A Case of an Intra-abdominal Hemorrhage by Chest Compression for Cardiogenic Shock After STEMI

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[Clinical Information]
Patient initials or identifier number: SCS

Relevant clinical history and physical exam:
History of Present illness She had chest pain and consulted our hospital. She was diagnosed as acute inferior myocardial infarction complicated with right ventricular myocardial infarction and complete atrio-ventricular block. In our emergency room, her hemodynamic state was collapsed by ventricular fibrillation (VF), and cardio-pulmonary resuscitation (CPR) was started and was succeeded. Emergent catheterization including temporary pacemaker and coronary angiogram (CAG) was performed.

Past History: Hypertension, dyslipidemia, diabetes mellitus

Family History: None

Medication: Alogliptin 25mg, bezafibrate 200mg, valsaltan 80mg, amiodipine besilate 5mg, metformine 500mg

Life History: Smoking

Physical Examination: Blood pressure 60-30mmHg, heart rate 37/min, SpO2 97%(3L), heart ejection systolic murmur 2/6, lung no rale

Relevant test results prior to catheterization:
[blood examination] under SIMV(FiO2 0.8, PEEP5)
AST 207 IU/l, ALT 143 IU/l, T-Bil 0.4mg/dl, Na 131 mEq/l, K 2.9 mEq/l, BUN 21.1 mg/dl, Cre 0.93 mg/dl, CRP 0.11 mg/dl, CK 550 IU/l, CK-MB 47 IU/l, B 514mg/dl, Hb 8.5 g/dl, TIBC 25.4g/dl, WBC 11600/mm3, Hb 11.3 g/dl, pH 7.264, PaO2 96mmHg, PaCO2 43.6mmHg, HCO3 17.5mEq/l, ABE 3.6mmol/l, Lactate 4.8mmol/l

ECG: HR37/min, complete AV block, II III aVf ST elevation

Chest Xp:CTR 64%, no cogestion, no pleural effusion

UCG: Global EF 60%, LV asynergy: base mid inferior severe hypokinesia, RV wall motion hypokinesia, no significant valvular disease

Relevant catheterization findings:
CAG: #1 100%, #7 50%, #9 50%
PCT: #1 100% → 0%(by implanted promus element 3.0*16)

Guiding catheter engaged and wire crossed

Tried to use aspiration catheter (TVAC7Fr) but could not pass it

Performed pre dilatation with a small balloon of 2.0mm and got TIMI3 flow

Performed rota blator ablation and could debulke the lesion by using 1.25mm and 1.75mm burr

Performed pre dilatation with a noncompliant balloon of 2.25mm

Implanted drug eluting stent of 3.0mm the lesion

Distal embolization occurred at #4AV distal and I performed plain old balloon dilatation of 1.5mm

Got TIMI3 flow and good dilatation of stent. I finished PCI.

TAE: Emergent transcatheter artery embolization (TAE) was performed to occlude to left inferior phrenic artery.

[Interventional Management]
Procedural step:
Femoral Sheath
Size: 7 Fr long sheath

Guiding Catheter
Name: Launcher JR4
Size: 7 Fr

Configuration JR
Length of Curve: 4cm

Guidewire
Name: (1)Runthrough extraflouppy, (2)Sion, (3)rotawire extrasupport
Size: 0.014 inch

Used Balloon
Name: Tazuna2.0*15, Hiryu2.25*15, Tazuna1.5*15
Delivery System: Monorail
Size: 2.0 mm 2.25mm 1.5mm
Length: 15 mm

Used Stent
Name: Promus element 3.0*16
Delivery Type: Balloon-expanding
Size: 3.0 mm
Length: 16 mm

Procedural Steps
Guiding catheter engaged and wire crossed.

I tried to use aspiration catheter (TVAC7Fr) but could not pass it.
I performed pre dilatation with a small balloon of 2.0mm and got TIMI3 flow.
I performed rota blator ablation and could debulke the lesion by using 1.25mm and 1.75mm burr.
I performed pre dilatation with a noncompliant balloon of 2.25mm.
I implanted drug eluting stent of 3.0mm the lesion.
Distal embolization occurred at #4AV distal and I performed plain old balloon dilatation of 1.5mm.

I got TIMI3 flow and good dilatation of stent. I finished PCI.

Case Summary:
The case is a 69 years old woman. She had chest pain and consulted our hospital. She was diagnosed as acute inferior myocardial infarction complicated with right ventricular myocardial infarction and complete atrio-ventricular block. In our emergency room her hemodynamic state was collapsed by ventricular fibrillation (VF) and cardio-pulmonary resuscitation (CPR) was started and was succeeded. Emergent catheterization including temporary pacemaker and coronary angiogram (CAG) was performed. CAG revealed total occlusion at shoulder of RCA#1 with severe calcification, then emergent percutaneous coronary intervention (PCI) was performed. Aspiration catheter was not passed to culprit lesion so small balloon of 2.0mm was dilated to open the occluded vessel then TIMI3 flow was obtained. Because intra-vascular ultrasound (IVUS) and stent could not pass the lesion due to strong calcification, Rota ablator of 1.75mm burr was performed to shoulder calcification and stent was successfully implanted. Although the patient’s postoperative progress was good, two days after PCI anemia got worse and her hemodynamic state became unstable. Computerized tomography (CT) scan with contrast agent revealed active intra-abdominal hemorrhage due to the rupture of left inferior phrenic artery. Emergent transcatheter artery embolization (TAE) was performed to occlude to left inferior phrenic artery. After coil embolization and RCC transfusion, her hemodynamic state became stable. Afterward, she followed good course. We experienced a very rare case of the left inferior phrenic artery rupture with the chest compression after emergent PCI.

We should know that hemorrhagic complication due to chest compression and anti-platelet therapy could be occurred even after successful PCI and CPR.
TCTAP C-013

Acute Coronary Syndrome with a Rare Congenital Connection Between the Coronary Vessels and the Pulmonary Vessels

Taichi Okonogi
New Yukuahi Hospital, Japan

[Clinical Information]
Patient initials or identifier number: 54825
Relevant clinical history and physical exam: The patient’s coronary factors were hypertension, hyperlipidemia, hyperuricemia, smoking and obesity. There were no abnormal findings in the physical examination.

Relevant test results prior to catheterization: The chest X-ray showed cardiomegaly without pulmonary congestion. The electrocardiogram showed a sinus rhythm with ST elevation in leads II, III and aVF. The transthoracic echocardiogram demonstrated an asynergy at posterior and inferior walls with an ejection fraction of 63%.

Relevant catheterization findings: Coronary angiography revealed coronary artery fistulas to the main pulmonary artery, the distal right coronary artery was occluded by a fresh thrombus, the severe stenosis were suggested in the proximal left anterior descending artery and the middle left circumflex artery.

[Interventional Management]
Procedural step: Deep engagement of the guiding catheter enabled us to visualize the distal right coronary artery clearly and achieve successful deployment of a Promus Element 2.25/16mm. Routine angiograms did not provide clear visualization of the correct location of stenosis in the proximal left anterior descending artery and the middle left circumflex artery. We performed computed tomographic angiography with 3-dimensional reconstruction and the pictures show severe stenosis in the proximal left anterior descending artery and the middle left circumflex artery.

After the patient underwent rehabilitation, the secondary PCI was performed.

Case Summary: The PCI was performed via the right radial artery with a 6-F GC(IL4.0: TERUMO). Firstly, the left circumflex artery lesion was treated with drug eluting stent deployment (Xience Prime 2.5/18mm).

Then a guide wire was advanced into the left anterior descending artery. Over this wire, a 4-F catheter “Cokkate (ASAHI INTECC)” was advanced within the 6-F guiding catheter in order to obtain clear visualization of the entire left anterior descending artery. Unfortunately the no flow phenomenon occurred at the stent distal site, the IVUS showed the spiral dissection and huge hematoma from the middle left anterior descending artery to the distal. It required additional deployment of the drug eluting stent in the middle left anterior descending artery.

TCTAP C-014

Coronary Perforation in Primary PCI

Sivakumar Ramachandran, Ajit Mullasari, Balaji Pakshirajan
Madras Medical Mission, India

[Clinical Information]
Patient initials or identifier number: Mrs. B.A.
Relevant clinical history and physical exam: 76 years old female Euglycemic & normotensive Present had chest pain for 2 hours and 45 minutes On Examination Patient conscious, oriented No pallor Not dyspnoic, no pedal edema HR: 30/min BP: 120/70mmHg SPO2: 100%
CVS: S1S2(+), no murmur RS: NVBS(+), no added sound
Other Systems: NAD

Relevant test results prior to catheterization:
ECG: Acute AMI
ECHO: Regional Wall Motion Abnormality present in basal and mid septum, anterior wall and apex, moderate LV dysfunction

Relevant catheterization findings:
Coronary Angiogram:
LCA Angio: LMCA is normal.
LAD has proximal total occlusion
LCX is dominant vessel. LCX and branches are free of flow limiting disease.
RCA is dominant and has 70% stenosis in the mid segment.

[Interventional Management]
Procedural step: Procedure done under local anaesthesia through right femoral approach. RCA was engaged and lesion in the proximal left anterior descending artery was crossed. Thrombectomy was done using 7Fr thrombectomy.

Direct stent deployment was done from proximal to mid left anterior descending artery using a 3.0 x 38 mm endeavor resolute at 10 atm for 8 sec.

Check angiogram showed residual disease distal to stent which was covered using 2.75 x 18 mm endeavor resolute at 10 atm for 8 sec.

Proximal stent saba done using 2.75 x 8 mm nc balloon upto 20 atm for 10 atm. Followed by distal stent using 2.75 x 8 mm nc balloon upto 20 atm for 10 sec.

Check angiogram showed perforation of vessel at the mid part of distal stent. Stent balloon was used to occlude the perforated site with prolonged low pressure dilatation.

Patient was hemodynamically stable and screening echo showed minimal pericardial collection.

GP IIb IIIa inhibitors were not given.

Final angiogram showed no residual stenosis with good antegrade flow.
The procedure was uneventful. Patient shifted with stable hemodynamics.

Case Summary: Coronary perforation during Primary PCI is an unanticipated complication. Prompt recognition and management is mandatory to prevent mortality. Low pressure balloon occlusion is easily available and the simplest way to seal the perforation.