chest pain at rest in April 2014. She received percutaneous coronary intervention with everolimus eluting stent implantation for proximal left anterior descending artery three years ago. We assumed it was unstable angina pectoris from several data. Then, emergency coronary angiography and coronary intervention were performed. Physical Exam: Blood pressure 110/74 mmHg, Heart rate 94/min.

**Relevant test results prior to catheterization.** Blood test: WBC 5.410 x 10^9/mL, RBC 4.50 x 10^12/L, HGB 14.8 g/dL, HCT 44.7%, PLT 24.8 x 10^12/L, TP 7.8 g/dL, ALB 4.7 g/dL, T.Bil 0.5 mg/dL, AST 25 U/L, ALT 26 U/L, GTP 291 U/L, BUN 11.5 mg/dL, Cre 0.84 mg/dL, UA 6.5 mg/dL, Na 144 mEq/L, Cl 102 mEq/L, K 4.0 mEq/L, Tchol 244 mg/dL, HDL-C 62 mg/dL, LDL-C 158 mg/dL, TG 99 mg/dL, Glu 129 mg/dL, HbA1c (NGSP) 5.3%, eGFR 54 ml/min/1.73 m^2

ECG: sinus rhythm, no significant ST-T change

UCG: Left Ventricular Ejection Fraction 68% (Teicholz), No Asynchrony, Mitral/Pulmonary/Tricuspid Valve Trivial Regurgitation

Relevant catheterization findings. Severe stenosis in the everolimus eluting stent of proximal left anterior descending artery.

(In-stent restenosis: ISR)

**[INTERVENTIONAL MANAGEMENT]**

**Procedural step.** Emergency coronary angiography and coronary intervention were performed. Coronary angiogram found severe stenosis in the everolimus eluting stent (EES) of proximal left anterior descending artery. We inserted 8Fr. long sheath from right femoral artery, engaged guiding catheter on left coronary ostium, and passed through the lesion with guide wire. In addition, optical frequency domain imaging (OFDI) revealed heterogeneous low intensity neo-intima in the middle of the EES. The EES dilated well and the lumen was occupied with such neo-intima. Therefore, we selected excimer laser to remove neo-intima as much as possible and to obtain the lumen. Rotational atherectomy with excimer laser dramatically reduced the neo-intimal burden. OFDI showed the reduction of neo-intima well. At next, scoring balloon dilated the lesion at 14 atm. OFDI showed enough acute gain of the lumen. And finally, paclitaxel coated balloon (PCB) coated the drug on the lesion at 12 atm. Our serial treatment with excimer laser, scoring balloon, and PCB helped her recover without any stent placement or occurrence of sequelae.

**Case Summary.** ISR treatment remains challenging. As reported by several studies, PCB is a valid device for the treatment not requiring an additional layer of metal. It shows good results for ISR of bare metal stent, however, not as much for ISR of drug eluting stent (DES). Materials creating neo-intima in DES is not clearly identified, yet predicted to be extracellular matrix and thrombus. It is likely that PCB, which has cytotoxic effects, has less inhibition of neo-intimal proliferation of ISR of DES. Thus, the reduction of plaque burden is essential. We suggest excimer laser have advantage for the purpose. To clarify the effectiveness of using excimer laser before PCB is our task to be solved.
hours unstable angina. He was a heavy smoker for 50 years and had risk factor of hypertension and dyslipidemia. The patient’s symptom was released after treatment of dual antiplatelet therapy and low molecular weight heparin.

**Relevant test results prior to catheterization.** Lab tests for cardiac troponin were negative. Electrocardiography indicated T wave depression in V3 to V6 leads. Transthoracic echocardiography showed reduced ejection fraction as 42% and hypokinesis of left ventricular apex and inferior ventricular septum.

**Relevant catheterization findings.** Coronary angiography revealed a dominant right coronary artery with diffuse calcification and severe stenosis in the proximal and distal portion. The left anterior descending (LAD) artery showed significantly calcification with subtotal occlusion in the middle segment. The circumflex artery indicated moderate atherosclerosis and no obvious stenosis.

**[INTERVENTIONAL MANAGEMENT]**

**Procedural step.** By using the Rotablator (Boston Scientific), a 1.25mm burr can pass through the lesion with maximal rate of 150,000 rpm and maximal rotation time for 29 seconds. Coronary dissection was indicated by first cine after the ablation. For the ease of stent passing through the vessel, balloon inflation was deployed from the distal to middle segment of LAD (balloon size 2.0mm x 20mm and 2.5mm x 15mm) The following cine showed middle LAD perforation with contrast agent leakage to the ventricular septum and formation of pseudoaneurysm. A 2.25mm x 30mm drug eluting stent (Resolute, Medtronic) and 3.0 x 33mm drug eluting stent (Firebird2, Microport) were deployed continuously and a non-compliance balloon (balloon size 3.0mm x 15mm) was inflated for post dilation and specifically for the lesion of perforation. The final angiography showed no obvious residual stenosis on target lesion of LAD and active bleeding to pericardium. Although instant transthoracic echocardiography did not find pericardial effusion, the patient developed cardiac tamponade after transferred to the ward. He was successfully rescued by pericardial drainage and protamine sulfate. Coronary computed tomography (CT) scan was prescribed for re-evaluation 2 weeks after the procedure. It indicated no stenosis or stent thrombosis in LAD lesion with the persist pseudoaneurysm. The patient was suggested for low dose of aspirin and clopidogrel.
Case Summary. Although coronary artery pseudoaneurysm is a quite rare complication of rotational atherectomy, the severe consequence could be cardiac tamponade and even fatal. It is not clear the benefit of invasive strategy compared with the conservative therapy and the effect of traumatic pseudoaneurysm to the duration and intensity of dual antiplatelet therapy.

TCTAP C-040
Coronary Perforation Whose Bleeding Location Was Difficult to Identify
Yutaka Tadano
Sapporo Cardiovascular Clinic, Japan

[CLINICAL INFORMATION]
Patient initials or identifier number. Y.S

Relevant clinical history and physical exam. The patient was an 81 year-old female with hypertension, diabetes, and dyslipidemia. She was diagnosed with effort angina. She had PCI to LAD three times in the past. PES and BMS were deployed in LAD in January, 2010 and in June, 2013, respectively. POBA was performed for LAD in October, 2013. Although CAG showed in-stent occlusion of mid-LAD in February, 2014, ad-hoc PCI ended up failure. She was sent to our hospital for re-treatment.

Relevant test results prior to catheterization. The laboratory data found her renal function normal (Cr1.03mg/dl). ECG showed sinus rhythm and ST depression in V5 and V6 lead. Echocardiography showed mild LV dysfunction (EF51%), and severe hypokinesis in anterior to septal LV wall.

Relevant catheterization findings. CAG was performed in May, 2014. There was in-stent occlusion in mid-LAD and grade2 intra-coronary collateral from second diagonal branch. Other significant stenosis was found in Diagonal branch and in Obtuse marginal branch (both 75%).

[INTERVENTIONAL MANAGEMENT]
Procedural step. PCI for mid-LAD in-stent CTO was performed in May, 2014. We used 7Fr Hyperion SPB3.5 (ASAHI Intec) as Guiding catheter from right femoral artery. At first, we used XT-R (Guide-wire, ASAHI Intec) with FinecrossGT (Micro-catheter, Terumo), to try to pass through the occluded lesion. However, the wire went into sub-intimal space. Therefore, we exchanged the Guide-wire to GAIA 1st (ASAHI Intec); however the wire went extra-vessel. Using parallel-wire technique with Crusade (Micro-catheter, KANEKA), GaIAst finally passed through the distal true lumen of CTO lesion. Angiography after IVUS showed coronary perforation in mid-LAD. We immediately inflated Ryujin Plus 2.25x30 mm (Terumo) in mid-LAD and tried to stop the bleeding. Although ACT already became 110sec with protamine infusion, the bleeding was still continuing. Then, we implanted Xience Xpedition2.25-23mm in mid-LAD, and inflated Ryusei 2.5/20 mm (Perfusion-balloon, KANEKA) by 6atm, however, the bleeding did not stop after total of 85 minutes balloon-hemostasis time. Observing the outflow direction of contrast media, we found the bleeding site in a proximal portion of septal branch. Finally, the bleeding stopped after we performed coil embolization of septal branch through microcatheter, using five Hilal2x20mm (microcoils, COOK).