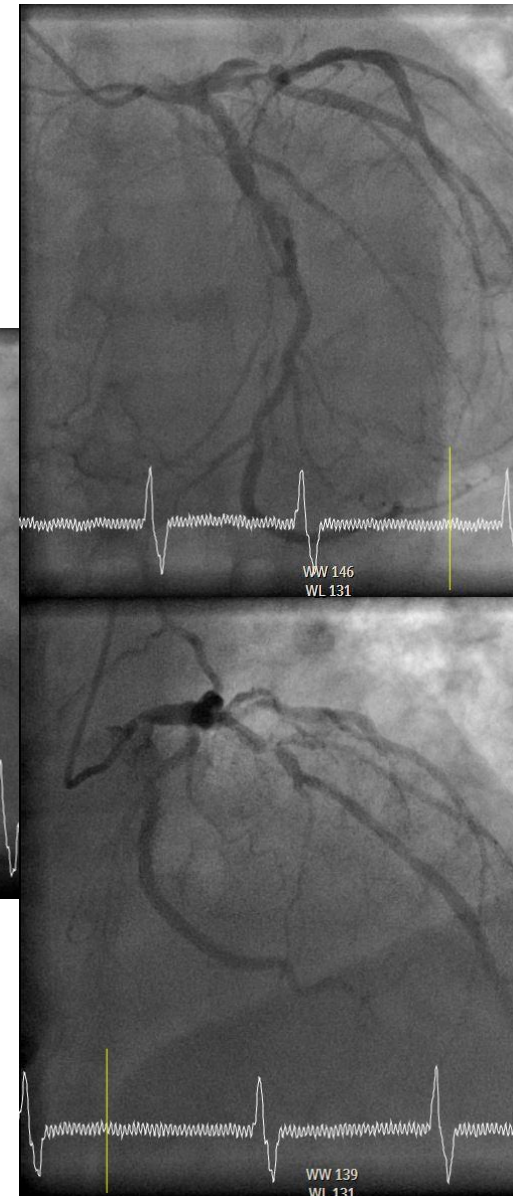


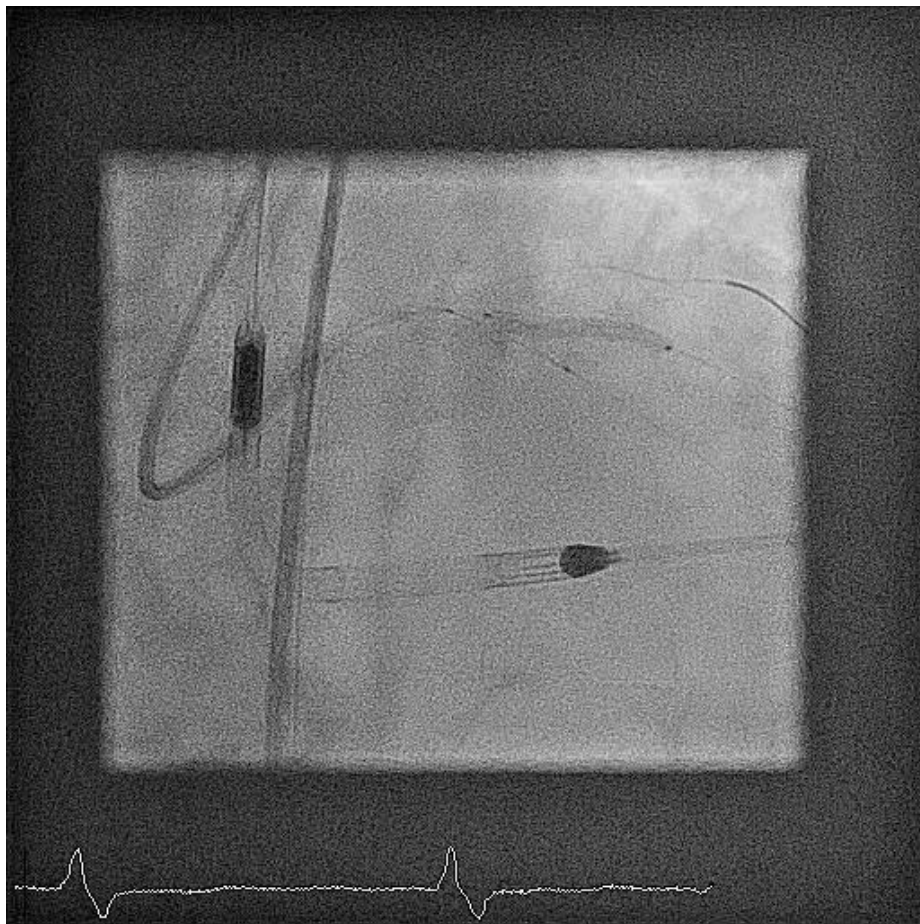


# Management of a large coronary perforation during a high-risk Impella-protected PCI

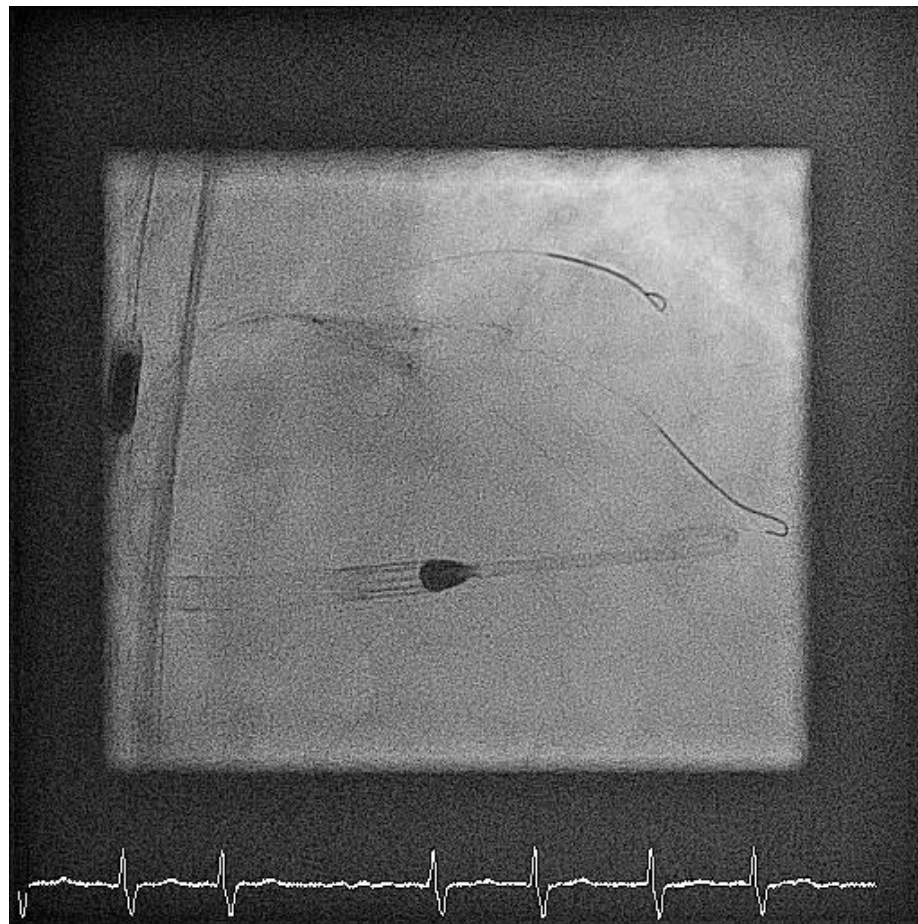
- ✓ Cardiac history: Permanent AF
- ✓ Hospital admission: Anterior NSTEMI
- ✓ Echocardiography: Left ventricular global hypokinesia, antero-apical akinesia with preserved myocardial thickness (stunning), EF 20%
- ✓ Coronary angiography: 3-vessel disease, proximal LAD subocclusion (culprit), significant lesions >70% of the ramus, circumflex, right coronary arteries
- ✓ Heart team discussion: PCI with mechanical support (Impella CP)



Diagonal stenting & crush



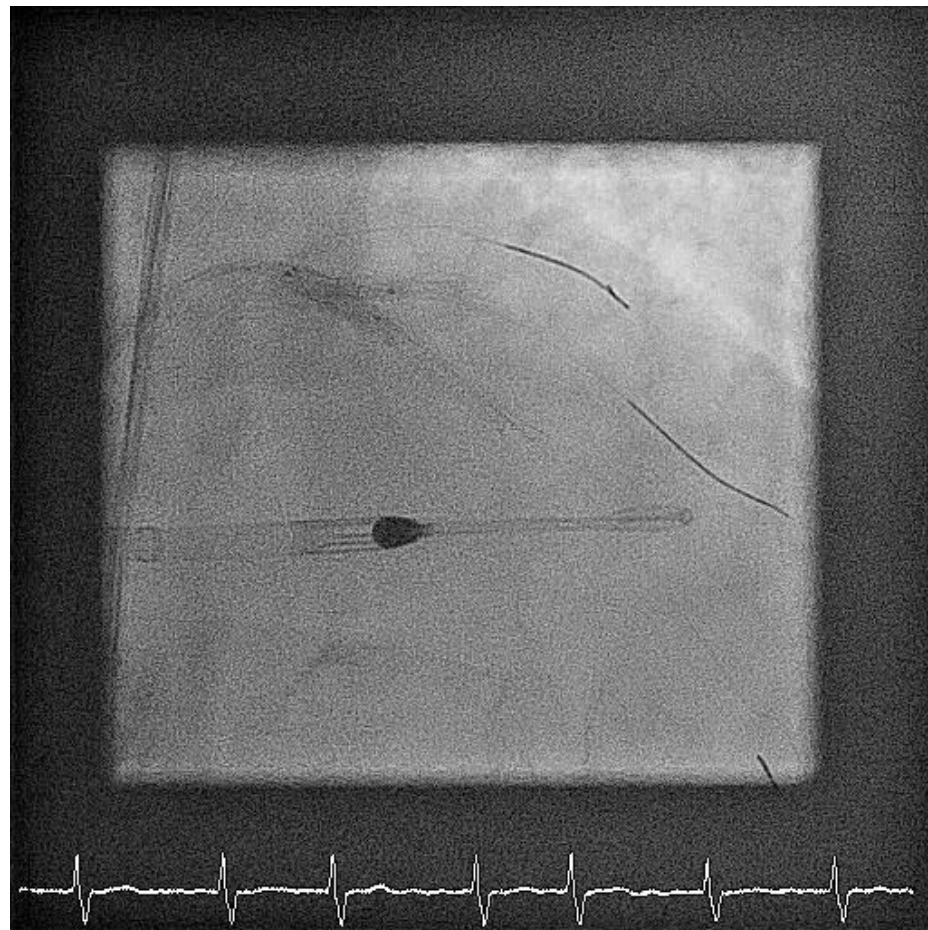
1° Kissing Balloon



✓ DES 2.5 x 24 mm

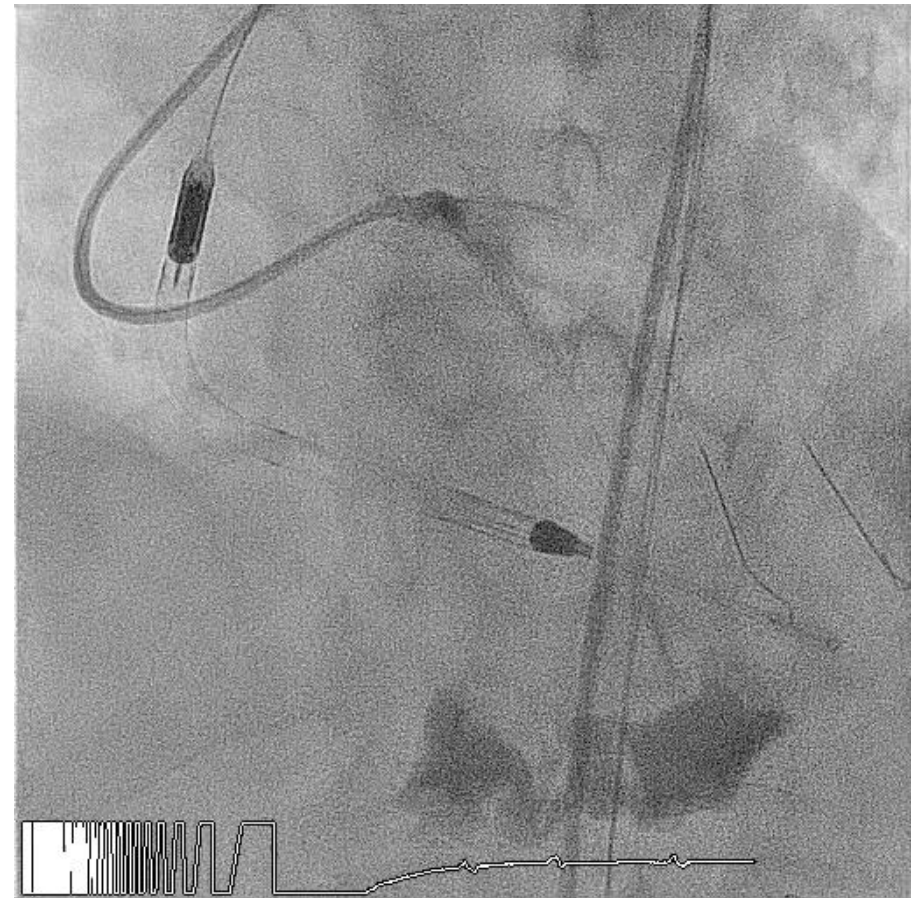
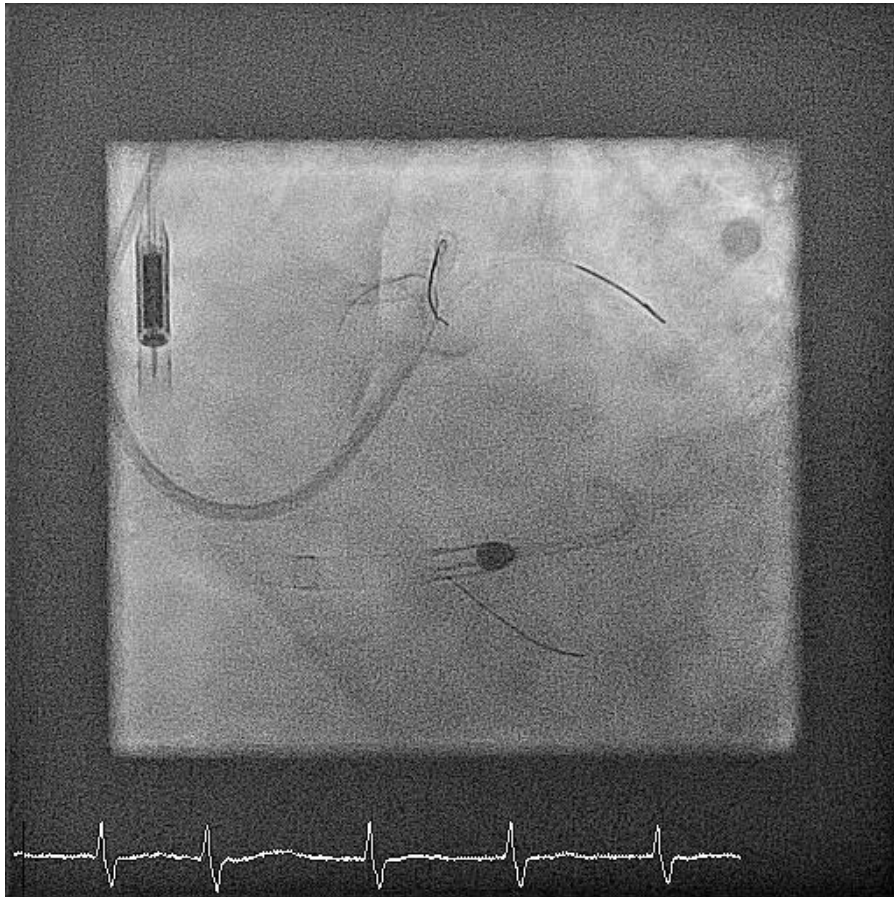
Result after main branch stenting

2° Kissing Balloon



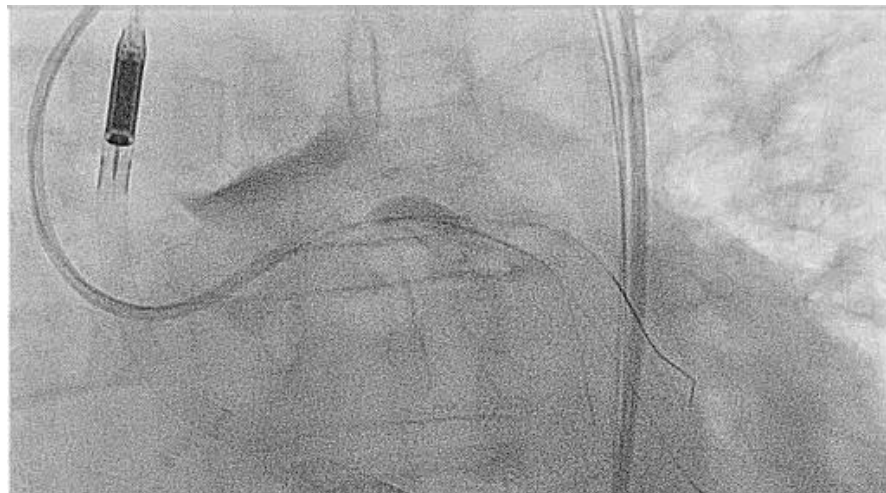
✓ DES 3.5 x 48 mm

- ➔ Rapid hemodynamic deterioration with low pulsatility on pressure waveforms → antegrade flow supported by ImpellaCP (Auto mode: 2.5L/min).

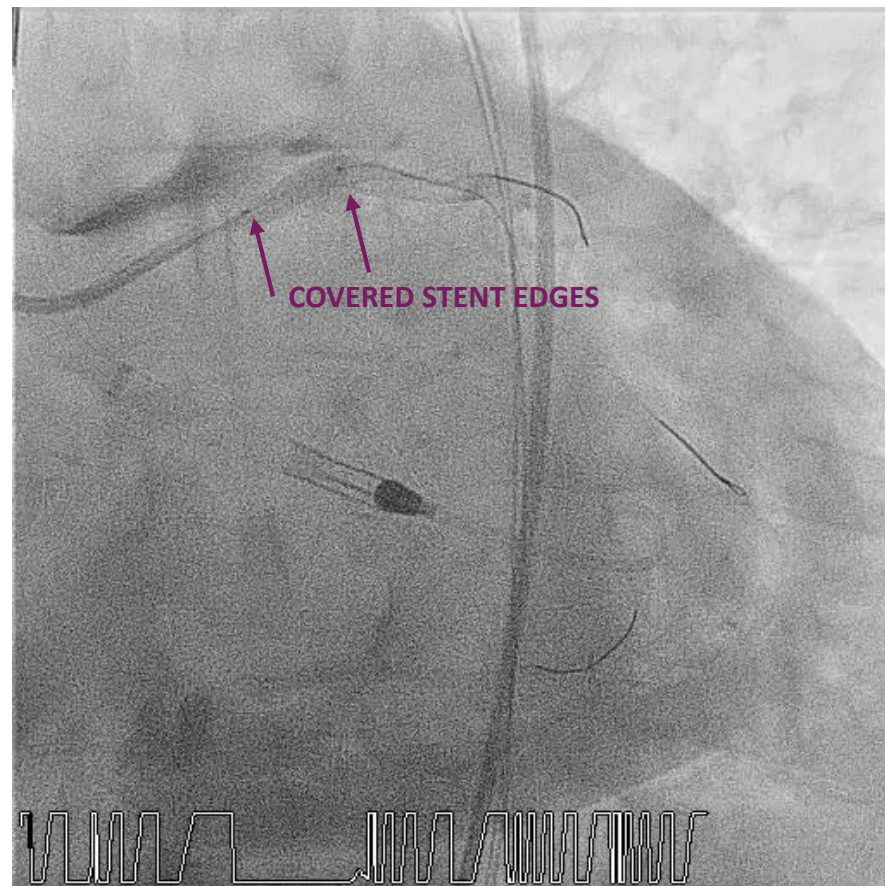


Proximal left anterior descending perforation

Balloon prolonged inflation →  
Pericardiocentesis



Covered stent implantation

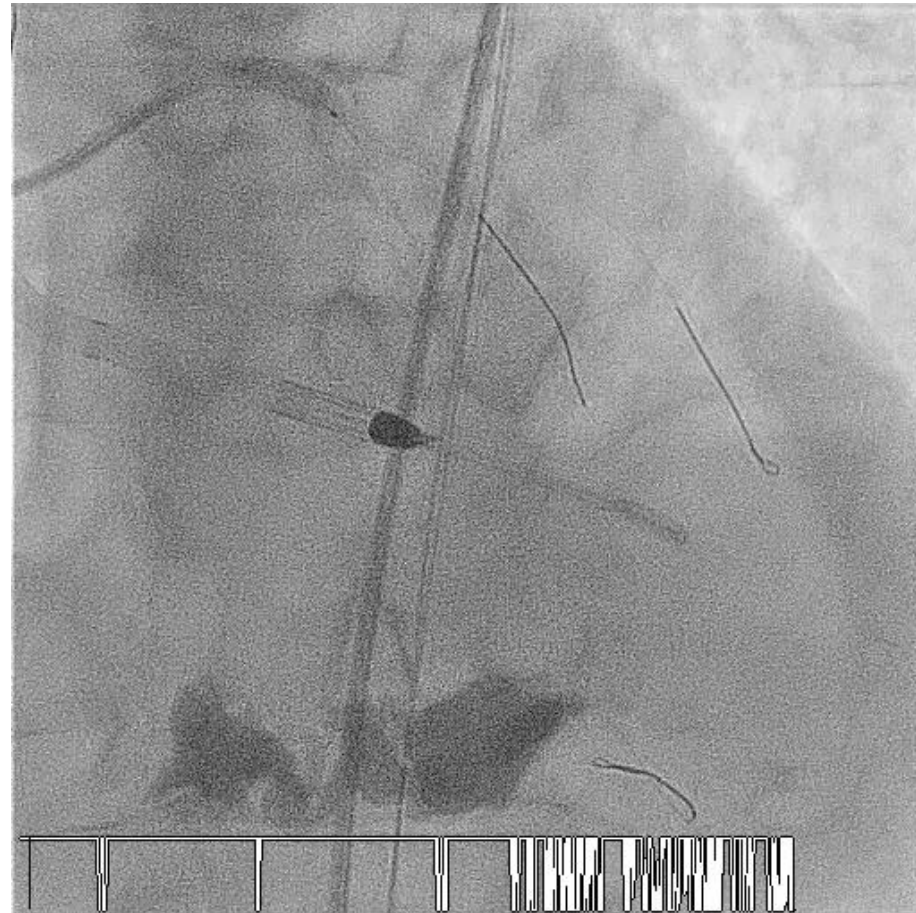


✓ Covered stent 4.0 x 15 mm @ 12 atm

Result after 1° covered stent

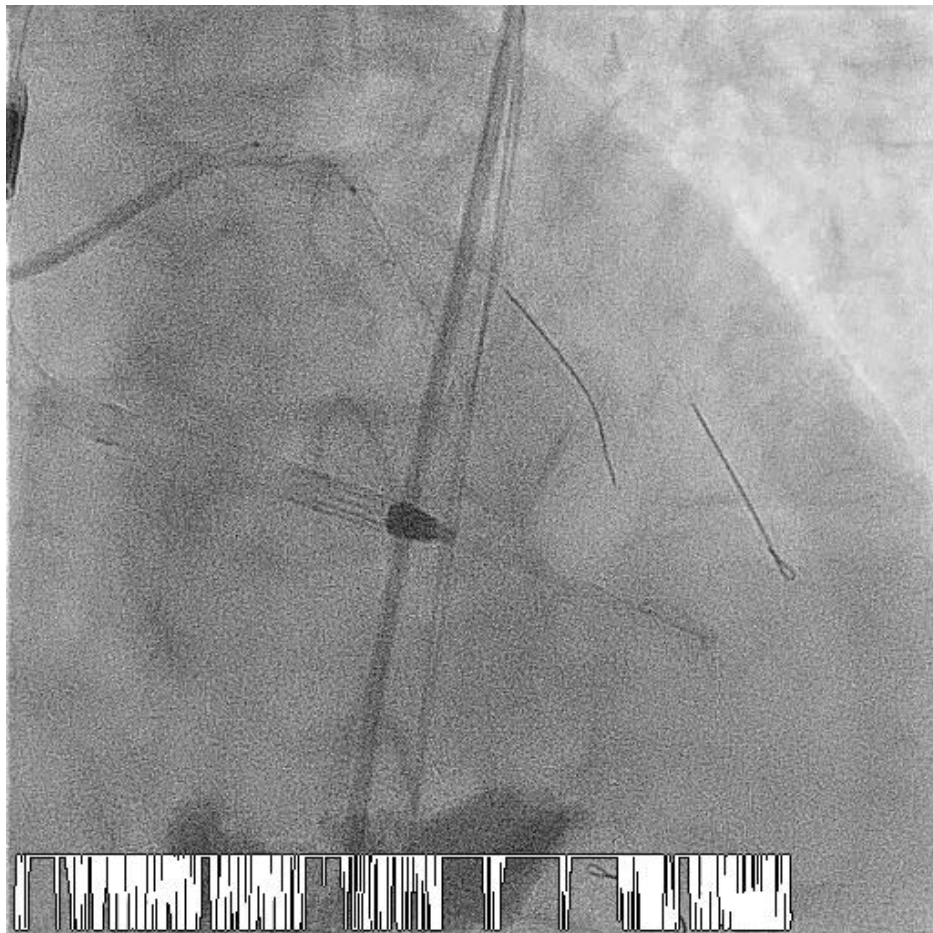


Second covered stent positioning

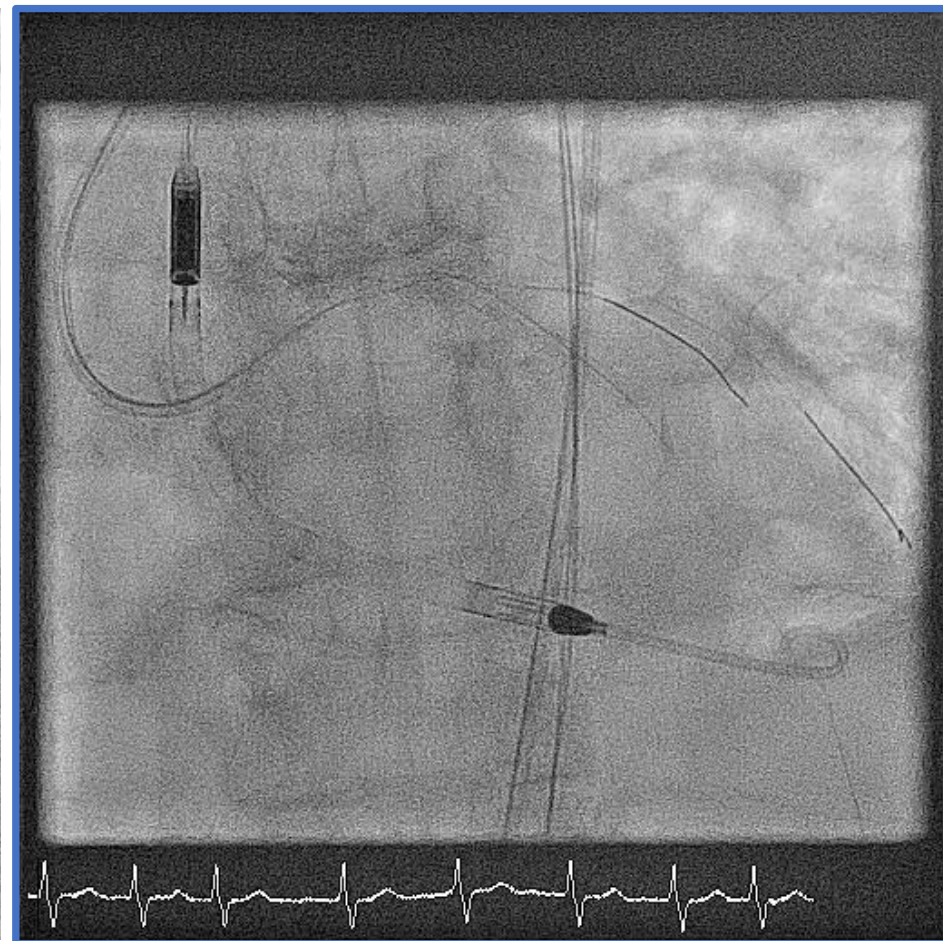


✓ Covered stent 3.5 x 15 mm @ 20 atm

Covered stent post-expansion → hemostasis

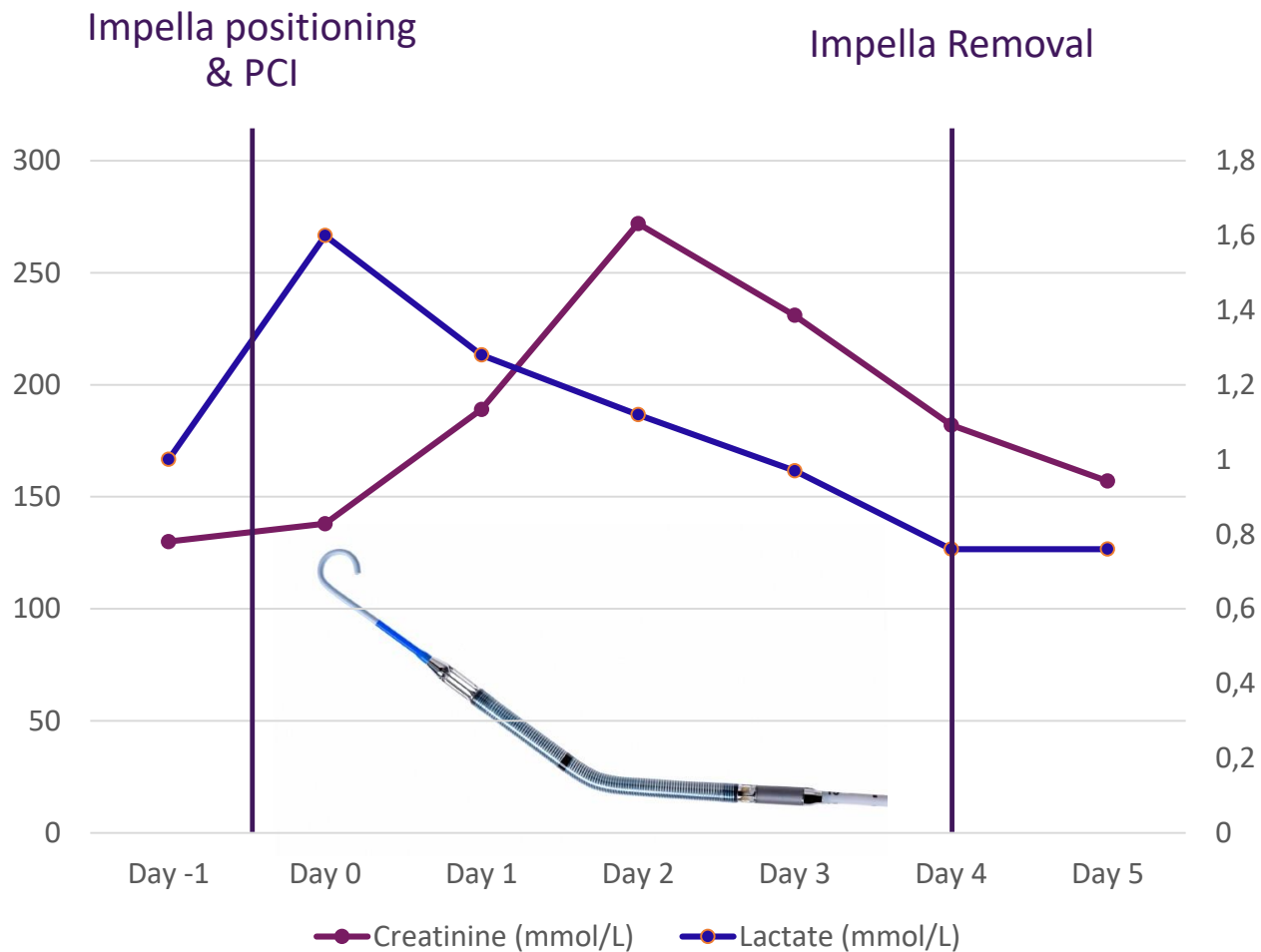


Result after second covered stent





# Impella-CP support and systemic perfusion



- ✓ **Balloon sizing for kissing balloon** should take in consideration vessel calcifications, requiring appropriate post-dilation to gain lumen and treat DES underexpansion → vessel rupture is a rare but relevant complication, requiring a timely management;
- ✓ Large perforations lead to rapid hemodynamic deterioration: **balloon occlusion** has to be achieved in a few seconds;
- ✓ In this case, **ImpellaCP provided a sufficient cardiac output for a short time**, allowing a rescue pericardiocentesis, hemostatic balloon deflation and covered stent implantation, without the need for a ping-pong technique. Mechanical support is however time-dependent, as long as the right ventricle can grant left ventricular filling;
- ✓ **Covered stents implantation is a life saving procedure**, but their capability to immediately resolve vessel rupture depends on the size of the rupture itself and on the possibility that the stent is expanded to a close contact with vessel walls (this possibility is not easily predictable in case of large ruptures);
- ✓ It is tempting to speculate that a delayed weaning (i.e. 3 days after PCI) may have helped organ perfusion patient recovery.