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Left-subclavian arterial dissection caused by a guiding catheter tip - A case report-

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Arterial dissection caused by guiding catheter tip is a rare but serious complication of PCI. We will report a case with left subclavian arterial dissection which we could observe carefully by blood pressure monitoring. A 66-year-old male with effort angina pectoris was reffered to our department for ischemic evaluation on August 31, 2004. He had received CABG operation one year ago. He had exertional chest pain recently, but had no myocardial infarction. Three coronary-artery bypass grafts were LITA to LAD, SVG to D1, and LRA to OM and PL. By coronary artery and bypass graft angiogrphy via right femoral approach, LITA had a severe stenosis. We underwent PCI to the lesion through left subclavian artery using 6F guiding catheter (IM90cm). During the procedures, he complained of left superior limb dullness. Soon after, we underwent left subclavian arterial angiography. There was the dissection and reduction of bloodstream at left subclavian artery, but it wasn't protruding from the adventitia. Therefore, we chose observation and measured blood pressure of bilateral superior limb many times. The blood pressure of left superior limb was 30mmHg lower than right superior limb. After six hours, there was no difference between the two and no symptom. Throughout the admission, the serum CPK was not elevated. After three months, we underwent left subclavian arterial angiography again. There was no dissection and only a little stenosis of left subclavian artery. Although procedural risks are low, catheter's procedure remains an invasive test with the potential to cause severe complications.

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"Z"-shaped wire distorted by two stents but recovered by the "Tornus catheter".

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The case was 75 year old female with congestive geart failure.Coronary angiography showed moderate stenosis at the middle right coronary(RCA).Pericutaneous Coranary Intervention(PCI) was done,we dilated the lesion by 2.5mm ballon.DRIVER stent did not cross,so was implanted successfully by two wire technique. Then,by two wire technique,TSUNAMI stent was implanted proximal tortuous lesion.But,a trouble happened,A trasnsformed wire like "Z" was catched by two stent.Microcatheter,1.5mm balloon was not cross a space of wire and stent,only "Tornus catheter"crossed the tiny space,we recoveried the trasnsformed wire.

M-60

Coronary Dissection and Intramural Hematoma due to pin-hole balloon rupture during stent placement

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CASE A 64-year old man was admitted to our hospital sudden onset of chest pain. Electrocardiogram showed ST elevation in V1-4. Coronary angiography (CAG) was revealed total occulusion of the proximal left anterior descending artery (LAD) . Coronary thrombectomy was attempted. TIMI grade 2 flow was achieved. Intravascular ultrasound (IVUS) imaging was performed a coronary dissection was found. A 3.0/23mm stent was positioned at the lesion site and inflated at 8atm for 30sec, but the pressure decreased slowly down to 6atm. After the balloon inflation at 16atm, presssure slowly went down to 6 atm again. Balloon rupture was suspected. The patient complained of severe chest pain. A new stenotic lesion was revealed distal to the angioplasty site. And a dissection was indicated as persistent contrast medium outside the stent from the lumen was cleared. The new stenotic lesion was treated by perfusion balloon. IVUS images showed a crescent-shaped area just distal of the stent edge . The image suggested an intramural hematoma. A 2.5/20mm stent was then deployed to treat this hematoma. IVUS revealed deployed stent compressed the hematoma. The CAG revealed TIMI grade 3 flow and chest pain was released. We reported a patient in whom balloon rupture occurred during inflation in a stent. In most instances, balloon rupture lead to any complication but some paper reported perforation, air embolism and dissection. Intramural hematoma occurred immediately after implantation of coronary stent. In our case, IVUS was very useful to identify intramural hematoma and successfully treated by stenting without any complication.

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Coil embolization case of coronary artery aneurysm complicated by coronary artery stenosis after stent implantation

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Coronary artery aneurysm(CAA) is rare disorder found in 0.2-5.3% in patients undergoing coronary angiography. As natural history of CAA is largely unknown, treatment of CAA is controversial. We experienced a patient revealing a CAA with severe stenosis of coronary artery in coronary angiography. The patient was treated with percutaneous coronary intervention (PCI) using intracoronary stent implantation for coronary lesion and coil embolization for CAA. A 76-year-old man was admitted to our hospital because of chest oppression on effort. Coronary angiography showed CAA with severer stenotic lesion at proximal left anterior descending coronary artery (LAD). A 7F guiding catheter was introduced by transfemoral approach. After 0.014 inch guide wires were positioned at distal LAD and diagonal branch (seg9), stenotic lesion of proximal LAD was dilatated with 3.5/14mm balloon catheter with 12atm. Then intracoronary stent (Multilink zeta 3.5/15mm) was implanted at the lesion. After stent implantation,0.014 inch guide wire was placed in a CAA through implanted stent strut and microcatheter for coil deployment was put into the CAA. Intravasucular ultrasound showed CAA of 6-7mm in diameter. We used two coils (6mm/20cm,7mm/20cm) for embolization of CAA. After embolization of CAA with two coils, coronary angiography showed no organic coronary artery stenosis at proximal LAD and slightly filling of contrast medium into CAA. Coils were not protruded from CAA into coronary artery. Coil embolization for CAA after stent implantation is considered to be effective treatment in patients wuth CAA complicated by coronary artery stenosis

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Mechanical distortion of the right coronary artery by cardiac contraction may cause coronary artery stenosis and stent fracture

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Purpose: Many factors are involved in repeated coronary restenosis after stent implantation. A possible mechanism of stent metal fatigue caused by coronary artery distortion during cardiac contraction is presented. Case report: A 68-year-old-male complaining of exertional chest pain and associated with hypertension, diabetes mellitus and chronic renal failure was revealed to have inferior wall ischemia by stress cardiac scintigram and 90% and 75% stenosis in #1 and #2 segments of right coronary artery by coronary arteriography, respectivery. He was treated with PCI by placing a BxVerocity stent in #1 and a NIR stent in #2 in February, 2004. However, chest pain developed in May as evidenced by 90% restenosis in #1. This lesion was treated by POBA. In August, restenosis was again noted in the same lesion and was treated by placing a Cypher stent after rotablator. However, in October, chest pain redeveloped associated with intrastent restenosis of #1. IVUS demonstrated facture of a Cypher stent as well as distortion of the right coronary artery by cardiac contraction. POBA was again applied, but similar restenosis again developed in February. CABG was finally performed in April, 2005. Conclusion: A mechanism of repeated coronary restenosis as well as fracture of a Cypher stend might be explained by abnormal mechanical distortion of the right coronary artery by cardiac contraction.

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Non-occlusive silent stent thrombosis four weeks after DES delivery

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Case: A 64-year old man had chest pain and was admitted to our hospital. His Coronary angiography showed 90-99% stenosis in the segment 6,7,8,11 of the left coronary artery and total occlusion in the segment 1 of the right coronary artery. The segment 7,8 of the left anterior descending artery was tortuous. As the patient refused CABG,aspirin 100mg and ticlopidine 200mg were administered and the staged percutaneous coronary intervention(PCI) was planed. After one week, PCI was performed to the segment 6,7,8 of the left anterior descending artery under intra-aortic balloon pumping. Intravascular ultra-sound(IVUS) study showed intimal thickening with deep calcification in each lesion. Three Cypher stents(3.5mm, 3mm, 2.5mm, respectively) were primarily inserted in the segment 6, 7,8 and post-balloon dilatation was performed with a pressure of 16 atms. The stenotic lesions were well dilated angiographically and IVUS showed the dilation of the segment 8 was not so enough. After 28 days, coronary angiography demonstrated a small filling defect at the cypher stent of the segment 8, while no ischemic events were noted. IVUS study showed the possibility of thrombosis in the stent. Balloon angioplasty was performed for the purpose of full dilatation of the lesion, but caused transient slow-flow phenomenon and ST elevation in precordial leads. Tortuous and hard lesion may cause Cypher thrombosis even after 4 weeks of placement. There is the possibility of the presence of silent DES thrombosis in spite of four weeks after stent implantation.

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Sub-acute limb ischemia associated with hemostasis using Angioseal

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Recently many kinds of arterial hemostatic devices are available. They contribute to the early ambulation and the short length of hospital stay. However, there is a serious complication particular to device. We report a case of a subacute limb ischemia which is related to the Angioseal.The patient is 85 years old female who underwent renal stenting 3 days ago. She felt the coldness of left leg which is puncture site and intermittent claudication. Right and left ankle brachial index (ABI) is 1.09 and 0.82 respectively. The angiogram showed a severe stenosis in the femoral artery at the site of previous puncture with the delay of distal flow.We performed balloon angioplasty by contralateral approach using long flexible sheath. Soft wire could not pass the lesion and finally 0.018 Treasure12g passed. Intravascular ultra sound (IVUS) showed the anchor like strong echo but no severe atherosclerosis. Balloon angioplasty was performed using 5.5cm balloon without any complication. The post angiography showed 50% residual stenosis but distal flow was recovered. The post IVUS still showed the anchor like echo but we did not additional treatment because the anchor will be naturally dissolved after 3 month.We speculate that the cause of subacute limb ischemia is due to the inadequate attachment of the anchor to the vessel wall and the thrombus formation around the anchor. After balloon angioplasty patient is stable. We will present 3 month follow up angiography at the meeting.

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Successful removal of the tip of a Wallstent delivery system left in the popliteral artery 4 years earlier

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The 64-year-old man underwent implantation of a 6x71mm Wall Stent (Boston Scientific) in the right SFA 4 years ago. At that time, a tip of the stent delivery system was unexpectedly come off the shaft and dislodged in the right popliteal artery, while the Wall stent was successfully deployed. Then, we attempted to remove the tip by the Gooseneck Microsnare catheter repeatedly, but we could not capture it and gave up finally. Fortunately, distal flow was maintained and there was no acute limb ischemia. But he started to have intermittent claudication 4 years after the event. Rt femoral angiogram showed the distal edge stenosis of prior stent in SFA, severe stenosis in the infrapopliteal artery and remaining of a tip of stent delivery system in the right popliteal artery. We tried to remove the tip again. After angioplasty for the in-stent restenosis with a 5.5mm Cutting balloon, we first used a Gooseneck Microsnare catheter to capture the tip. At this time, we had got and brought it to the right iliac artery but it was so difficult to retract the tip into the 6F sheath. We exchanged 6F sheath for 8F sheath and carefully captured the tip again by bioptome. Finally the tip was successfuly drawn into the 8F sheath without vessel injury.. Subsequently, we performed PTA for the infrapopliteal artery. This is a unique case succeeded in removal of the tip of stent delivery system 4 years after dislodgement.

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3 cases of fluminant myocarditis with PCPS successfully removed without IABP in the acute phase

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We performed only one hemodynamic support device to 3 cases of fluminant myocarditis in acute phase.At first,we supported PCPS for 5days to these patients and changed to IABP.All cases were succeeded in taking out hemodynamic support device without complication and trouble.They had no hypoxyc cardiomyopathy and encephalopathy.Guideline was sopposed that both PCPS and IABP should be used for acute circulatory failure in this disease.But the effect of IABP in suppoting PCPS has possibility of decreasing brain blood flow in acute phase of this disease.The occasion of infection and peripheral complication in spite of cannulation is increased for using both suppot devices.This disease is not ischemic heart disease.Adequate coronary circulation is not important of recovering.So that, we suggest that IABP support after PCPS during about 5days in acute phase is one of the effetctive way to rescue these patients.

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Coronary artery bypass-grafting in patients with pulmonary aspergillosis

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[Purpose] Invasive *Aspergillus* infections after cardiac operation, such as endocarditis and aortitis, are rare but difficult diagnosis and high mortality. We performed coronary artery bypass grafting (CABG) for three cases with saprophytic forms of pulmonary aspergillosis.[Methods] Case 1: A 76 year-old man was admitted with acute heart failure and renal failure due to angina pectoris and mitral valve regurgitation, included pulmonary aspergillosis after treatment of pulmonary tuberculosis before eight years. Case 2: A 65 year-old man was admitted with acute heart failure and pneumonia due to unstable angina pectoris supported by intra aortic balloon pump, in addition to the past history of pneumoconiosis. Case 3: A 73 year-old man was admitted with angina pectoris, included pulmonary aspergillosis after treatment of pulmonary tuberculosis before ten years. [Results] We performed CABG for all cases and mitral valve plasty for case 1. Case 2 and 3 underwent off-pump CABG and aortic no-touch technique for the purpose of less invasive surgery. Treatment of case 1 and 2 was prolonged because of postoperative respiratory illness and gastrointestinal bleeding. All patients was able to leave hospital without invasive *Aspergillus* infections.[Conclusion] Fatal complication related with invasive *Aspergillus* infections after cardiac operation could be avoided in our three cases.

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Safety and efficacy of angio-seal for the removal of intra-aortic balloon pumps - a pilot study-

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Introduction The Angio-Seal vascular closure device uses a biodegradable anchor and resorbable collagen plug to achieve local hemostasis after cardiac catheterization with up to 8 Fr arterial sheaths. Many investigators have revealed the efficacy of this device in achieving adequate hemostasis as compared to traditional manual pressure techniques. However, it has not been clarified whether or not Angio-Seal is effective for removing an IABP. Therefore we investigated whether the Angio-Seal could be used safely and could achieve hemostasis rapidly when remocing an IABP. **Materials and Method** We studied prospectively 18 consecutive patients (age mean 59.7 (28-82) years, 15 males) in which Angio-Seal was planned to be utilized to achieve vascular hemostasis after the removal of an IABP. The primary safety endpoint was a composite of major complications such as retroperioneal bleeding, vessel occlusion, loss of distal pulses, vascular surgery or death and minor complications such as hematoma (>10cm), AV fistula or pseudoaneurysm by 7 days after removal. **Results** We enrolled 18 consecutive patients who needed IABP support, and of those 16 patients utilized Angio-Seal to achieve vascular hemostasis after the removal of the IABP. Two patientswere excluded due to massive hematomas before the IABP removal. The time to achieve hamostasis was 2-5 minutes (mean 3.3 minutes). There were no instances of major or minor complications by the 7th day in any patients. **conclusion** Angio-Seal can be utilized fast, safely and effectively in IABP removal.

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IVUS-identified pitfalls of crushed Cypher stenting; 3 cases from the Rinku experience.

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Background and Aim:We performed more than 50 cases of Crush Cypher, and found some pitfall which detected by IVUS. The aim of this paper is to aleart the pitfall of Crush Cypher stenting.Case1:Crush Cypher was performed in bifurcation of LAD and D1. After crushing side branch Cypher, guide wire easily crossed into side branch. KBT was performed and angiogram showed optimal result but IVUS showed double lumen in proximal segment of Crush Cypher, which made injured but no strut area. The reason was recross guide wire was advanced into incomplete crushed side brach Cypher.Case2:Crush Cypher stenting was performed in bifurcation of LM, LAD and LCX. Wire recrossing into crushed Cypher was very tough and finally wire crossed and KBT was performed. IVUS showed injured but no strut area in side branch ostium even though angiogram showed optimal result. The reason was wire crossed outside of Cypher.Case3:Crush Cypher stenting was performed in bifurcation of LM, LAD and LCX. Wire recrossing into crushed Cypher was very tough and finally wire crossed and KBT was performed. Angiogram showed optimal result but IVUS showed double lumen in LM, which means injured but no strut area in LM. The reason was wire crossed once through outside of Cypher in LM.Summary:We experienced 3 pitfall cases of Crush Cypher. In all 3 cases, angiogram showed optimal result and only IVUS can detect the pitfall. We strongly recommended that use IVUS in Crush Cypher to get really optimal result.