a transient ischemia attack (TIA) with slurring of speech for 10 minutes. Subsequent MR and CT angiogram showed a 3-cm right subclavian artery aneurysm (SAA) but no major stenosis of the carotid arteries. Treatment was offered as retrograde embolism from SAA was considered a cause of her TIA.

### 【Procedure summary】

Right SAA stenting was performed under Monitored Anesthesia Care (MAC). Filter embolic protection device (Abbott Emboshield NAV6) was positioned at right common carotid artery via left common femoral artery (CFA) access. Through-and-through wire technique was adopted using right brachial and right CFA access. Balloon occlusion at right vertebral artery origin confirmed its clinical insignificance. Endovascular repair of the right subclavian artery aneurysm was performed by covered stents placement (Bentley BeGraft Cover Stents 8mm x 57mm and 9mm x 57mm). Completion angiogram showed good flow and no filling of aneurysm sac.



### 【Clinical time course and implication (or perspective)】

Post-operative day 1 patient complained of right eye ptosis, which was compatible with Horner's syndrome. CT angiogram confirmed the successful exclusion of an aneurysm. Her right eye ptosis gradually improved and almost returned to normal 3 months after the operation. It is the first case to report Horner's syndrome as a complication of SAA stenting

## MO-80 Removal of migrated vascular closure device plug material from the popliteal artery with a bi-directional approach using pushing balloon and closing embolus retrogradely (PINCER) technique

○Naoki Yoshioka<sup>1)</sup>, Yasuhiro Morita<sup>1)</sup>, Takahiro Tokuda<sup>2)</sup>, Takehiro Yamada<sup>3)</sup>,  
Itsuro Morishima<sup>1)</sup>

<sup>1)</sup>Ogaki Municipal Hospital, <sup>2)</sup>Nagoya Heart Center, <sup>3)</sup>Central Japan International Medical Center

### 【Case overview】

A 72-year-old female underwent endovascular therapy (EVT) for stent occlusion in the left superficial femoral artery through a 7-Fr guiding sheath from the right common femoral artery. After the procedure, an acute right popliteal artery occlusion associated with the EXOSEAL vascular closure device plug occurred.

### 【Procedure summary】

The plug material was successfully removed using a bidirectional approach. The migration plug was blocked to prevent distal vessel migration, and pushed gently to close the antegrade system using an over-the-wire balloon from the retrograde site. We named this as the "PushING balloon and Closing Embolus Retrogradely" (PINCER) technique. Finally, the plug was successfully removed using biopsy forceps.

### 【Clinical time course and implication (or perspective)】

After the procedure, the ABI normalized and the patient's symptoms resolved. Acute limb ischemia caused by EXOSEAL is a rare condition. Removal of the emboli by EVT is clinically significant because it is minimally invasive. However, it is sometimes difficult to remove the embolus antegradely; thus, the bidirectional approach can be effective in these situations.



## MO-81 Successful Removal of an Entrapped Stent Delivery System With an Additional Access

○Eiji Miyauchi<sup>1)</sup>, Kota Kuwazuru<sup>1)</sup>, Daisuke Tokutake<sup>1)</sup>, Ryo Arikawa<sup>1)</sup>,  
Naoya Oketani<sup>1)</sup>, Mitsuru Ohishi<sup>2)</sup>

<sup>1)</sup>Cardiology, Kagoshima City Hospital,

<sup>2)</sup>Department of Cardiovascular Medicine and Hypertension, Graduate School of Medicine and Dental Sciences

### 【Case\_overview】

A 70-year-old man complained of rest pain in the left lower limb. His left foot was cold and cyanotic. CT showed right SFA CTO, left CIA-EIA CTO, and left SFA CTO.

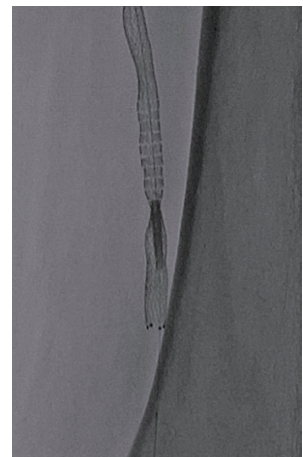
### 【Procedure\_summary】

In EVT for left SFA CTO, we decided to implant DES. After dilating CTO with a 4.0 mm balloon, IVUS revealed severe localized stenosis distal to the SFA. ELUVIA 6.0/120 mm was implanted to cover the stenosis. The stent was inadequately dilated at the site. The tip of the stent delivery system was caught in the poorly dilated site and could not be removed.

4 Fr sheath was inserted antegrade into the left CFA, and the poorly dilated site was passed through the stent with 0.014 GW. The site was dilated with a 3.0 mm balloon. The indentation was resolved. As a result, the stent delivery system was successfully removed. After stenting and post-dilation, two puncture sites were successfully stopped by manual compression.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

Although additional access increased the number of puncture sites, we selected the minimum sheath size, dilated the poorly dilated site sufficiently, and safely removed the stent delivery system. We consider this case to be a lesson to be learned and report it here.



## MO-82 Efficacy of combined finalized device strategy for the femoropopliteal artery

○Shuko Iwata<sup>1,5)</sup>, Riho Suzuki<sup>2)</sup>, Yuichiro Hosoi<sup>3)</sup>, Yuki Tanaka<sup>4)</sup>, Michinao Tan<sup>1)</sup>,  
Kazushi Urasawa<sup>1)</sup>

<sup>1)</sup>Tokeidai Memorial Hospital, <sup>2)</sup>Sapporo City General Hospital,

<sup>3)</sup>Sapporo Higashi Tokushukai Hospital, <sup>4)</sup>Hokko Memorial Hospital,

<sup>5)</sup>Nayoro City General Hospital

### 【What's\_known?】

The risk factors for 1-year restenosis using drug coated balloons (DCB) or Eluvia (Boston Scientific) drug-eluting stent implantation for femoropopliteal lesions were identified in previous study, however the efficacy of concomitant use of Eluvia with other devices remains unclear.

This study aimed to evaluate the concomitant use of Eluvia with other devices for symptomatic femoropopliteal lesions in real-world clinical settings.

### 【What's\_new?】

**RESULTS:** This is a multicenter, retrospective cohort study. 58 femoropopliteal cases that underwent concomitant use of Eluvia with DCB, interwoven nitinol stent (IWS) or plain old balloon angioplasty (POBA) between January 2018 and September 2021 were enrolled in this study. Overall mean lesion length was  $25.4 \pm 7.2$  cm. 1-year freedom from target lesion revascularization was 59.4% (Eluvia + DCB), 55.1% (Eluvia + IWS), and 27.3% (Eluvia + POBA) ( $p=0.046$ ).

**CONCLUSIONS:** The 1-year clinical outcomes after concomitant use of Eluvia with DCB and IWS were superior to Eluvia + POBA strategy, however did not provide adequate results.

## MO-83 The bailout method of implanting an elongated interwoven stent into a vessel using a needle without getting out of the body

○Masanaga Tsujimoto, Takuya Haraguchi, Tsutomu Fujita  
Sapporo Cardio Vascular Clinic

### 【Case\_overview】

70s female complaining of left severe intermittent claudication (Rutherford classification-3)

### 【Procedure\_summary】

Angiography showed left superficial femoral artery occlusion. A guidewire was externalized using a bi-directional approach. After balloon dilatation, a 6.5x150-mm and 6.5x120-mm interwoven stents were planned to be implanted in the occlusion from the retrograde system. During the second stent placement in the distal lesion, the deployment system and did not work properly, and the stent was locked within the sheath. To prevent the elongated stent from getting out of the body through the retrograde puncture site, the retrograde sheath was first advanced into the inside of the deployed stent. Second, two 18-gauge needles were inserted at the fold points to fix the bilayer stent. Third, the retrograde sheath was withdrawn to release the undeployed part of the stent. Finally, a third 18-gauge needle was inserted to fix the triple-layered stent to implant the residual undeployed stent part within the vessel. After a 7.0-mm balloon dilatation, intravascular ultrasound revealed a minimal stent area of 17.0 mm<sup>2</sup>. The final angiogram demonstrated satisfactory flow.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

1-year computed tomography angiogram showed a patent of the stent without symptoms. This bailout technique was useful for implanting an unexpectedly elongated interwoven stent into a vessel.

## MO-84 Acute thrombotic occlusion in the abdominal aorta after Impella removal

○Shota Saito, Hiroki Takenaka, Eijun Sugimoto, Shoma Kitano, Yusuke Samejima,  
Tomoyuki Yaguchi, Naohiko Nemoto, Hitoshi Anzai  
Ota memorial hospital

### 【Case\_overview】

A 61-year-old man with out-of-hospital cardiac arrest due to acute myocardial infarction was brought to the ER. The patient was directly sent to the lath labo, undergoing PCI the proximal LAD under back up of V-A ECMO and Impella. The clinical course was favorable. Therefore, ECMO was removed percutaneously with Perclose<sup>®</sup> and Angioseal<sup>®</sup> on the 4th day, then Impella was also removed percutaneously with Perclose<sup>®</sup> alone on the 6th day. Although the poor blood backflow from the right CFA just after Impella removal, the right leg did not look ischemic. The next morning, the leg became cyanotic and CK value elevated to 18000 U/L.

### 【Procedure\_summary】

An emergent angiography showed thrombotic occlusion in the abdominal aorta just below the renal artery. We punctured the both inguinal sites, putting multiple stents in the aortic-bilateral iliac artery.

### 【Clinical\_time\_course\_and\_implication\_(or\_perspective)】

However, as we expected, the patient suddenly became shock with bradycardia, serum potassium rapidly elevated to 7.3 mEq/L. The definite diagnosis was MNMS; the most severe form of reperfusion injury. We attempted everything including blood purification, but the patient ended up passing away. Conclusion: Thrombotic complications related to Impella device has become better known these day and an appropriate prevention method needs to be established immediately.



## MO-85 Success in obstruction of ruptured pseudoaneurysm after pancreaticoduodenectomy by several covered stents-Two cases

○Hiroshi Ishikawa  
Kobayashi Hospital

### **【Case\_overview】**

case1:59y/o male,the patient was underwent pancreaticoduodenectomy during 9 hours in March. he had bleeding from drain tubes and several episodes of hematemesis on POD 21. One month later, he was diagnosed with ruptured pseudoaneurysms of pancreas by enhanced CT. And then , we tried to occlude pseudoaneurysm.

Case2:73/o male,the patient was underwent pancreaticoduodenectomy in March. he had bleeding from drain tubes and several episodes of hematemesis on POD 18. He was diagnosed with ruptured pseudoaneurysms of pancreas by enhanced CT. And then , we tried to occlude pseudoaneurysm.

### **【Procedure\_summary】**

Case1:Free of DAPT. EVT procedure was demonstrated with 6Fr. Radiguide II BL3.5 catheter ,0.014inch Vasso Floppy and 0.014inch Cruise guidewire. EVT access was lt.brachial artery. 3.5x16mm Graftmaster stent was deployed in common hepatic artery.Final angiogram was shown obstructed pseudoaneurysm.

Case2 : EVT procedure was performed with 7Fr. Parent Cross catheter and 0.018inch V-18 control guidewire. EVT access was lt.femoral artery. 8.0x25mm Vaiabahn Stent Graft was delivered to common hepatic artery.Final angiogram revealed obstructed pseudoaneurysm.

### **【Clinical\_time\_course\_and\_implication\_(or\_perspective)】**

Hepatic arteric ruptured pseudoaneurysms after pancreaticoduodenectomy are rare but potentially life-threatening complication of major pancreaticobiliary surgery. We evaluated the safety and efficacy of coronary stentgraft and Vaiabahn stent graft implantation for the management of such vascular lesions.