However, his symptom did not improve; rather it deteriorated as to rest pain and cyanosis. We initially diagnosed his disease as a popliteal artery aneurysm. Surprisingly, this was the first CT since 2010.

Relevant catheterization findings:
- Diagnostic angiography on Oct 19th showed antegrade blood flow was maintained until the popliteal artery. The Stent stent which was deployed in the distal SFA looked like it was floating in the huge aneurysm. The PTA appeared patent, though the ATA and PeA were totally obstructed.

[Interventional Management]
Procedural step:
- On Oct 23rd, the popliteal artery aneurysm was replaced with an artificial graft and massive mural thrombus was removed. The stent itself was occluded with thrombus formation. During this surgery, they performed Fogarty to remove thrombus in the tibial artery. However, an angiography revealed vessel perforation in the mid PTA due to Fogarty maneuver. Perforation was fixed by manual compression. However, antegrade blood flow was compromised and ischemic condition severely deteriorated.
- We were asked to perform angiography. On Oct 25th, the right CFA (common femoral artery) was punctured antegradely and 4.5Fr Parent Plus (guide sheath, 55 cm in length) was inserted.
- The artificial graft was patent. But, all three blow the knee (BTK) arteries were found to be occluded.
- We initially tried to open the ATA, but we failed to cross guidewires (0.014 Cruise, 0.014 Astate AXs 9-12, 0.014 Astate AXs 9-40 with Corsair PV) to the DP (dorsalis pedis). DP was not visualized, so we gave up continuing the ATA procedure.
- We moved on to EVAR for the PTA. Almost all part of occlusion was patent with 0.014 guidewire Cruise with Prominent (microcatheter). We needed 0.014 guidewires Astate AXs 9-12 to catch the distal true lumen of the plantar artery at the occlusion ext. 0.014.
- Then Cruise was advanced to the distal plantar artery.
- PTA was dilated with 2200 mm balloon (Coyote MR) several times. Then, antegrade blood flow was restored. But, it showed slow flow with massive residual thrombus.
- Luckily, at this point, pseudoaneurysm in the mid PTA did not appear.
- After deep deliberation, we made a decision of performing CDT (catheter directed thrombolyis) with Fournier infusion system (4Fv). We deployed the Fountain catheter in the right PTA to cover the residual thrombus.
- Two days later, as we expected, the pseudoaneurysm in the PTA reappeared by ultrasound. Angiography also showed reappearance of pseudoaneurysm and partial dissolution of the residual thrombus.
- We percutaneously infused thrombin (1cc) into the pseudoaneurysm twice while balloon dilatation was kept around the pseudoaneurysm. Then, the PTA and DP were dilated with 2200 and 3200 mm balloon.
- Final angiography showed restoration of the antegrade blood flow in the PTA through distal DP and reduction of the pseudo aneurysm (but not completely fixed).
- We continued conservative treatment with anticoagulation and would care.
- One month later, angiography showed completely disappearance of thrombus in the PTA and DP. We also observed pseudoaneurysm, which was finally fixed by a replacement of autologous vein graft.

Case Summary:
- We encountered the patient with giant popliteal artery aneurysm who underwent stent implantation. While bypass replacement, adjunctive thrombectomy by Fogarty catheter resulted in pseudoaneurysm in the PTA. Originally, Fogarty maneuver is conducted in a blind fashion. But it should be cautiously performed under fluoroscopic guidance in some clinical setting.
- We reconfirmed that stenting for popliteal artery aneurysm is absolutely contraindicated.

TCTAP C-181
A Novel Technique for Percutaneous Transluminal Angioplasty to Subclavian Artery Occlusion
Jyun-Yang Chiang, Hsien-Li Kao
National Taiwan University Hospital, Taiwan

[Clinical Information]
- Patient initials or identifier number:
  - Initials: Z.S.L
  - Identifier number at National Taiwan University Hospital: 6021797

Relevant clinical and physical exam:
- This 61y/o man had medical history of coronary atherosclerosis confirmed by angiography, hypertension, and had smoking habit.
- He found progressive left shoulder and arm numbness and weakness for 1 year. Left arm coolness and interarm pressure differences were noted at local clinics.

Relevant test results prior to catheterization:
- Duplex sonography revealed reversed flow in the left vertebral artery (VA) with monophasic waveform in the left subclavian artery (SCA), indicating stenosis in the left proximal subclavian artery with subclavian steal phenomenon.

Relevant catheterization findings:
- Selective angiography of right VA showed steal phenomenon and left SCA total occlusion.

[Interventional Management]
Procedural step:
- Combine femoral radial approach was chosen.
- We engaged 8 French Judkin Right guiding catheter to proximal end through right femoral sheath and 6 French Judkin Right guiding catheter to distal end of left SCA occlusion through left radial sheath.
- Initially we tried retrograde wiring with conquest pro (ASAHI INTECC) and Excelsior microcatheter (Boston Scientific). Support. After several attempts, we could only pass the wire into the false lumen.
- We tried antegrade wiring with Ultimate bro 3 (ASAHI INTECC) and Excelsior support, and later with conquest pro and Excelsior support. Still, we could only get into the false lumen. We tried knuckle wire technique, and also failed to re-enter the distal true lumen.
- We tried controlled antegrade and retrograde subintimal tracking (CART) with Sprinter compliant balloon (Medtronic) 4.0 mm x 20 mm balloon inflation from retrograde, but antegrade wire could not get into the subintimal space created by retrograde balloon.
- We used simultaneous balloon inflation with two Sprinter compliant balloon (Medtronic) 4.0 mm x 20 mm from antegrade and retrograde. Finally the two subintimal spaces connected. We succeeded in retrograde wiring with conquest pro into the descending thoracic aorta.
- Balloon inflation with Sprinter compliant balloon (Medtronic) 4.0 mm x 20 mm to left SCA was performed, and antegrade wiring with conquest pro could be easily passed to distal end without resistance. An ASSURANT® COBALT (Medtronic) 7 mm x 30 mm x 130 mm was deployed. The final result is good.

TCTAP C-182
A Case of Iliac Artery FMD Treated by EVT with Pressure Wire and IVUS
Masashiko Fujihara
Kishiwada Tokushukai Hospital, Japan

[Clinical Information]
- Patient initials or identifier number:
  - MF
- Relevant clinical history and physical exam:
  - A 71-year-old woman visited our institution complaining of fatigue in both legs after a 100-m walk for the past 6 months. Her medical history included chronic atrial fibrillation, and well-controlled anticoagulation with Amiodarone (5 mg/day). Her bilateral lower extremity pulses were weak. Her ankle-brachial index (ABI) were reduced to 0.85 on the right side and 0.80 on the left side.
  - Based on these symptoms, the patient was diagnosed with typical peripheral artery disease (PAD) and severe (grade 3) claudication, according to the Rutherford classification.
  - Doppler echocardiography revealed bilateral diffuse stenosis of the external iliac arteries. The Doppler waveforms were biphasic in both femoral arteries. Peak systolic velocity (PSV) was 259 cm/s in the right iliac artery and 309 cm/s in the left iliac artery. Furthermore, B-mode ultrasound images revealed unusual patterns of diffuse stenoses with both iliac arteries, with increased right and left PSV, which was suggestive of non-atherosclerotic iliac artery stenosis. These patterns were a similar to the short-term stenosis in normal vessels, and the stenosis did not present intimal thickening, which is a typical characteristic of atherosclerotic diseases.
- Relevant test results prior to catheterization:
  - Three-dimensional computed tomography (3DCT) angiography showed multifocal stenoses with the classical "string of beads" appearance pattern in both external iliac arteries. Because of the "string of beads" pattern on iliac artery, Doppler echocardiography was performed. Repeated angiography was performed, and bilateral mid-renal artery stenosis with elevated PSV in the right (218 cm/s) and left renal artery (258 cm/s) was observed.

Relevant catheterization findings:
- Diagnostic angiography was performed to characterize iliac and renal artery stenosis. The renal artery angiogram exhibited the typical "string of beads" pattern in bilateral renal arteries, thereby confirming the diagnosis of bilateral renal artery FMD. The iliac artery angiogram also revealed the typical "string of beads" pattern in both external iliac arteries. The rows of ring-like stenosis reached 50%–75% of the normal vessel diameter, with enlargement in both external iliac arteries.

[Interventional Management]
Procedural step:
- First, a 5 Fr 10 cm Radifocus sheath introducer was inserted in the left brachial artery, and 4000 units of unfractionated heparin was injected in the artery. Then, a 5Fr 90 cm Destination guiding sheath was exchanged and advanced into the right common iliac artery. Once the 175 cm of 0.014 inch Cruise guide wire was positioned in close proximity to the "string of beads" pattern of the right iliac artery, IVUS was performed to locate the web-like membrane obstructing the lumen. Given the multiple stenosis sites, the pressure gradient across the FMD lesion was measured using a 0.014-inch Arix pressure wire. A peak systolic pressure gradient of 45 mmHg was measured between the aorta and the right common femoral artery. The FMD lesion predominantly responsible for the significant stenosis was identified by IVUS imaging and pressure measurements. Then, angioplasty of the right iliac artery was performed using a 7.0 mm × 40 mm balloon and a 8.0 mm × 20 mm balloon inflated to a pressure of 8 atm. While angiographic improvement was not detected, the pressure gradient across the stenosis was eliminated. Furthermore, IVUS images showed a disrupted web-like membrane. Therefore, this procedure was repeated for the treatment of left iliac FMD.
Successful Treatment Using Rotablator for a Heavily Calcified Lesion Distal to Anastomosis of Bypass Graft in Superficial Artery

Keisuke Fukuda
Kishiwada Tokasyukai Hospital, Japan

[Clinical Information]
Patient initials or identifier number:
30694962

Relevant clinical history and physical exam:
He had a history of right F-P bypass in Oct. 2011 and free of claudication. He began to have right lower limb claudication for the last 3 months.
Physical examination: A weak pulse on the right popliteal, tibial and dorsalis pedis arteries.

Relevant test results prior to catheterization:
ABI: right 0.21 left 0.87
Duplex ultrasonography: Stenosis of right distal SFA located to distalanastomotic site
PSV accelerated to 420cm/s at lesion

Relevant catheterization findings:
New calcified stenosis in distal to anastomosis of F-P bypass graft in SFA

[Interventional Management]
Procedural step:
1. Contralateral approach: 6Fr Cross-oversheath
2. 0.018inc guide wire with microcatheter in 5Fr Multipurpose catheter could be crossed lesion
3. Failure to 5.0 x 40mm monorail balloon passage
4. Rotational atherectomy using rotablator
5. Success to cross the lesion of balloon
6. After dilation of 5 x 40mm balloon, followed by dissection and residual stenosis
7. 6x60mm self-expandable stent was implanted
8. Post dilation by 5x40mm balloon was performed