MLCTO ACADEMY
RESEARCH · EDUCATION

My First Perforation and How I Treated!
Why Important to Know Using of Coils (Self-Made) In Bail Out Situation

(perforation-treating, next perforation-treating and again perforation)

Patient history:

Female 71 y.o.

Clinical symptoms: stable angina (CCS III, NYHA II). Previous myocardial infarction (2017). Previous PCI of RCA (2018).

Comorbidities: Hypertension, dyslipidemia, family history.

20/05/2022 patient underwent coronary angio – 3 vessel disease (RCA; LAD; LCX)

Recommendation for CABG, strongly denied by the patient.

03/11/2021 patient was referred to the Fedorovich Klinikasi LLC for PCI.

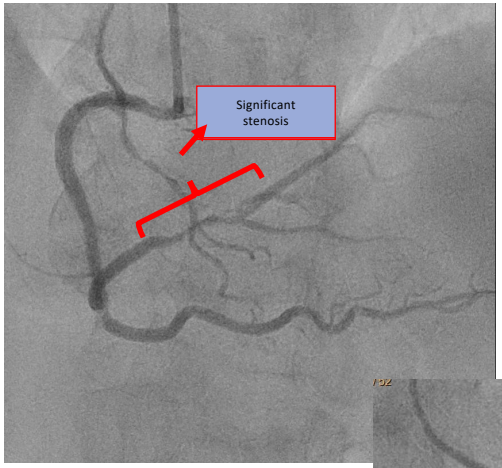
Examinations:

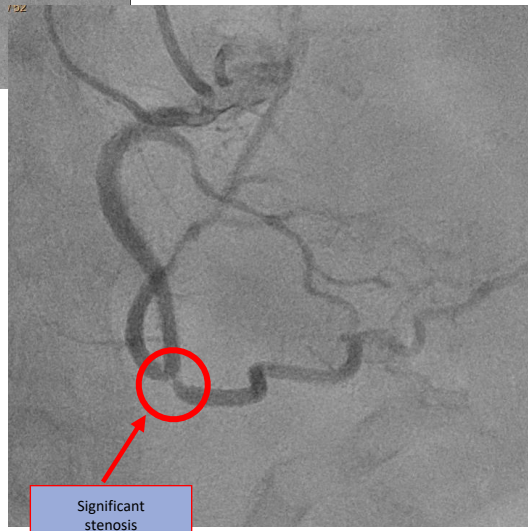
Resting ECG: rhythm - Sinus rhythm with a heart rate of 75 bpm. scar changes in the posterolateral wall of the LV with coronary insufficiency in the posterior wall. Incomplete blockade of RBBB. R-R - 0.8 sec; P-Q - 0.16 sec; QRS-0.10 sec; R1>R2>R3. QT-0.40 sec; S – deep II,III, IIIa, AVF. T - (-) in dist. III, IIIa, AVF.

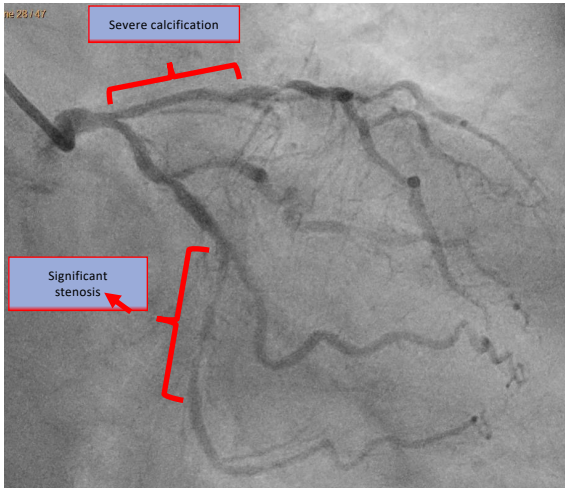
Transthoracic echocardiography:

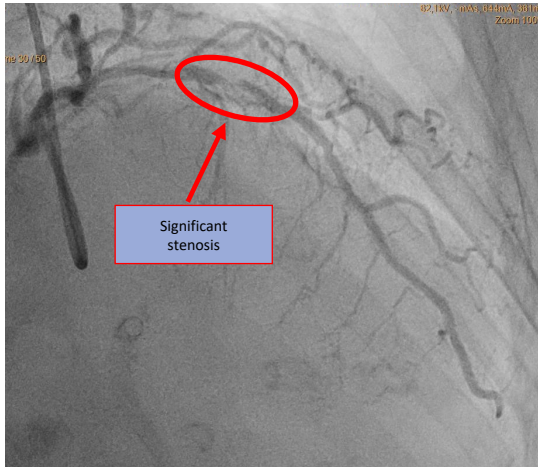
Left ventricle with normal size, normal function. Minor left ventricular hypertrophy (12/11 mm). Right ventricle normal size, normal function. The aortic valve is fibrotic, milde stenosis (maximum flow velocity 2.55 m/s, mean pressure gradient 13 mmHg, velocity coefficient 2.4), mild insufficiency, no pericardial effusion. Hypertrophy of the LV walls.

Coronary angio: radial approach – 6F

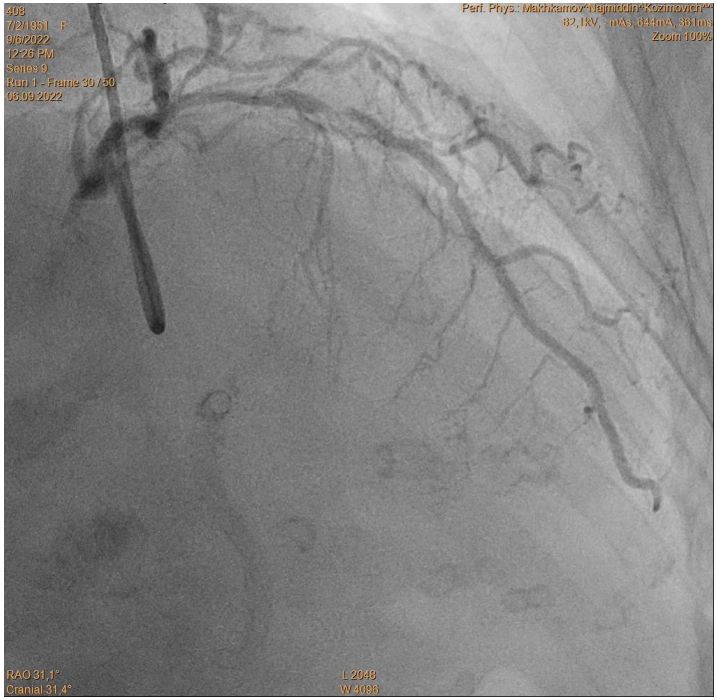


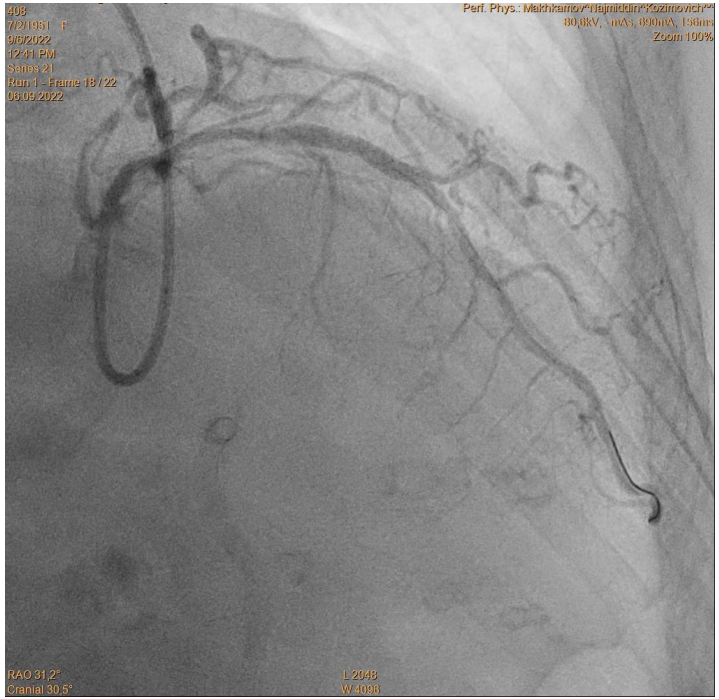




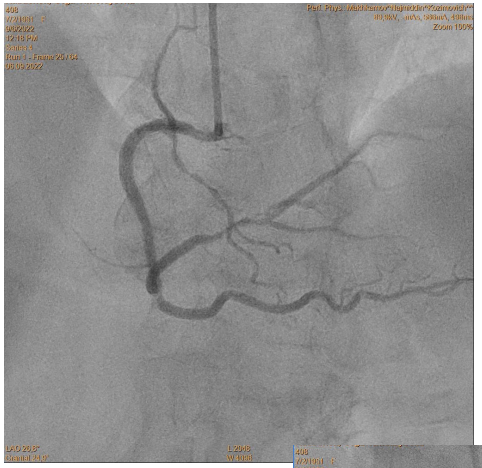


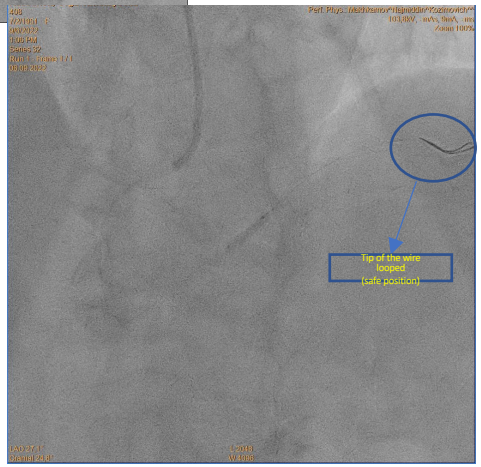
First LAD – PCI to be protected while working in RCA

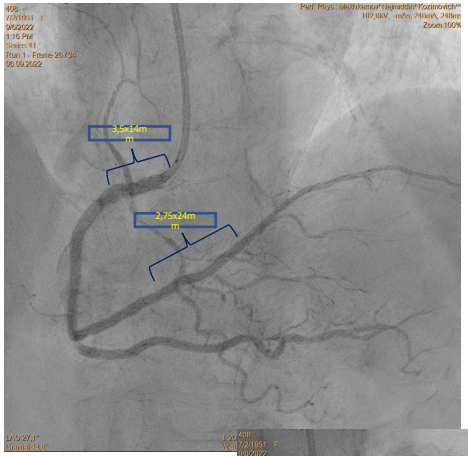


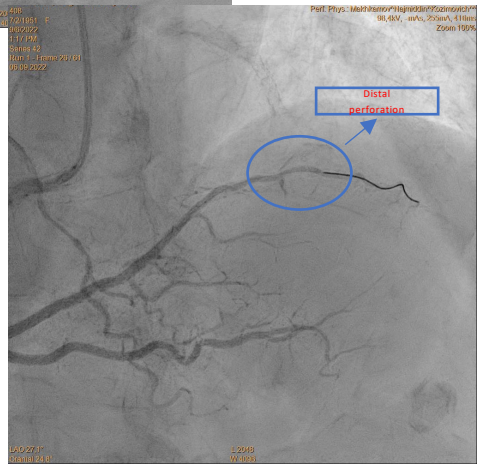


Plan: standard PCI – RCA (wiring, angioplasty and stenting).
At the moment of cannulation RCA with Guiding catheter we determined the damping of pressure.





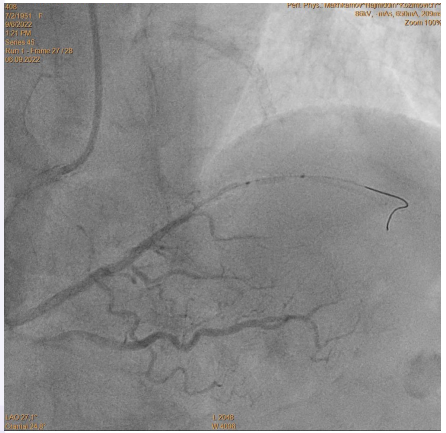


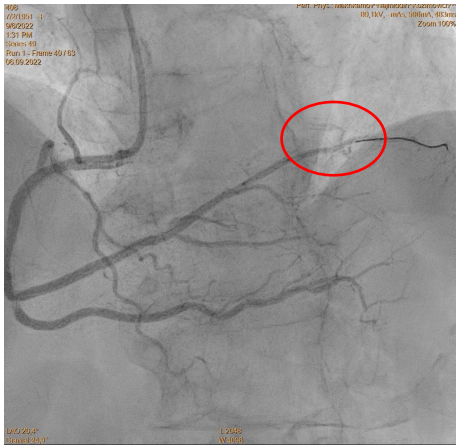


What's next?

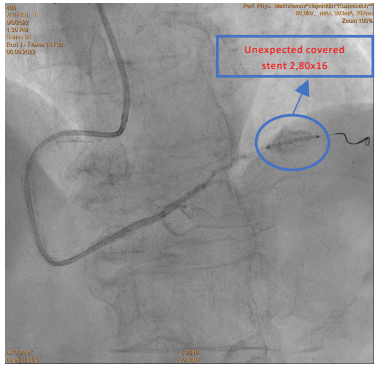
1. Balloon occlusion!!!
2. The next important thing is to calm down and gather your thoughts!!!
3. Don't hesitate to call for help!
4. Check the available covered stents and tools (microcatheter, guide extensions etc.)!

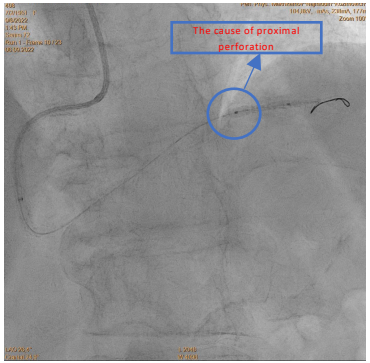
After 15 min of balloon occlusion – still bleeding
Hemodynamic unstable – chest pain, ST elevation.

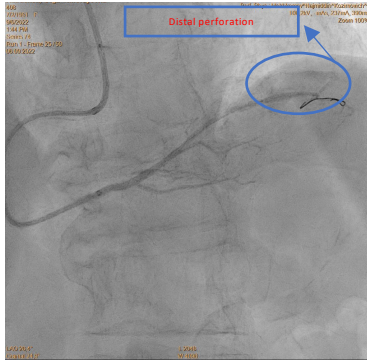




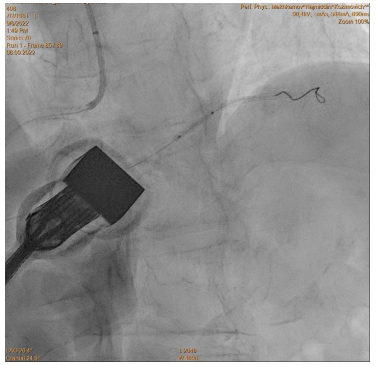
Considering the large area of blood supply , we decided to put a covered stent – 2,80x16mm (no choice for 2,5 diameter)







- The minimal diameter of available covered stent in cath lab was – 2,80.
- We decided to implant it with less that nominal pressure – 5atm.
- Unfortunately we couldn't take out the balloon, because of stent unexpansion and dilated it up to 8atm., after we get another proximal perforation.
  - Which was treated with balloon occlusion – 10 min.
  - In control angio we can see the NEXT distal perforation!

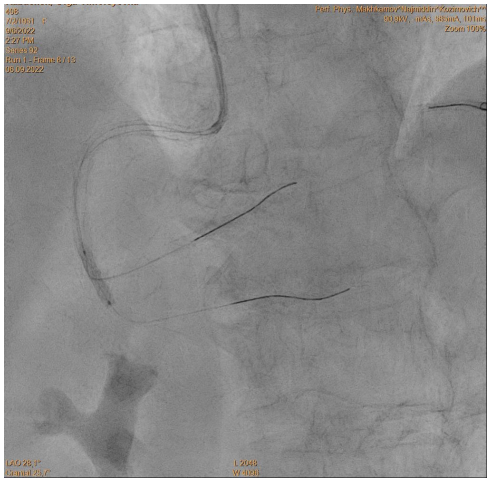


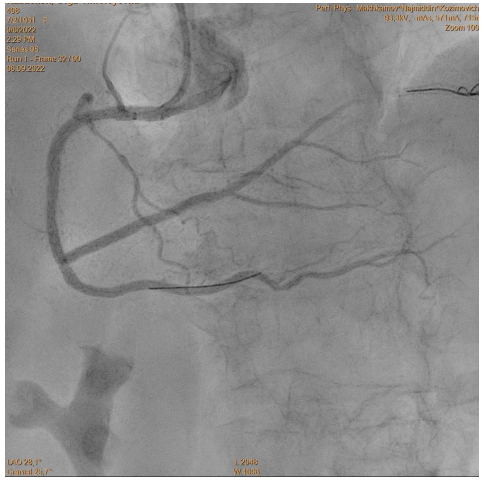
Now what's next?

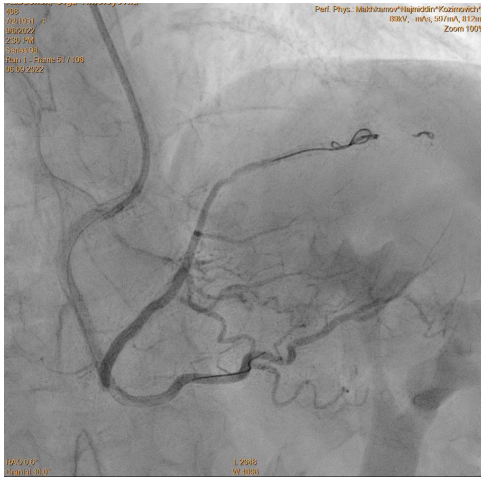
Next step is distal embolization

- We putted more distally our extension guiding catheter to reduce the flow.
- We guided the dual-lumen microcatheter as distally as possible (due to the lack of conventional microcatheters – corsair, fine cross etc.).
- We used 2 neurovascular coils – «Axium PRIME 1.5mm/2cm» (just 2 coils was available).
- One coil was detached more distal to avoid any retrograde flow and continue of bleeding and the second before perforation.
- It was not enough for embolization and bleeding continued.
- Due to my lack of experience with distal embolization using fat, I thought that the soft part of the tip of guide wire would be the best option. But as this is the first time situation in my life I cut it - 3cm, then I realized it was useless, so the second time I cut off only 1.5cm and bent it a few times, at list it worked.

3rd DES implantation and Final Angio







Take home message:

1) Never underestimate “simple” lesions

2) Always control the distal tip of your GW even its looped (safe)

3) Calm down and gather your thoughts when you get any copmlication

4) Don’t hesitate to call for help!

5) In case of fail you always can put a crossover covered stent to close branch artery (last chance – live saving)

6) Be always flexible to change the strategy for optimizing patients long term outcome