

Rotational Atherectomy in a STEMI Patient with Stage 5 CKD A Rock-hard Decision

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Disclosure

- The presenters have no potential conflicts of interest to declare.

Clinical information

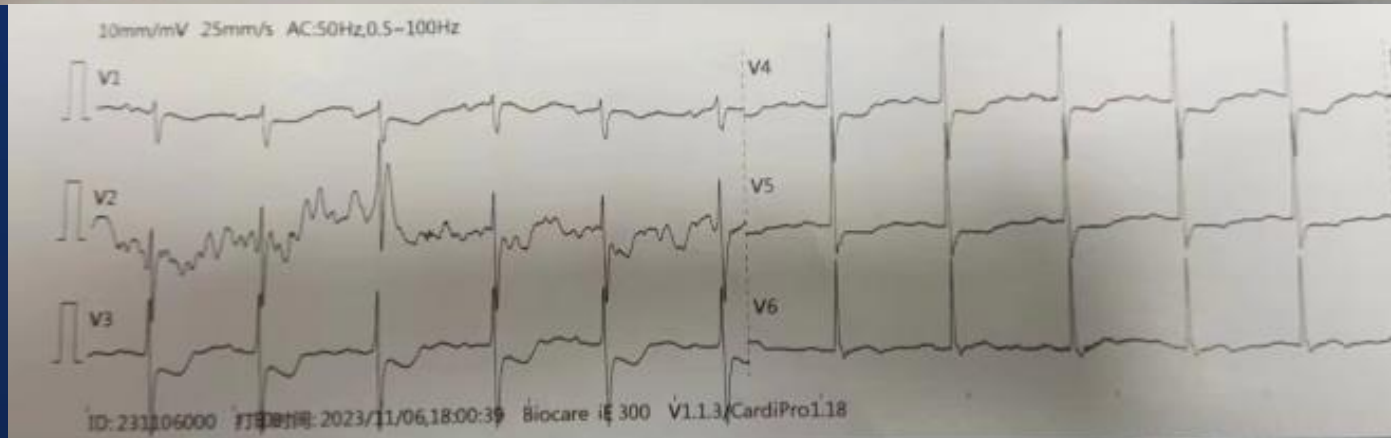
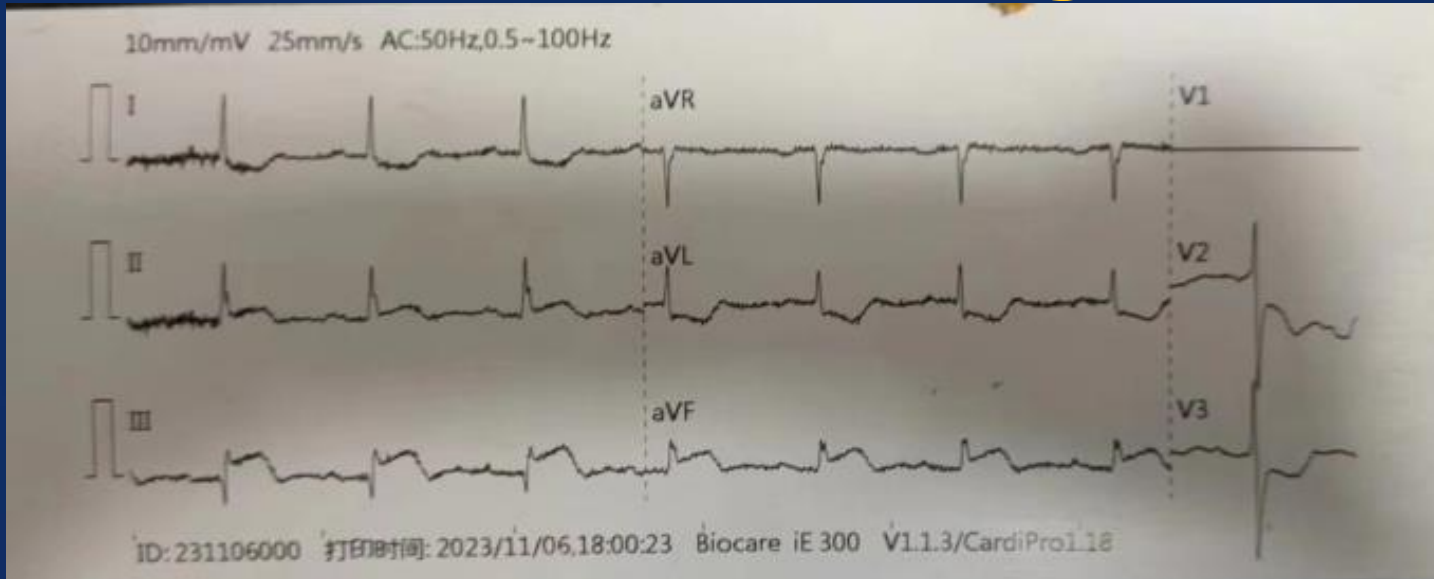
- 69 years old, female patient
- Admitted to the nephrology department for “obstructed arteriovenous fistula”
- Stage 5 CKD
- Routine dialysis 3 times per week (Mon, Wed, Fri) for 10 years
- Other comorbidities:
 - Diagnosed with hypertension for 20 years (highest SBP >180mmHg)
 - Amlodipine 5mg qd PO
 - Diagnosed with T2DM about 30 years ago
 - Linagliptin 5mg qd PO
 - BP and glucose level poorly controlled

Clinical information

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- Admitted to the nephrology department for “obstructed arteriovenous fistula”
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- Retrosternal chest pain after dialysis on Dec 25th, 2023
- Couldn't be relieved by taking nitroglycerin

Electrocardiogram



Clinical information

- Laboratory tests:
- HsTnI 0.074ng/ml, Myoglobin 233.3 ng/ml, D-dimer 1310 ng/ml

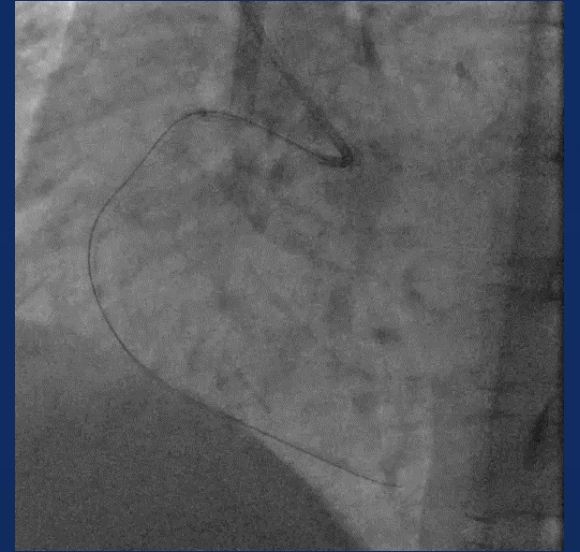
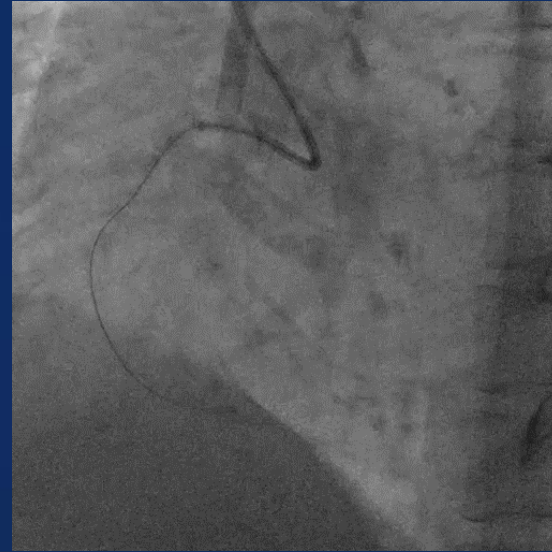
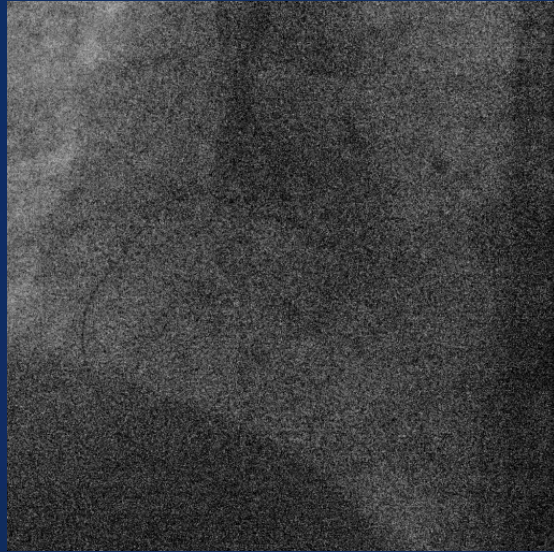
- Initial diagnosis: inferior STEMI
- Loading dose of DAPT given
- Transferred to the catheterization lab for coronary angiography

Emergency coronary angiography



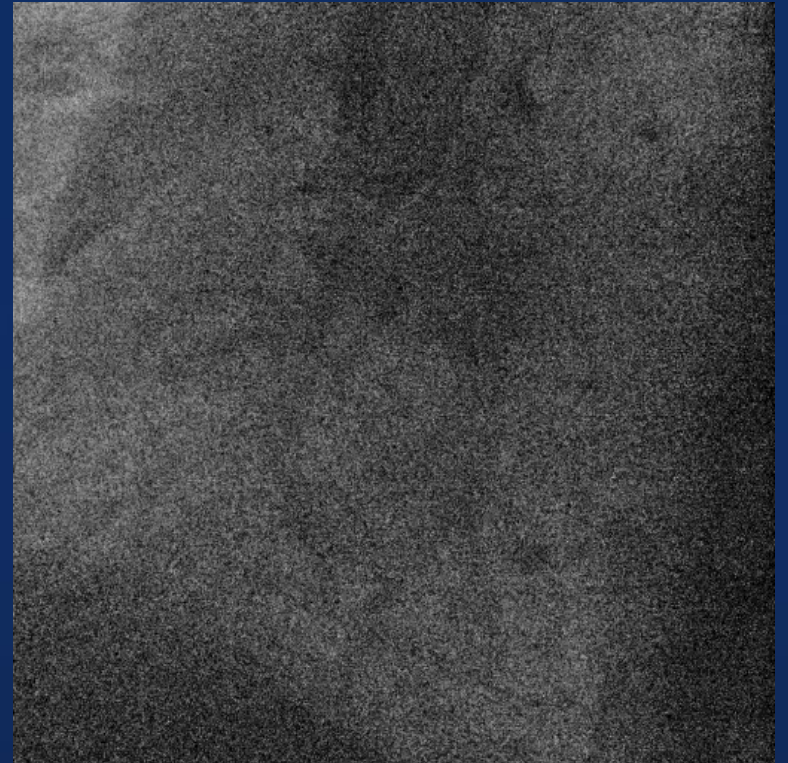
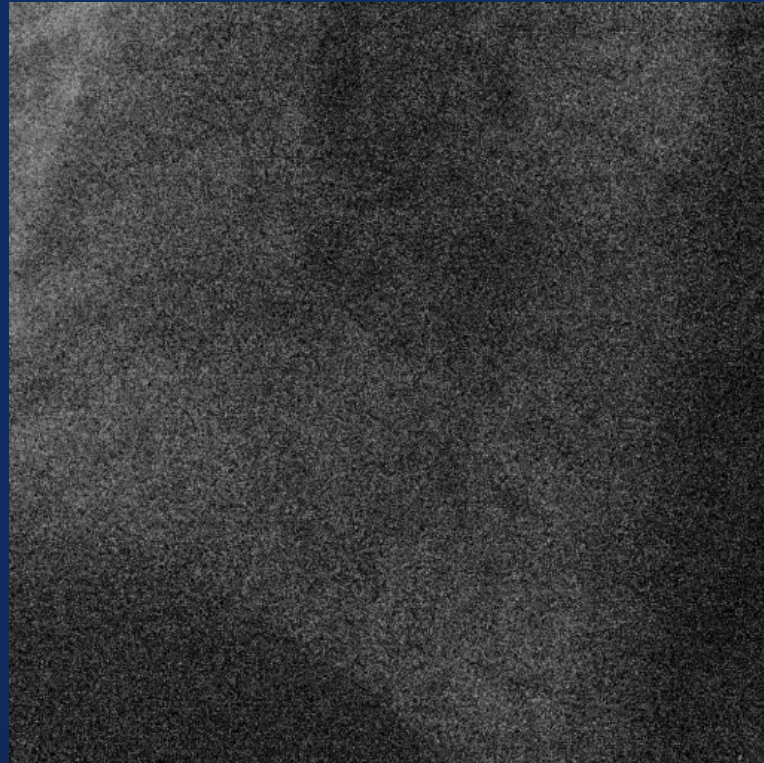
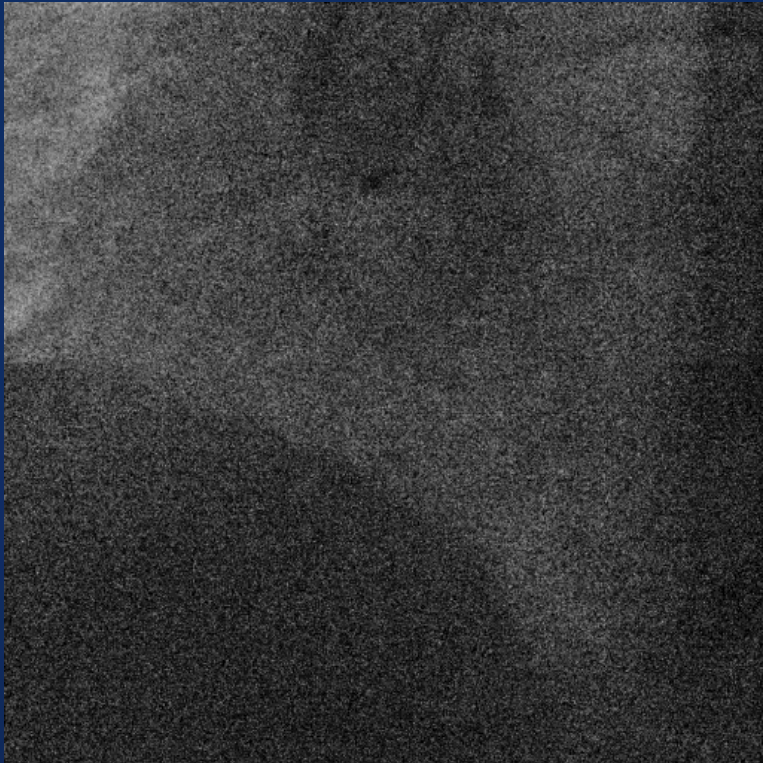
LAD: prox-to-mid diffuse stenosis 80-90%, LCX: distal diffuse stenosis 90%, RCA: proximal near-occlusion
ALL 3 vessels were severely calcified (rock-hard).

Procedural steps



Lesion crossed with Field XT wire, but balloon couldn't cross.
Later crossed with Guidezilla support, but three balloons (1.0*10mm, 1.5*10mm, 1.5*15mm) ruptured. The fourth one (1.2*12mm) couldn't inflate properly.
(We didn't record all sequences and images)

Procedural steps



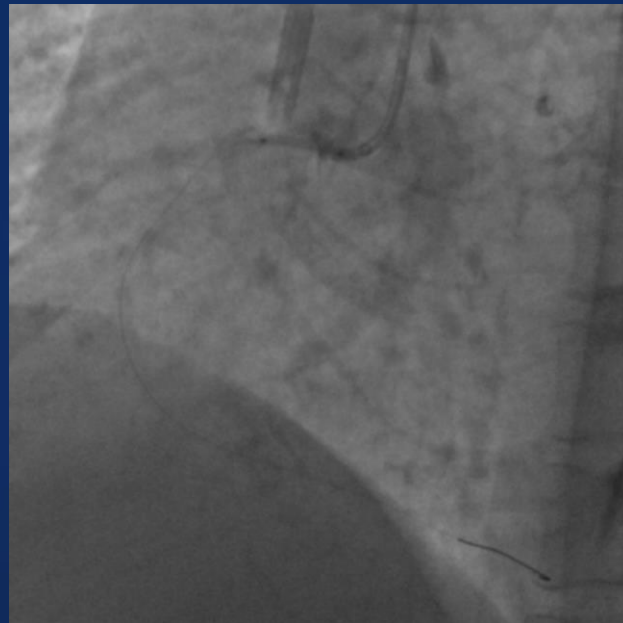
Rota wire was exchanged with microcatheter support.
Rotational atherectomy performed with a 1.25mm burr at 180000rpm.

Procedural steps



Angiography after rotational atherectomy

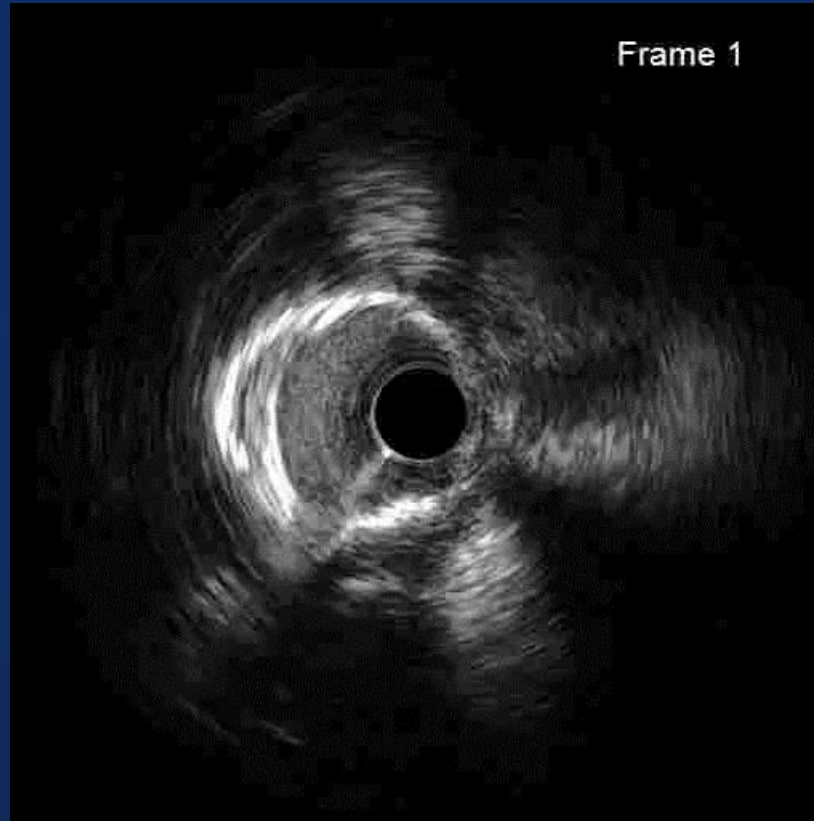
Procedural steps



Wire exchange

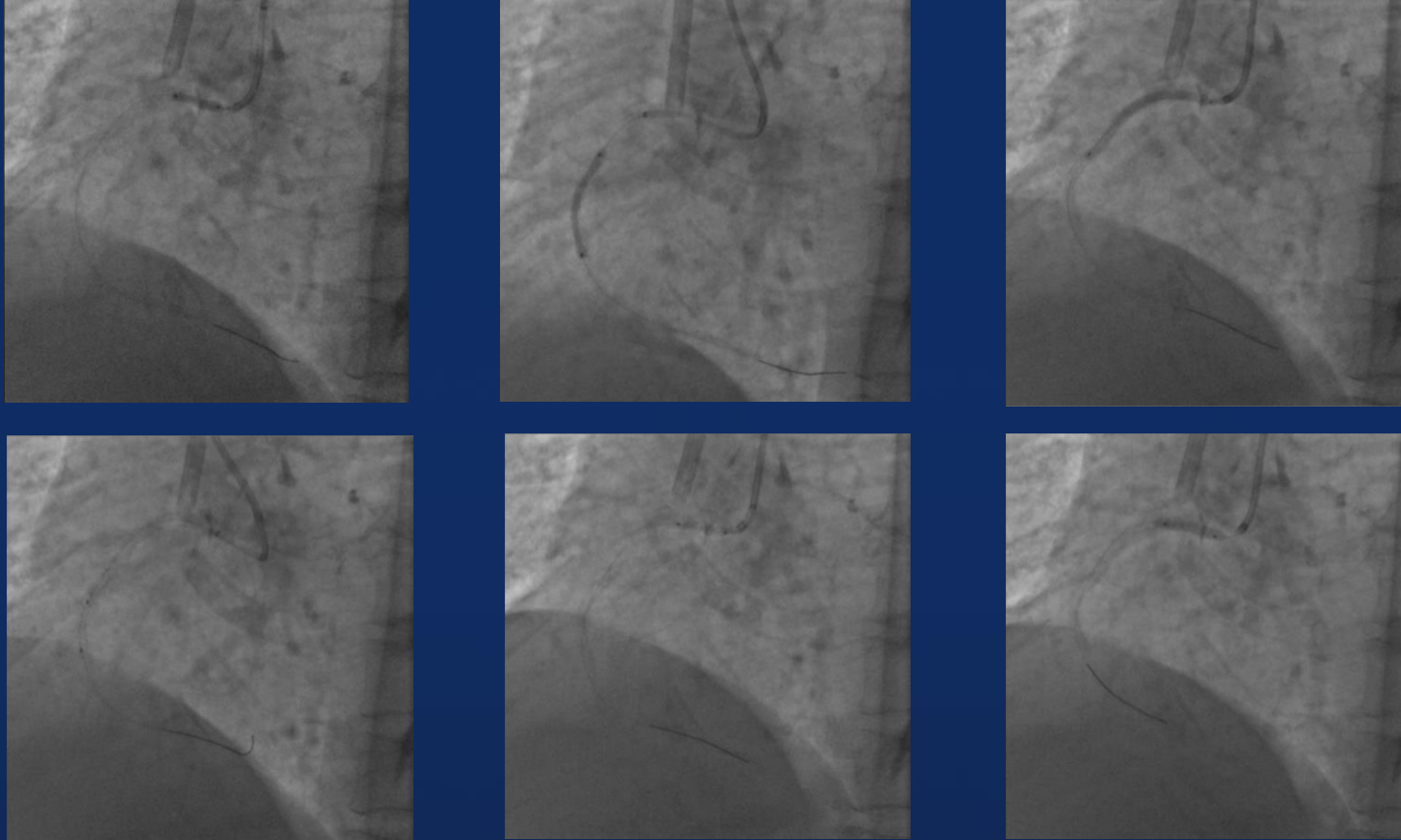
Dilatation: balloon maverick 2.0*15mm & cutting 2.5*10mm

Procedural steps



IVUS: 360-degree heavy calcification of the whole RCA

Procedural steps



Pre-dilatation (cutting balloon 2.75*10mm)

Stent implantation (2.75*28mm, 3.0*38mm)

Post-dilatation (NC balloons 3.25*15mm & 3.0*15mm)

Procedural steps



Final result

- Chest pain relieved after PCI.
- Transferred to CCU ward for bedside dialysis, further treatment and observation.
- Discharged 5 days later.
- Selective procedures with LAD/LCX scheduled after problems with AV fistula solved

Conclusion

- CKD patients are generally at higher risk of vascular calcification
- Tough dilemma:
 - The culprit vessel needs to be re-opened ASAP
 - Intervention of such severely calcified vessel are challenging, even for selective procedures
- Rotational atherectomy in STEMI patients
 - Not the first choice, but could be a bailout in certain patients
- Importance of intracoronary imaging evaluation

Discussion

- What would you do if encountered such patients in emergency situation?