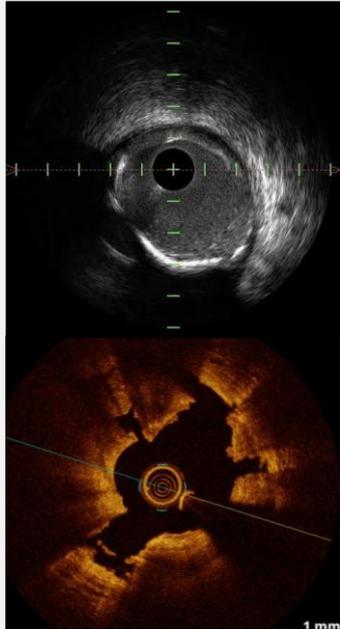


Kalcium a intrakoronární imaging

IVI u komplexních PCI

Jan Kaňovský

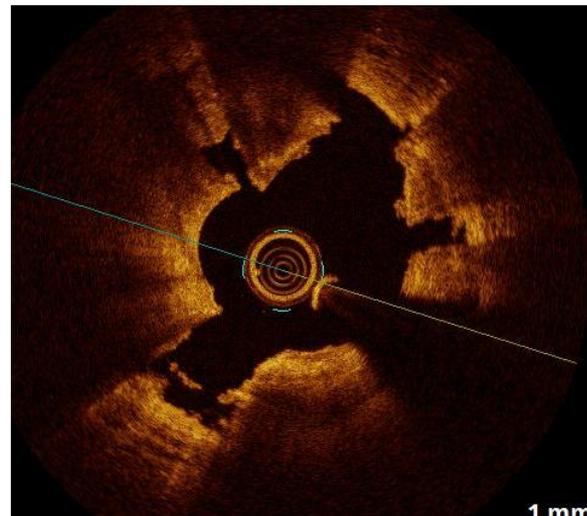
WS ČAIK 3.4.2025





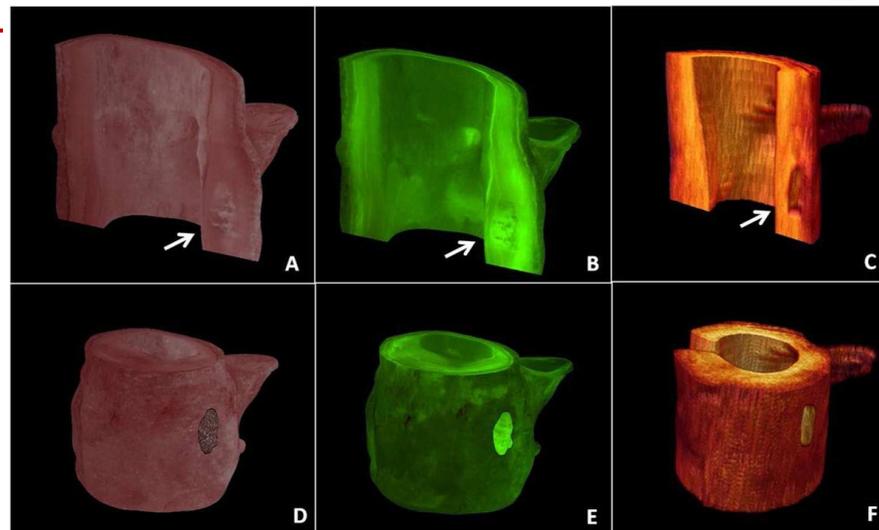
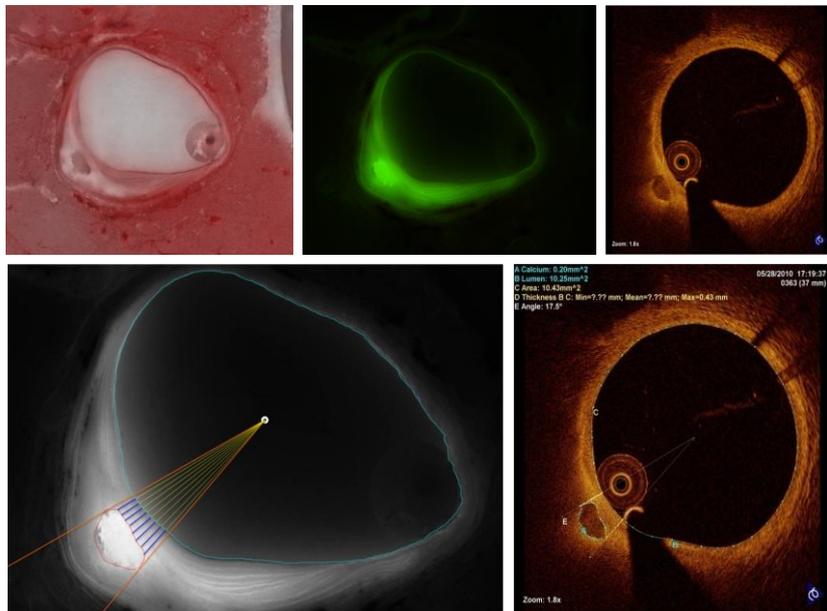
Klíčový koncept – kalcium je protivník

- Kalcifikace jsou klíčovým prediktorem suboptimálního výsledku/neúspěchu PCI*
- Nepodceňujme svého protivníka
- Intravaskulární imaging může být náš spojenec



post IVL cracks

*Fujino et al., EuroIntervention 2018

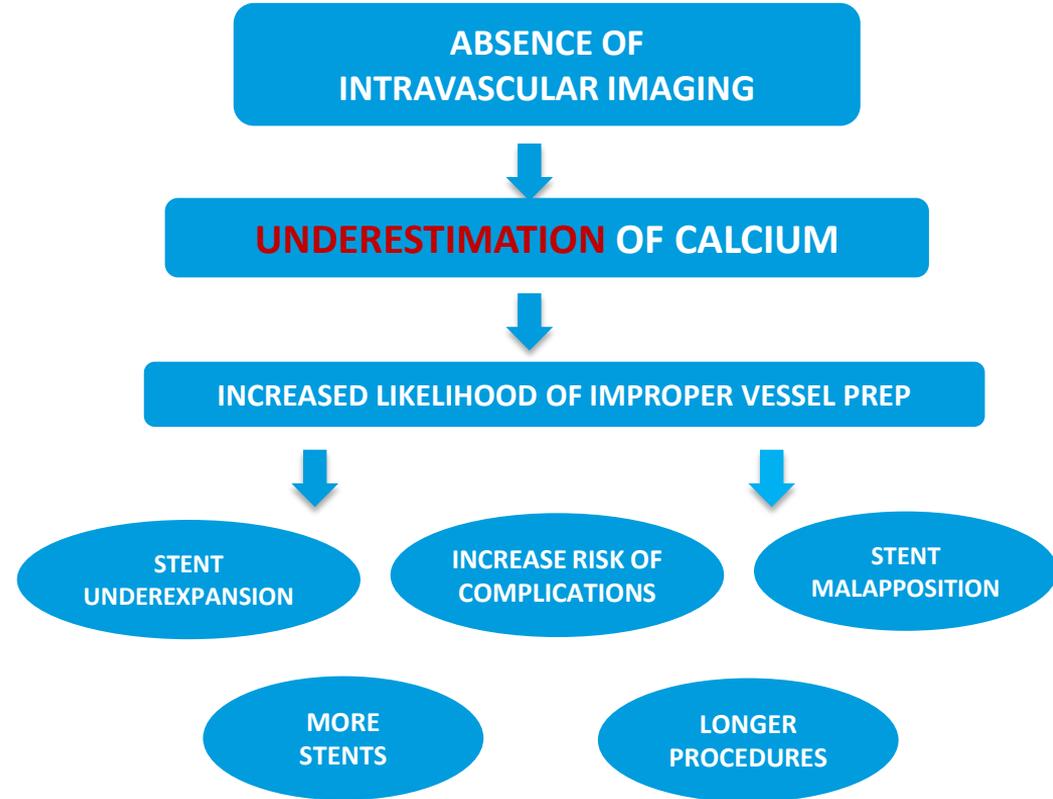
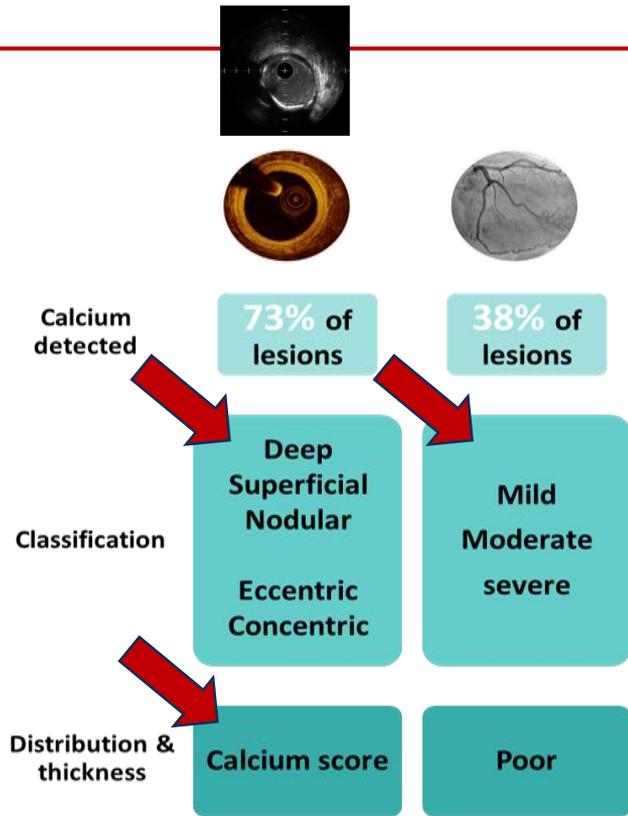


Klíčové parametry v distribuci kalcia:
angle, thickness and depth



	Coronary Angiography	CT	IVUS	RF-IVUS (IVUS-VH)	OCT
IMAGING MODALITIES					
Detection of coronary artery calcium	+	+++	+++	+++	++++
Localization of coronary artery calcium	+	+++	+++	+++	++++
Quantification of coronary artery calcium	+	+++	++	+++	++++

Intravaskulární
imaging: **detekce a**
kvantifikace kalcia



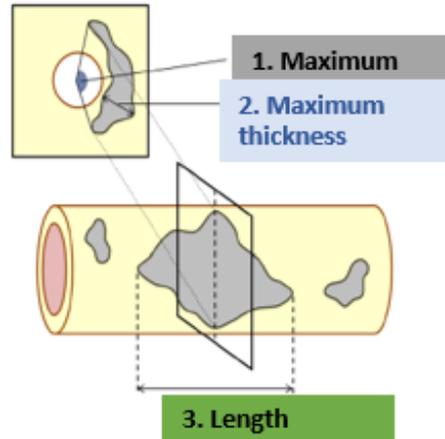
Adaptováno - Mintz et al., Circulation 1995



OCT Calcium score

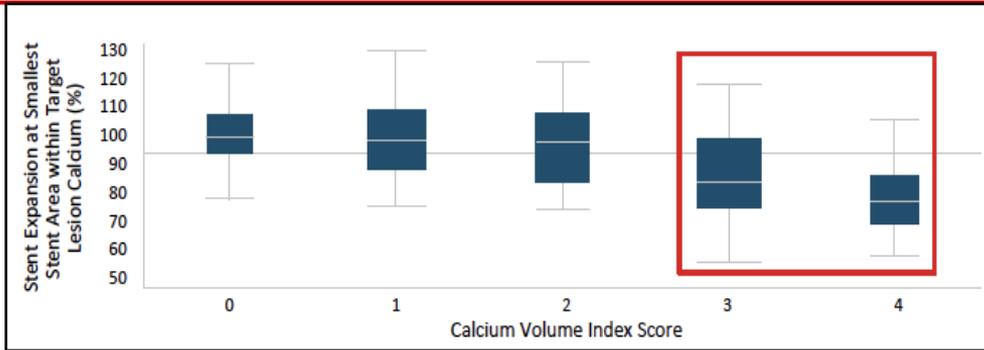
Rule of 5's

- 0.5 mm thickness
- 5.0 mm long
- 50% vessel arc

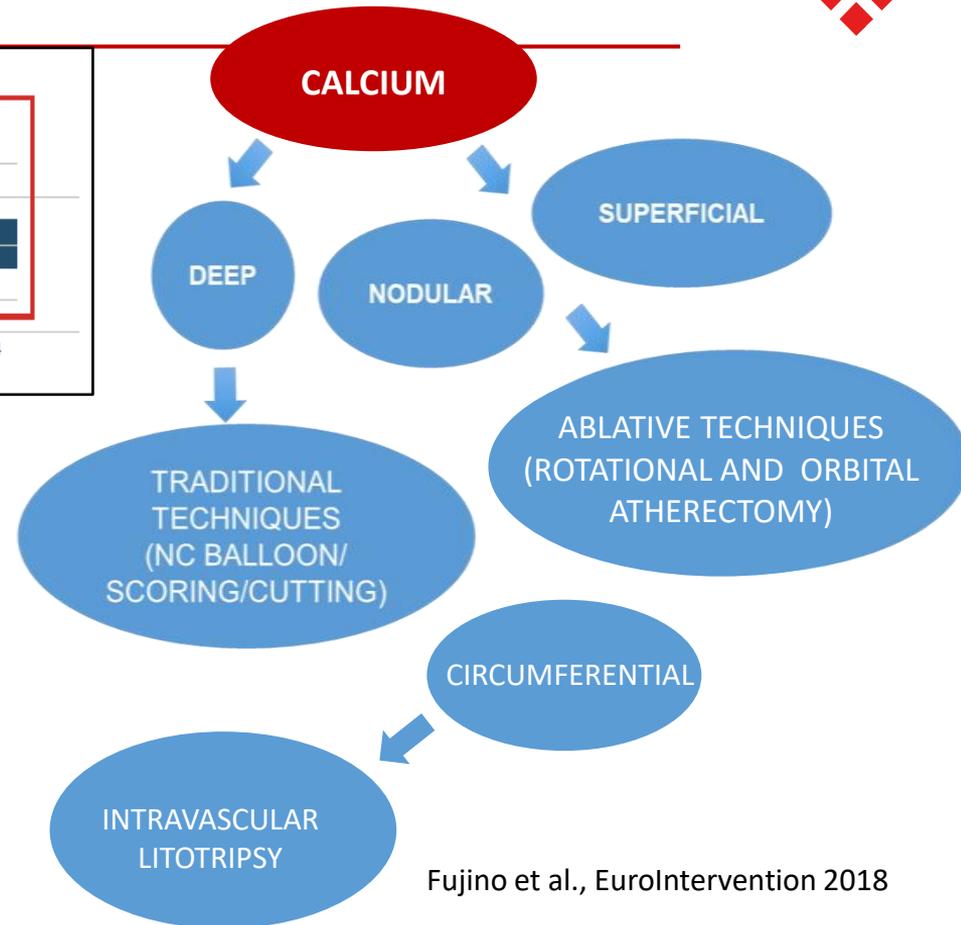


OCT-Based Calcium Volume Index Score

1. Maximum Calcium Angle (°)	$\leq 90^\circ$	▶ 0 point
	$90^\circ < \text{Angle} \leq 180^\circ$	▶ 1 point
	$> 180^\circ$	▶ 2 points
2. Maximum Calcium Thickness (mm)	≤ 0.5 mm	▶ 0 point
	> 0.5 mm	▶ 1 point
3. Calcium Length (mm)	≤ 5.0 mm	▶ 0 point
	> 5.0 mm	▶ 1 point
Total score	0 to 4 points	

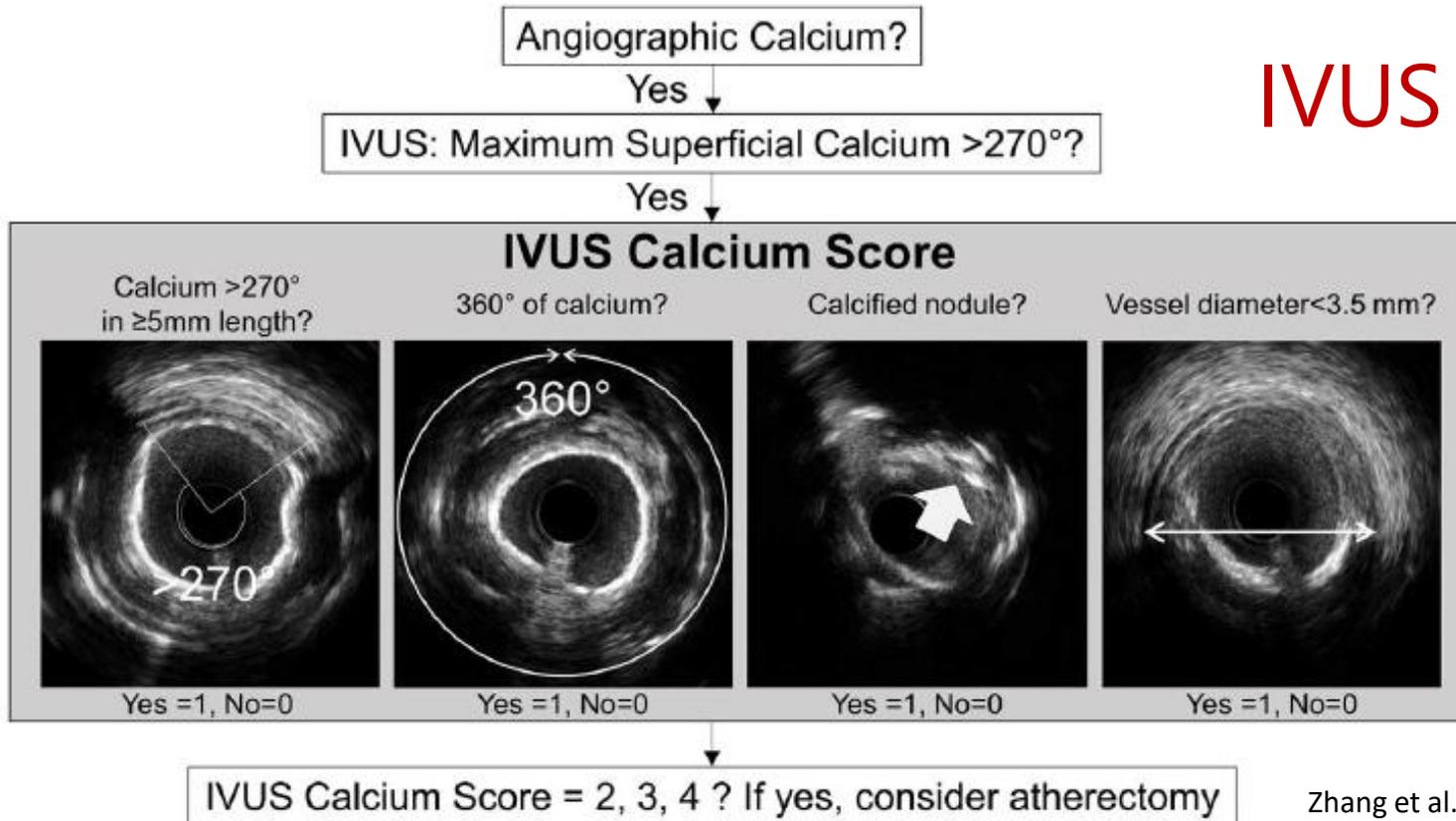


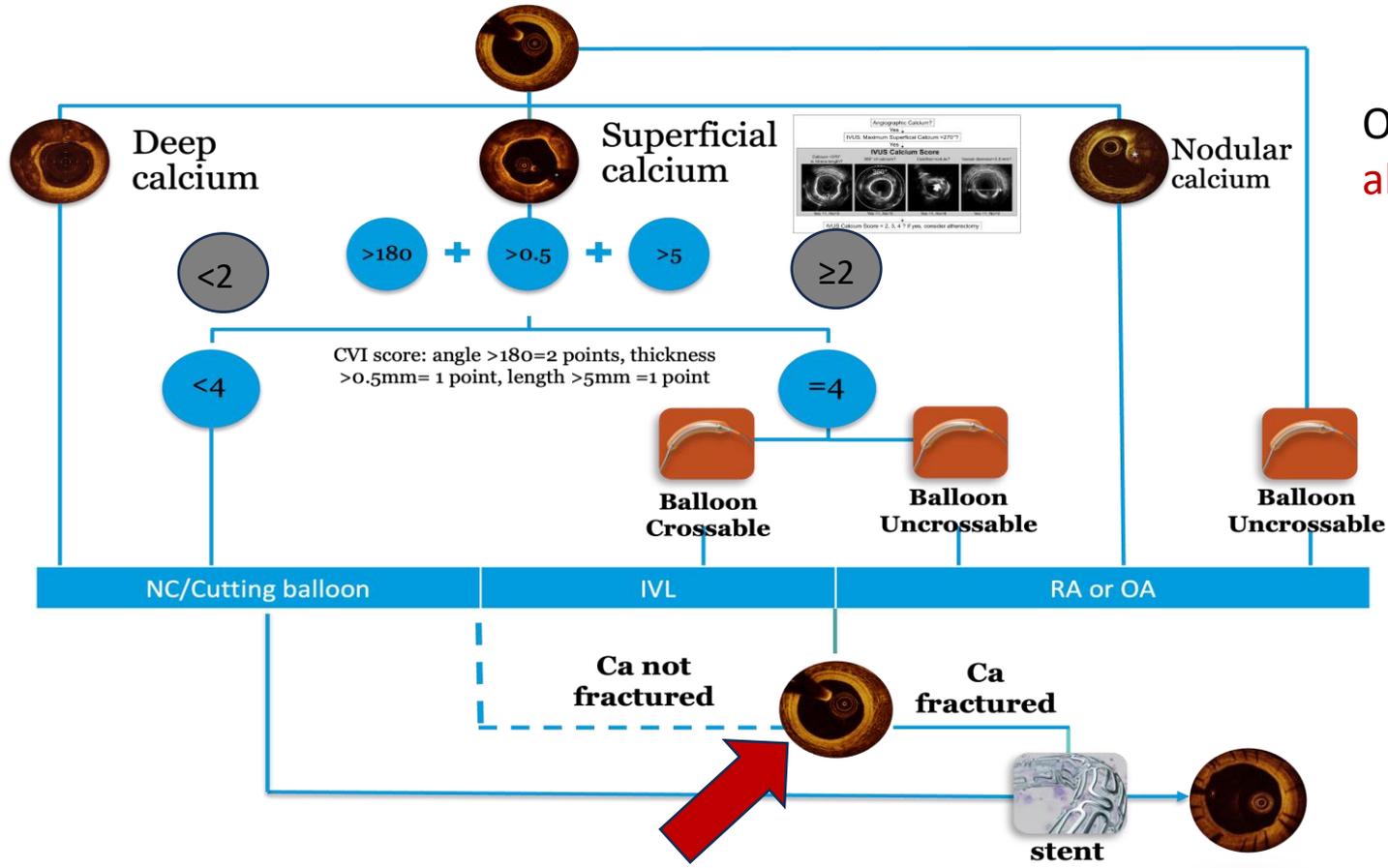
Zvyšující se riziko nedostatečné expanze stentu s rostoucím OCT Ca Volume Index score





IVUS Calcium Score

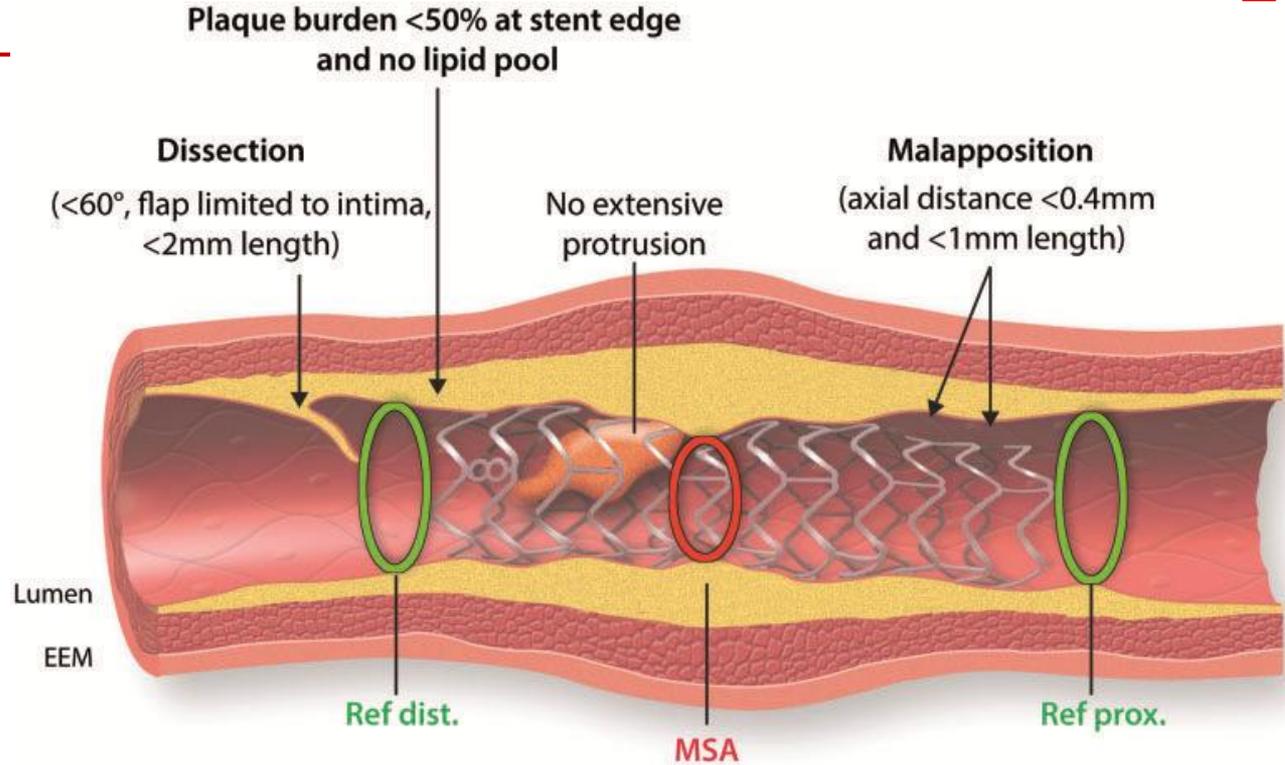




OCT a IVUS
algorithmus kalcifikaci



Cíl v zápase



MSA > 5.5 cm² (IVUS) and > 4.5 cm² OCT

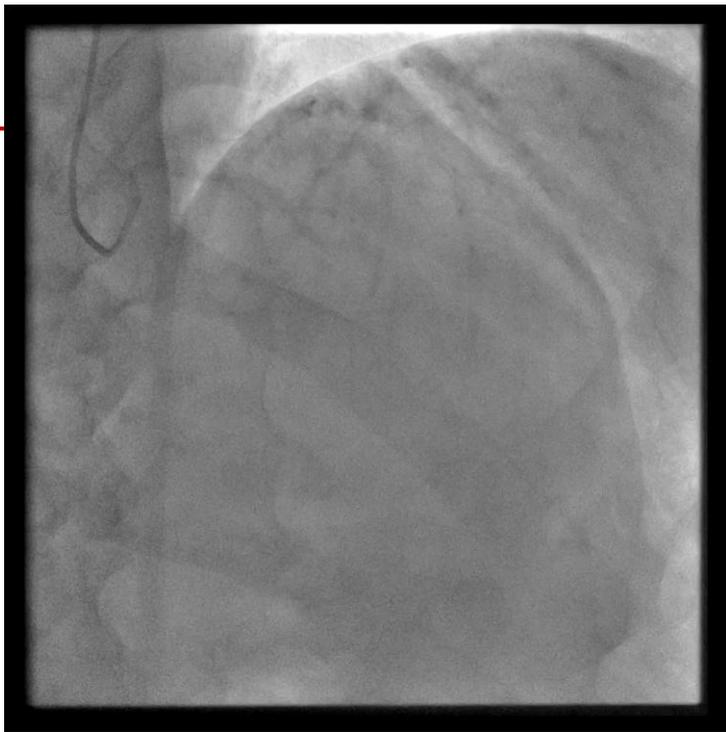
MSA/average reference lumen > 80%

Case report



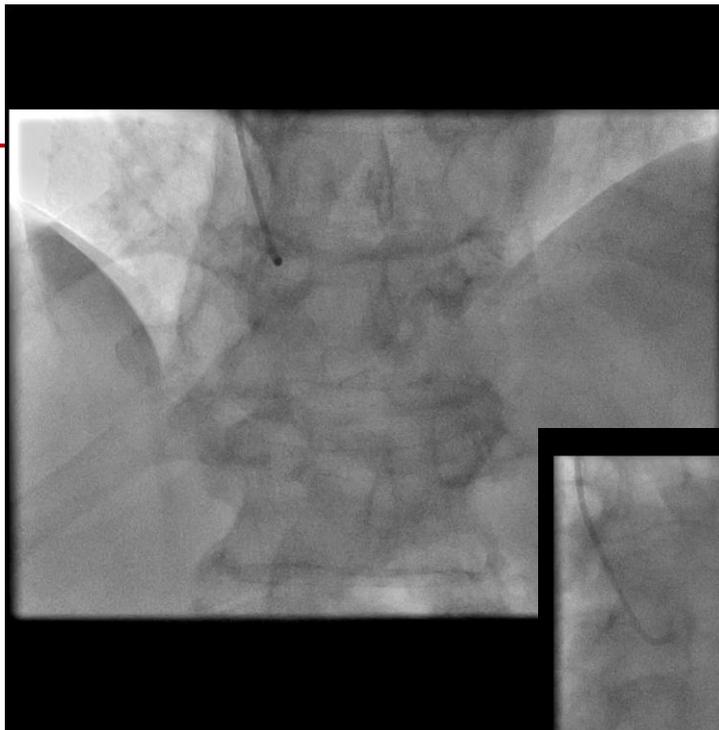
- muž, *1953
- hypertenze, HPLP, diabetes II. typu na PAD
- pozitivní ergometrie 12/2024 (horiz. deprese ST V3-6)
- EF LK 65%, bez poruch kinetiky, bez vady, lehká hyLK



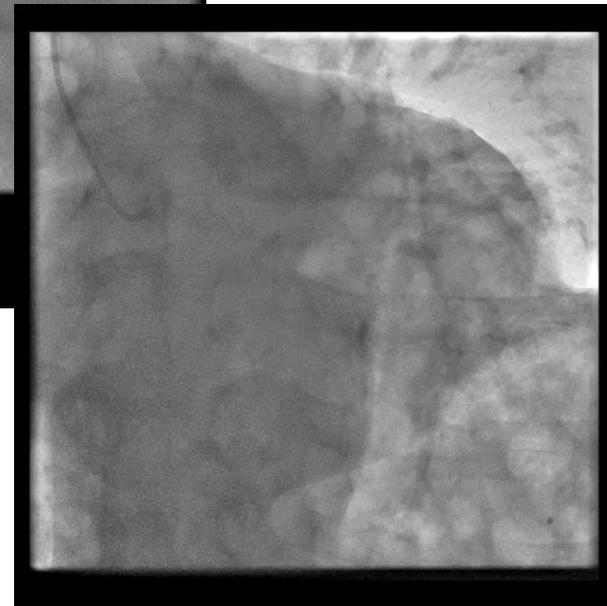


SKG 1/2025

60-70% prox. RIA, 90% RMS,
60-70% stř./dist. ACD



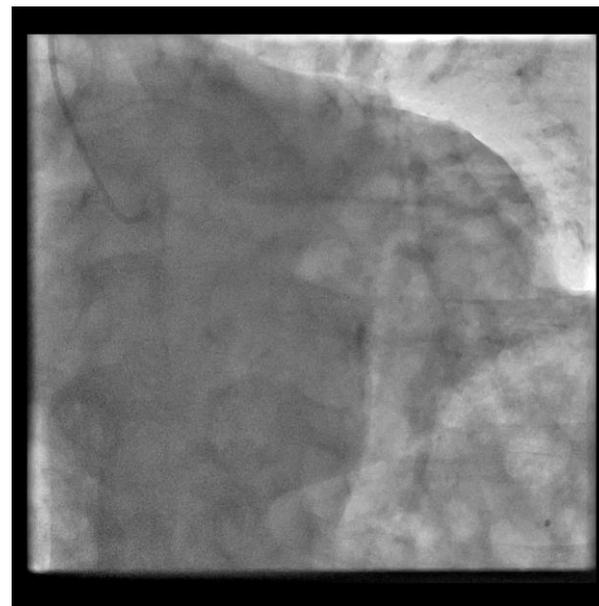
Doporučení?

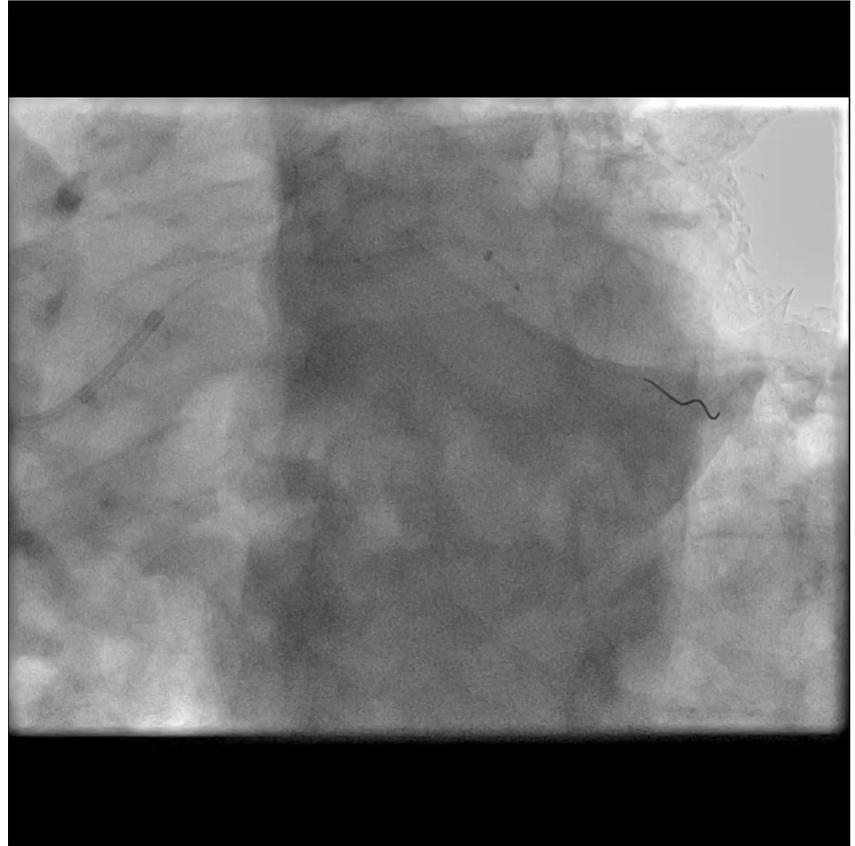
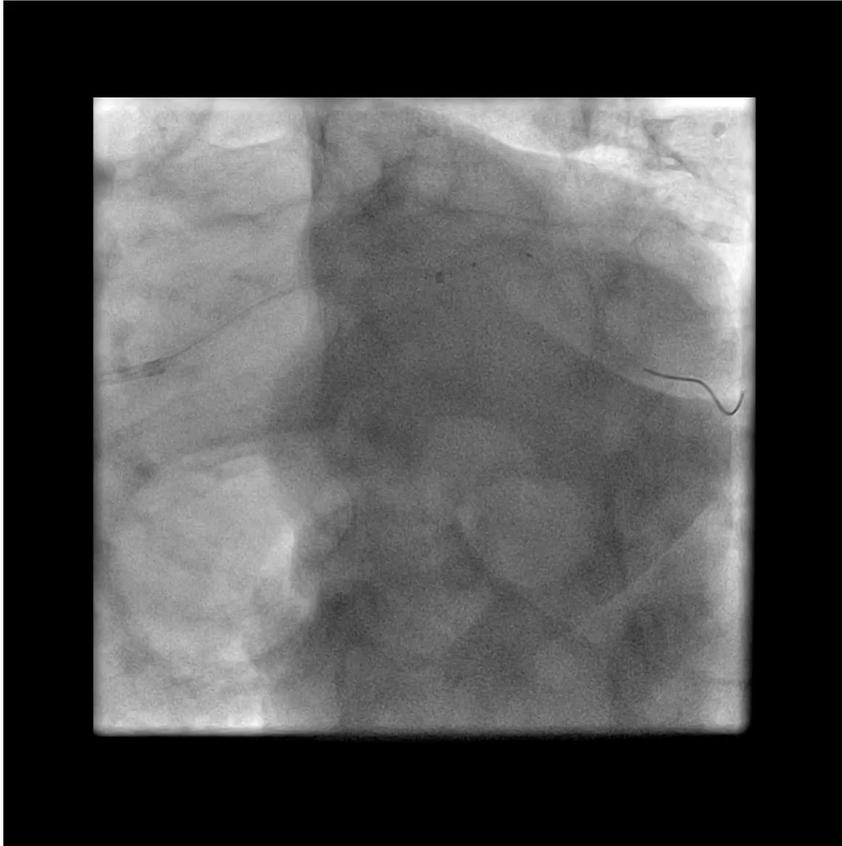


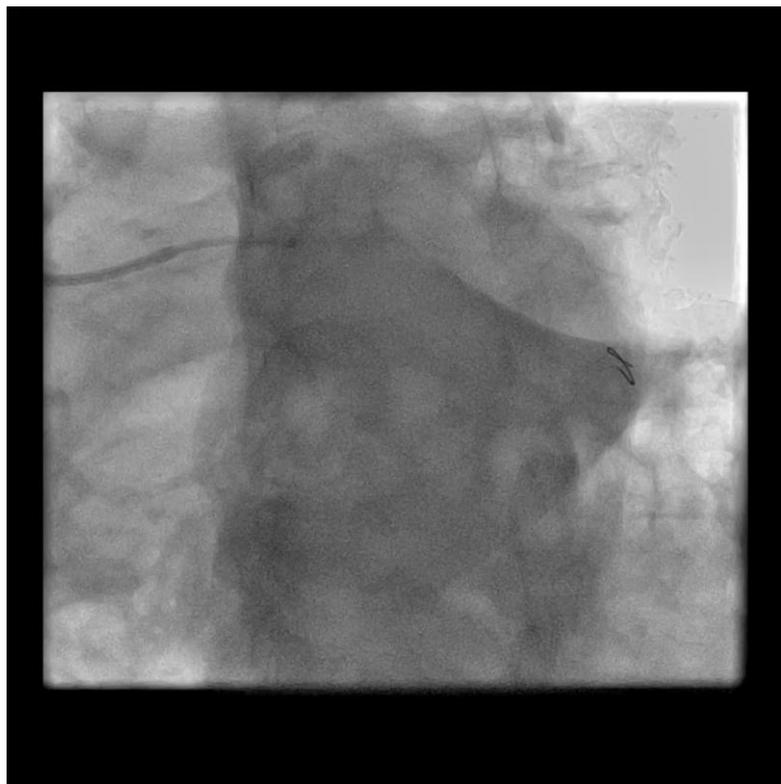
Heart team doporučení



- PCI RMS
- Funkční vyšetření RIA a ev. PCI
- Funkční vyšetření ACD a ev. PCI

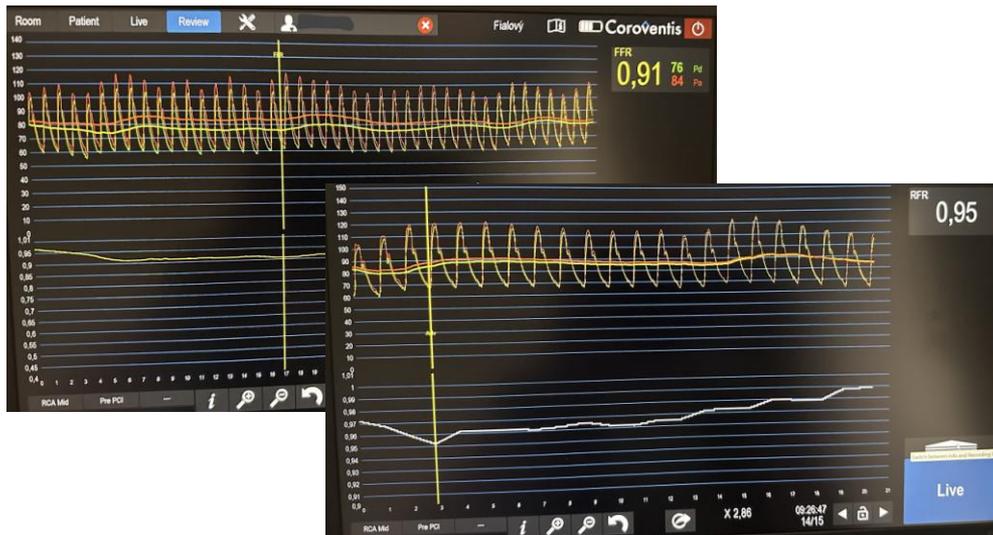
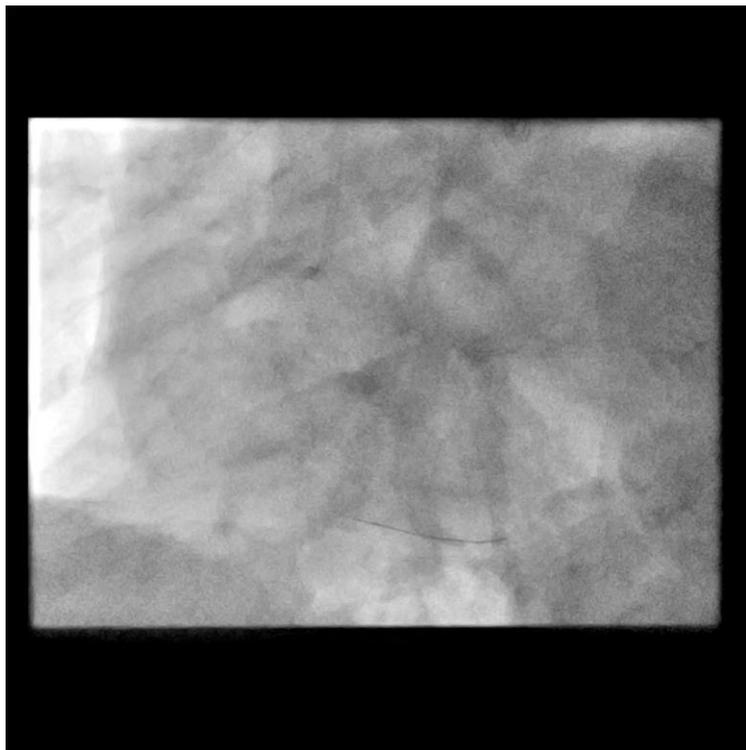






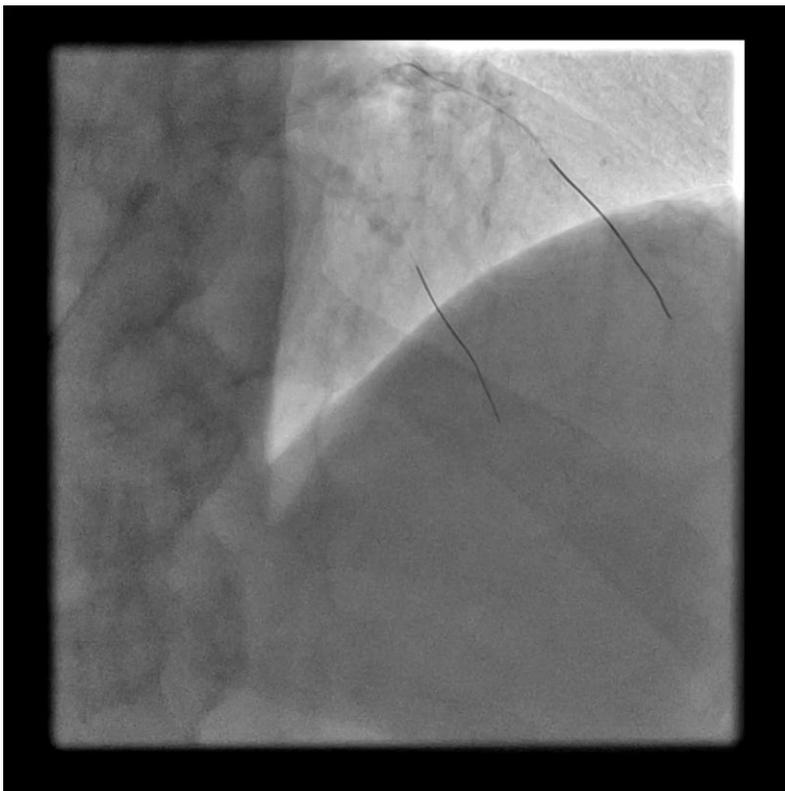
- XB 3,5F6
 - support extenze
 - predilatace NC 2,25-2,5mm
 - 1x sirDES zničen v ohybu
 - 1x everDES 2,75mm implantován
 - obtížná postdil NC 3,0
- Kontrast 193ml, skia 21,5min

Funkční vyř. ACD 2/2025

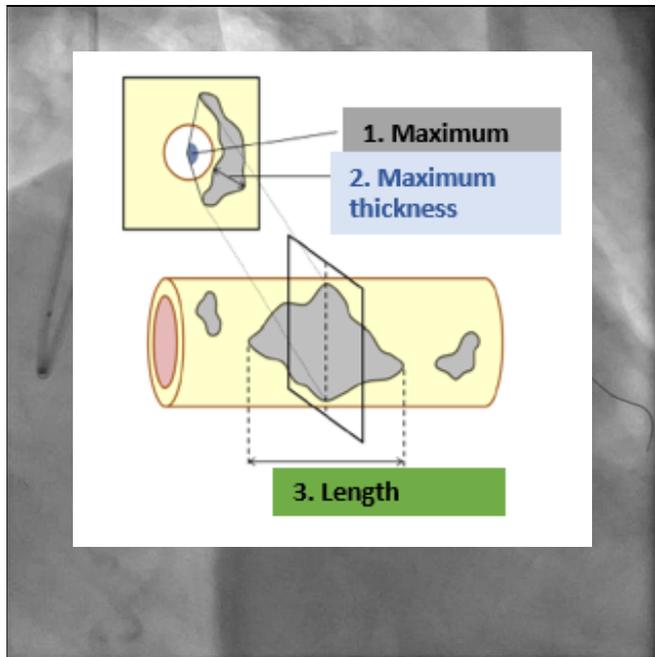


- RFR 0,98
- FFR 0,91
- nevýznamná léze

Funkční vyš. RIA 2/2025



- RFR 0,86
- FFR 0,73 významná léze
- CFR 4,1, IMR 7 mikrocirkulace bez patol.



Heavy calcifications,
OCT Ca score 3

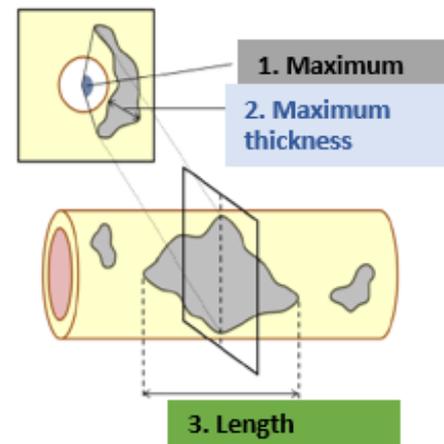
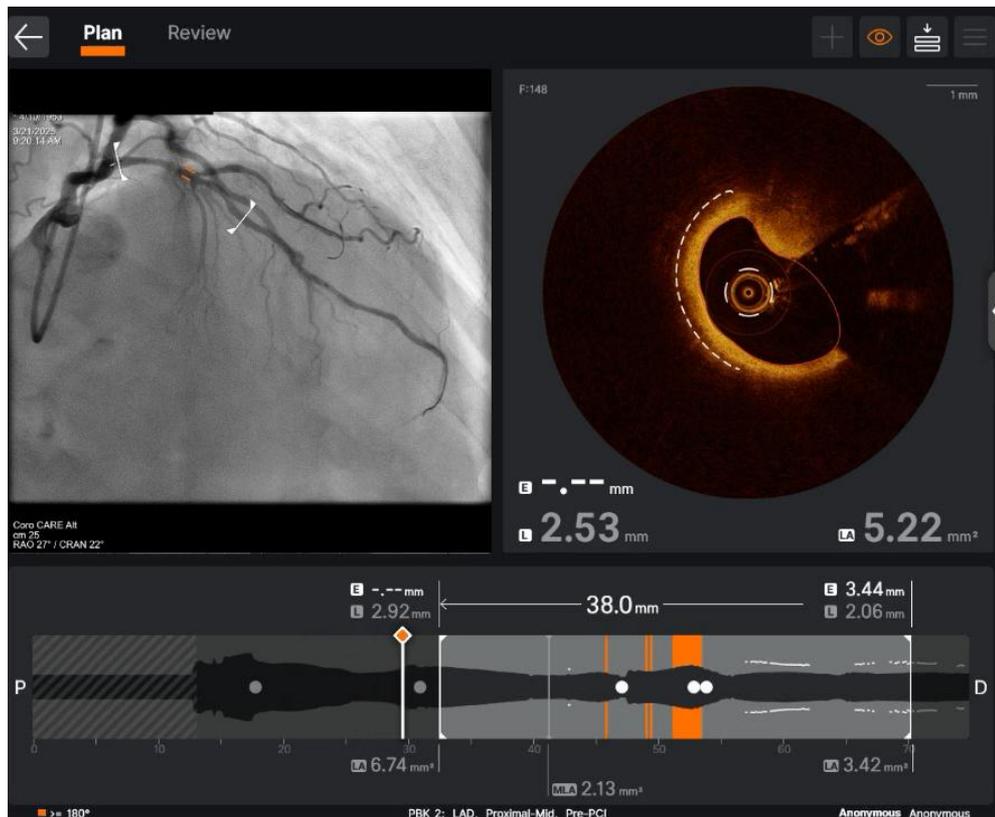




Před



Po



Heavy calcifications,
OCT Ca score 4



Příprava:

NC 2,5-3,5mm

OCT

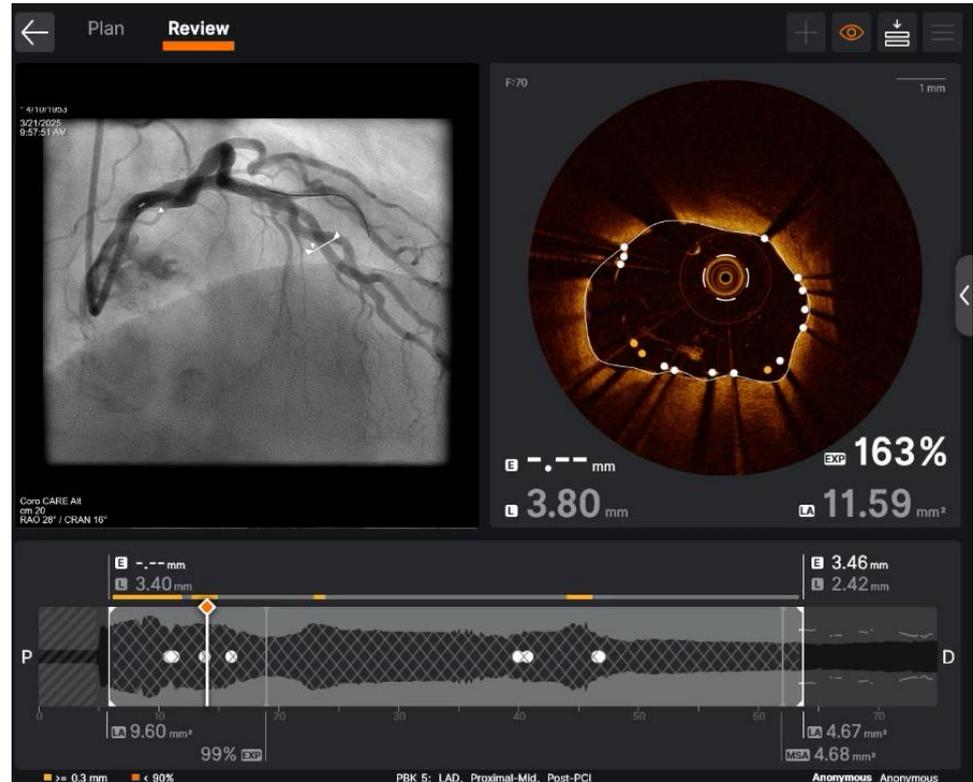
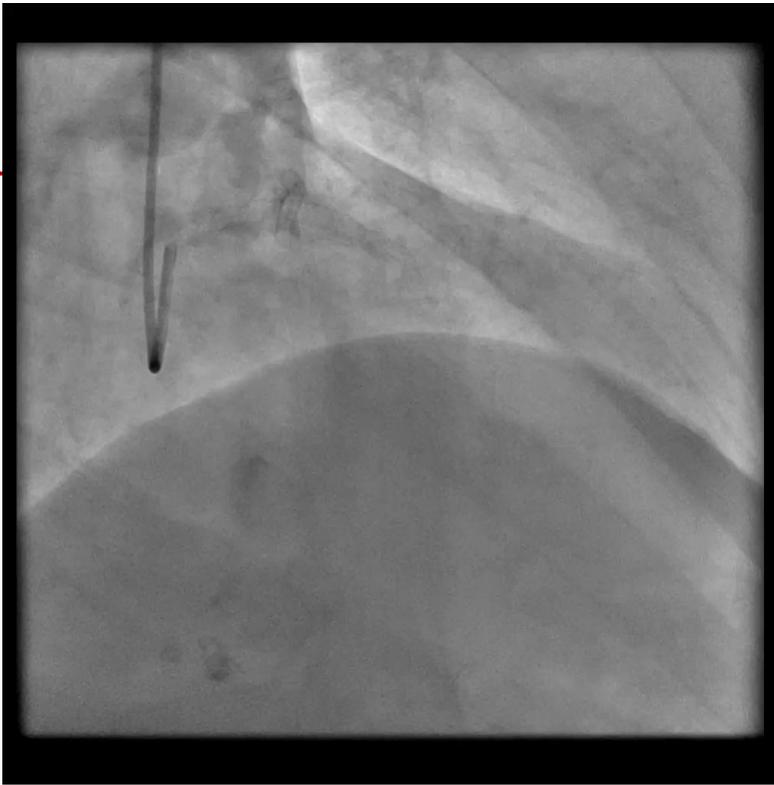
Plán:

DES 2,75x23mm

DES 3,5x28mm

Postdil. NC až 3,75mm





Optimální výsledek

Dobrá expanze 99%+

Markery malopozice u bočních větví

Kontrast 165ml, skia 12,5min

Klíčové koncepty (znovu)



- **Kalcium** je náš protivník
- Nikdy **nepodceňujeme** svého protivníka
- **Intravaskulární imaging** může být náš **spojenec**
- V komplexních kalcifikovaných lézích, **spojenec může pomoci s:**
 - identifikací kalcia
 - zhodnocení tíže kalcifikací
 - naplánování správné strategie přípravy léze
 - kontrolou průběhu PCI
 - optimalizovat finální výsledek PCI





thank you

