

Underexpanded ISR

Challenging and Optimal Treatment

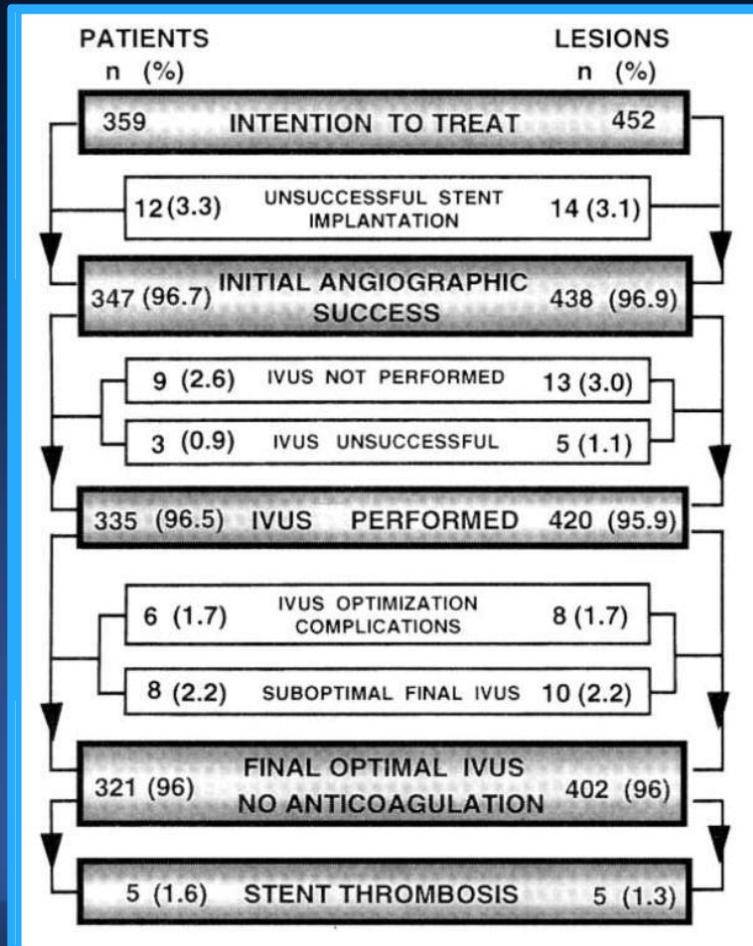
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Underexpanded Stent is Bad !!

Very Long Story

Antonio Colombo et al. Circulation. *1995 (24 years ago)*;91:1676–1688



**Stent
Thrombosis**

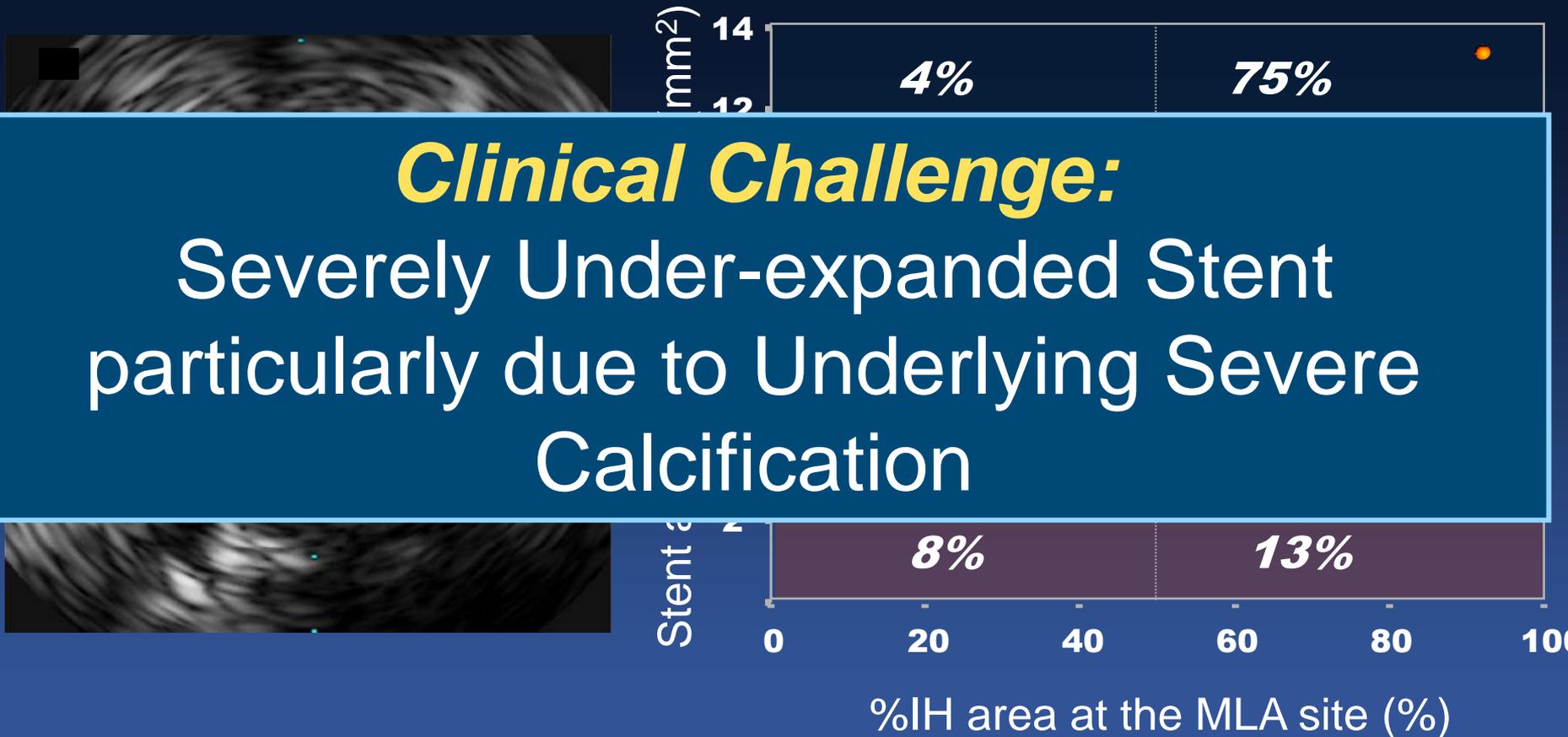
3-4%



1.6% at 6 months

General Mechanism of ISR after DES Implantation

21%



Clinical Challenge:

Severely Under-expanded Stent particularly due to Underlying Severe Calcification

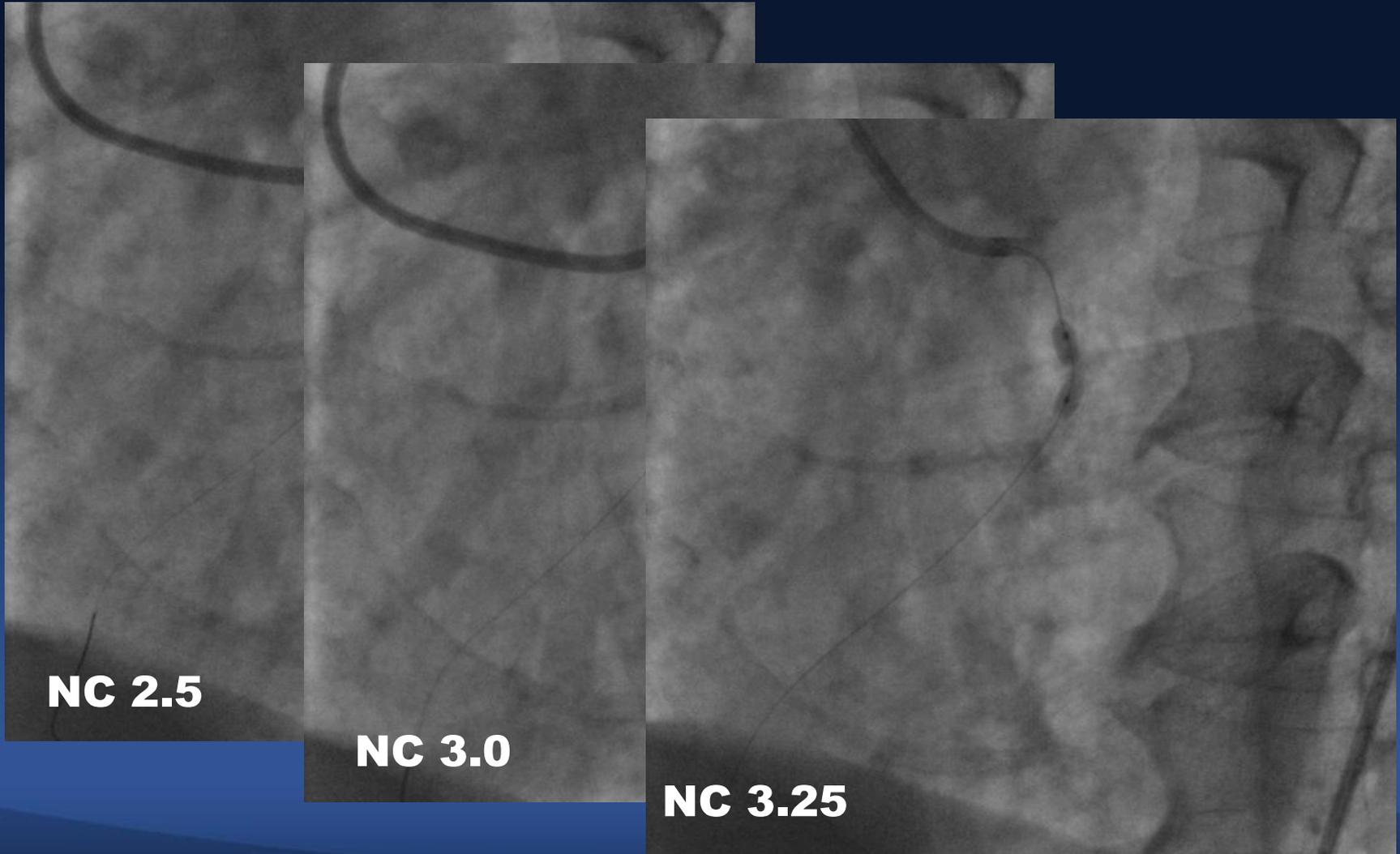
Case 1. M/69 YO

- This patient was admitted at Asan Medical Center 1 month after PCI due to NSTEMI at other hospital.
- He complained effort-related chest pain.
- Risk factors
 - DM, Hypertension, Hyperlipidemia
- Echo
 - Normal ejection fraction with LAD territory wall motion abnormality

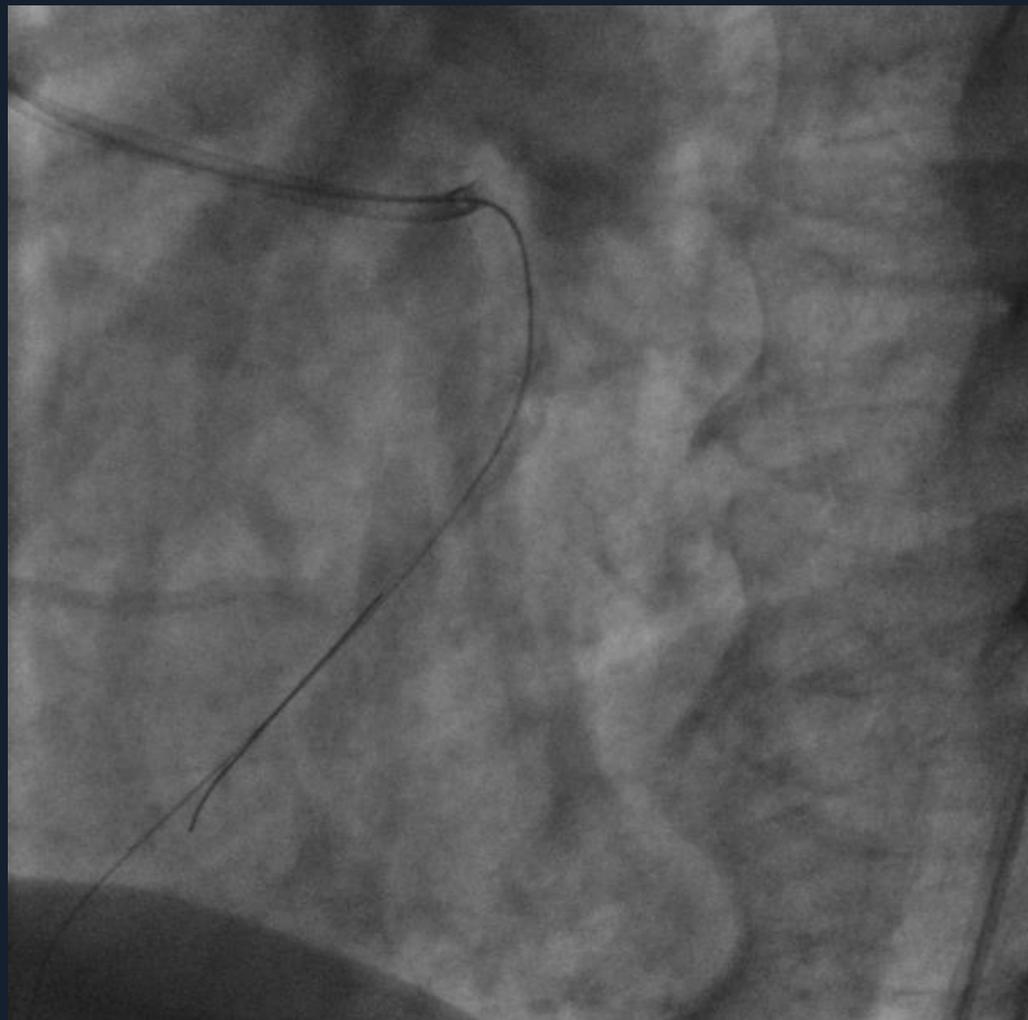
The Review of Previous PCI at Other Hospital



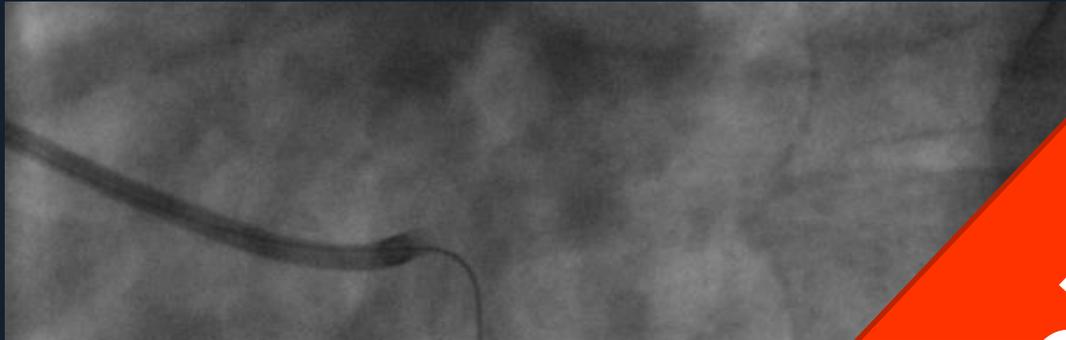
The Review of Previous PCI at Other Hospital



After Pre-Balloon



Stent Implantation: BMS 3.5 (24)



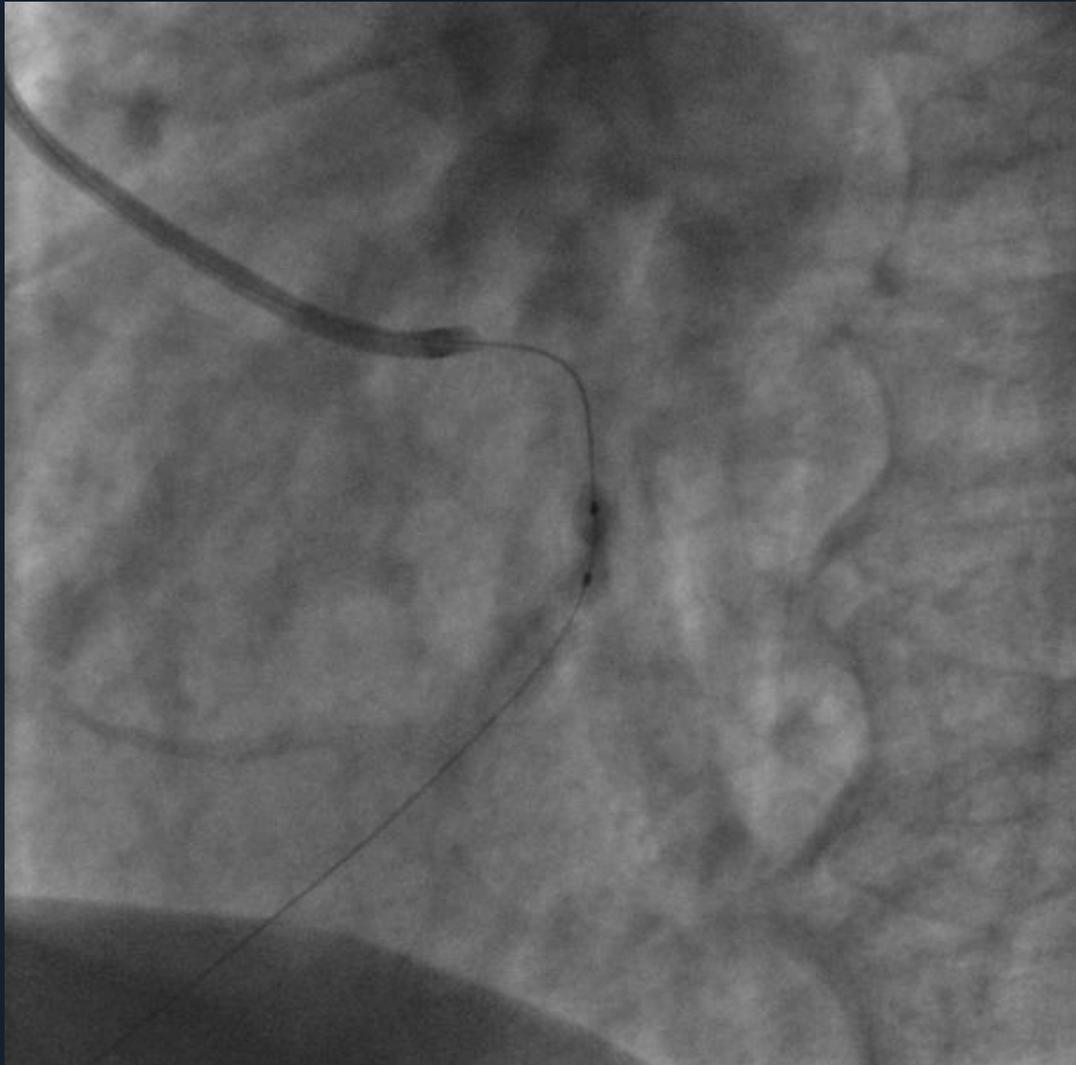
Choice

Never Stent on Undilatable Lesion

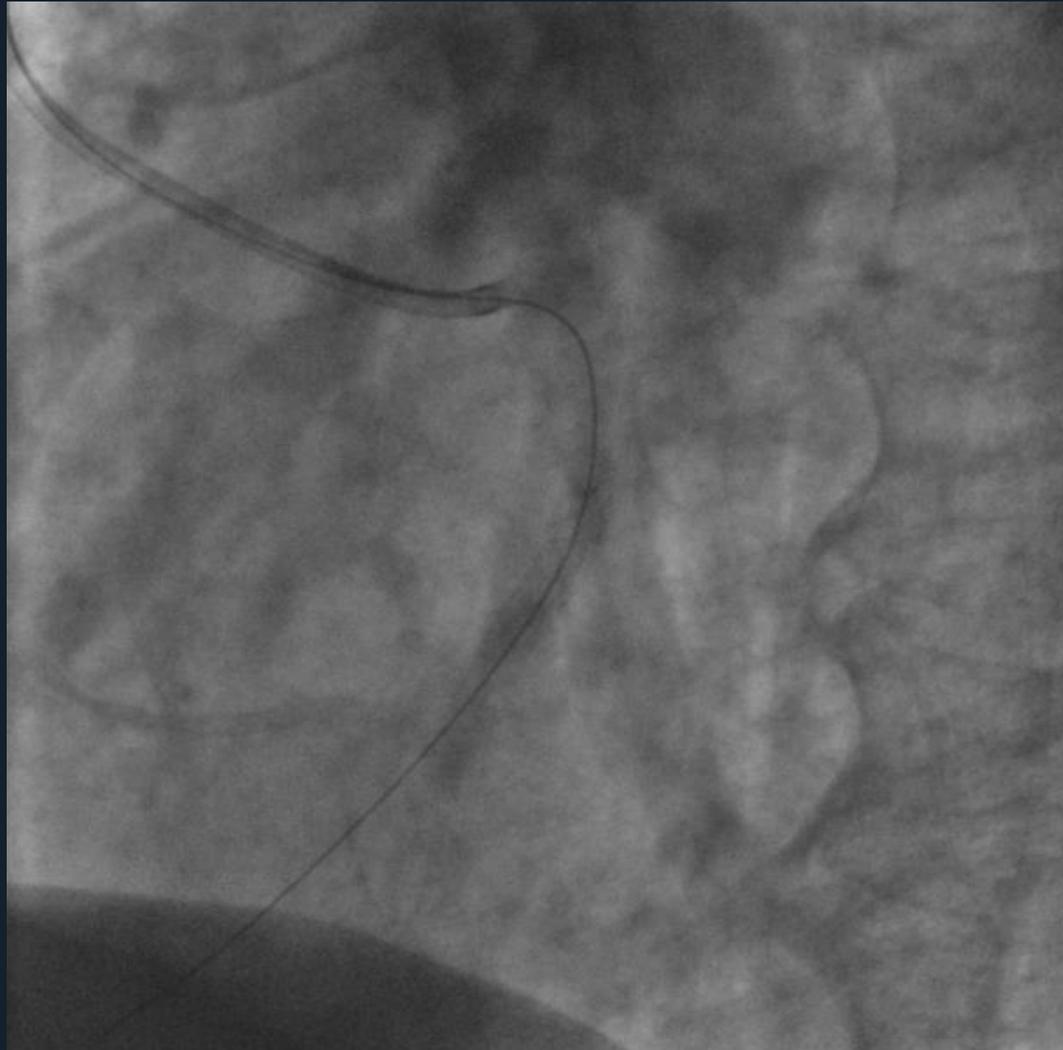
Bad



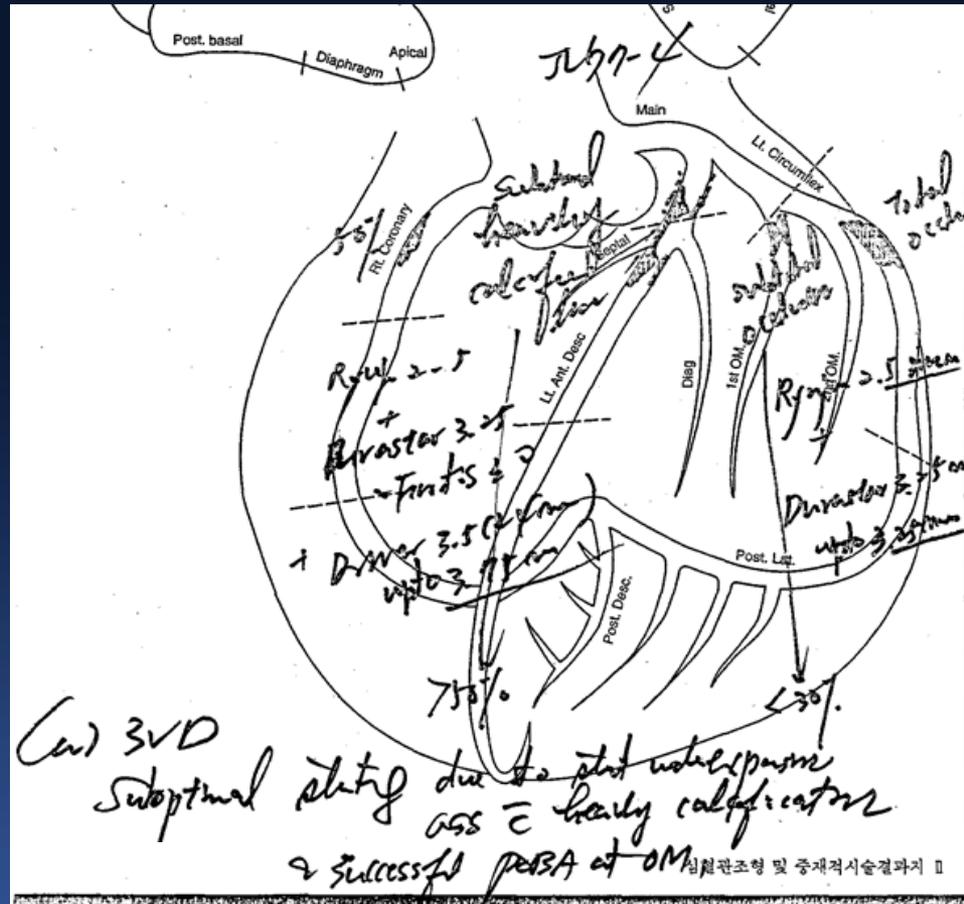
Additional High Pressure Balloon



Finish Procedure

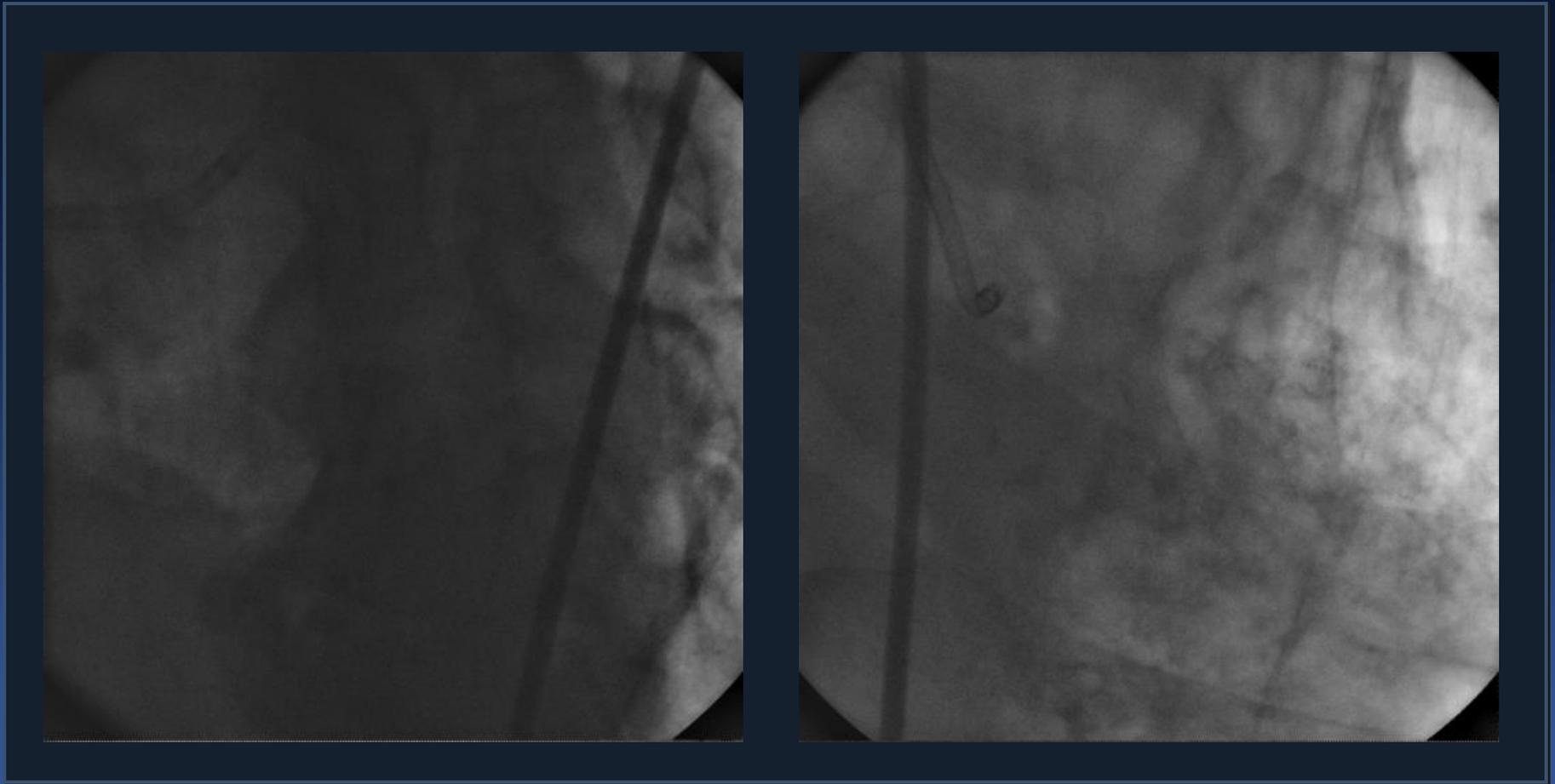


PCI Report

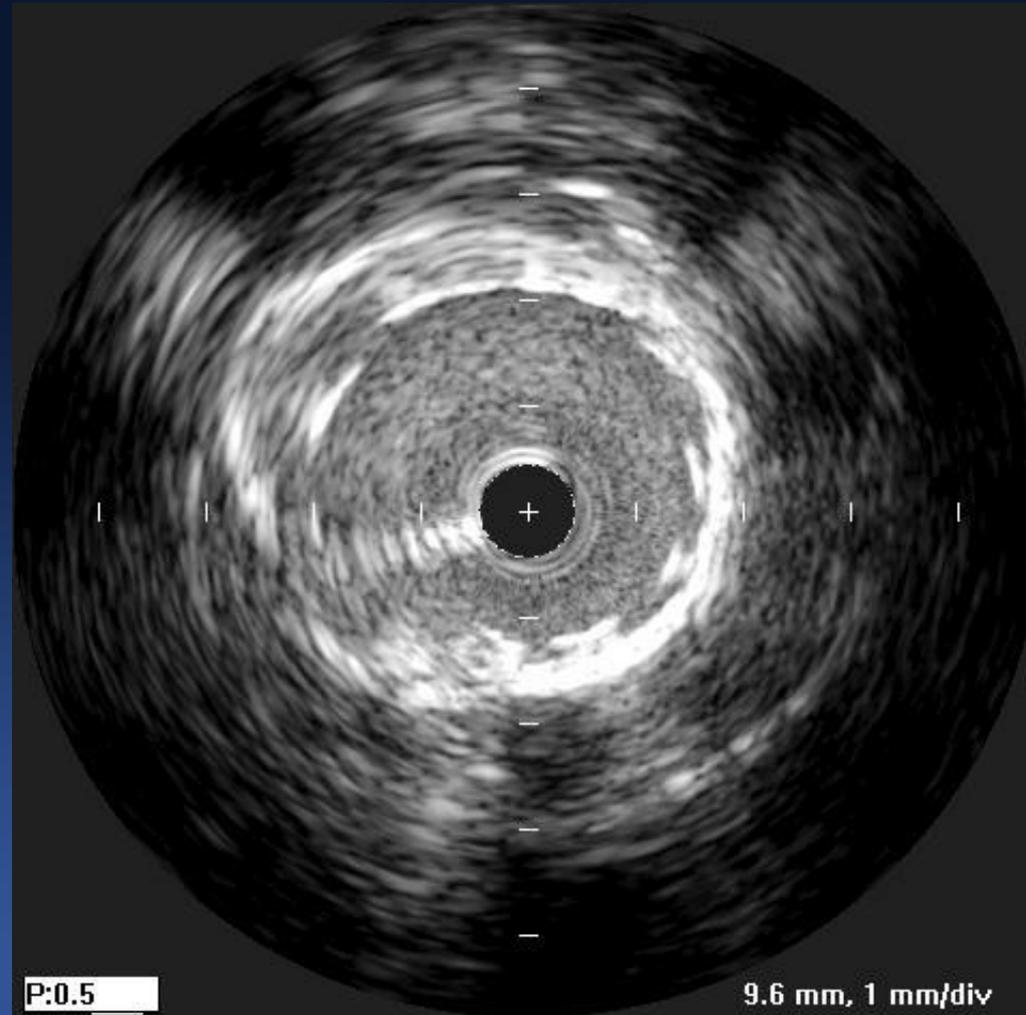


Conclusion > Suboptimal stenting due to stent underexpansion associated with heavy calcification

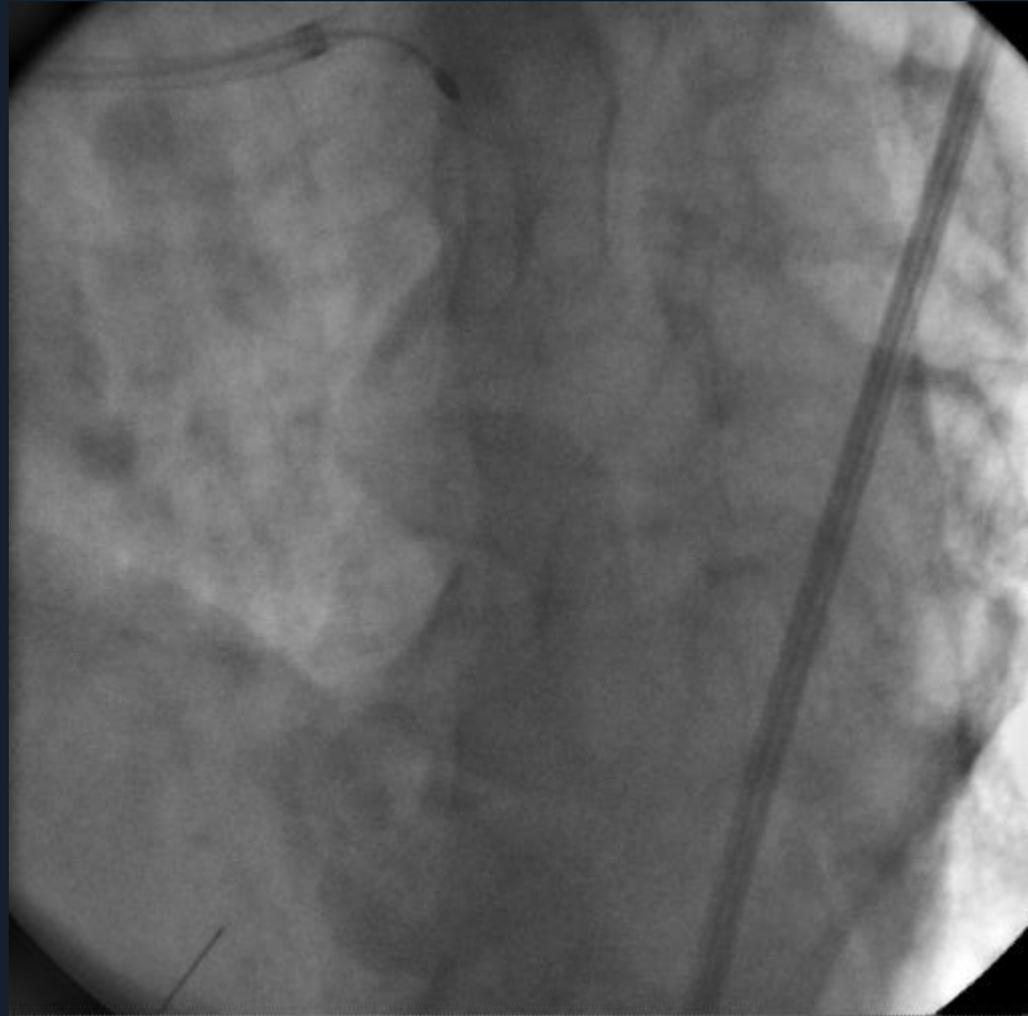
CAG at AMC



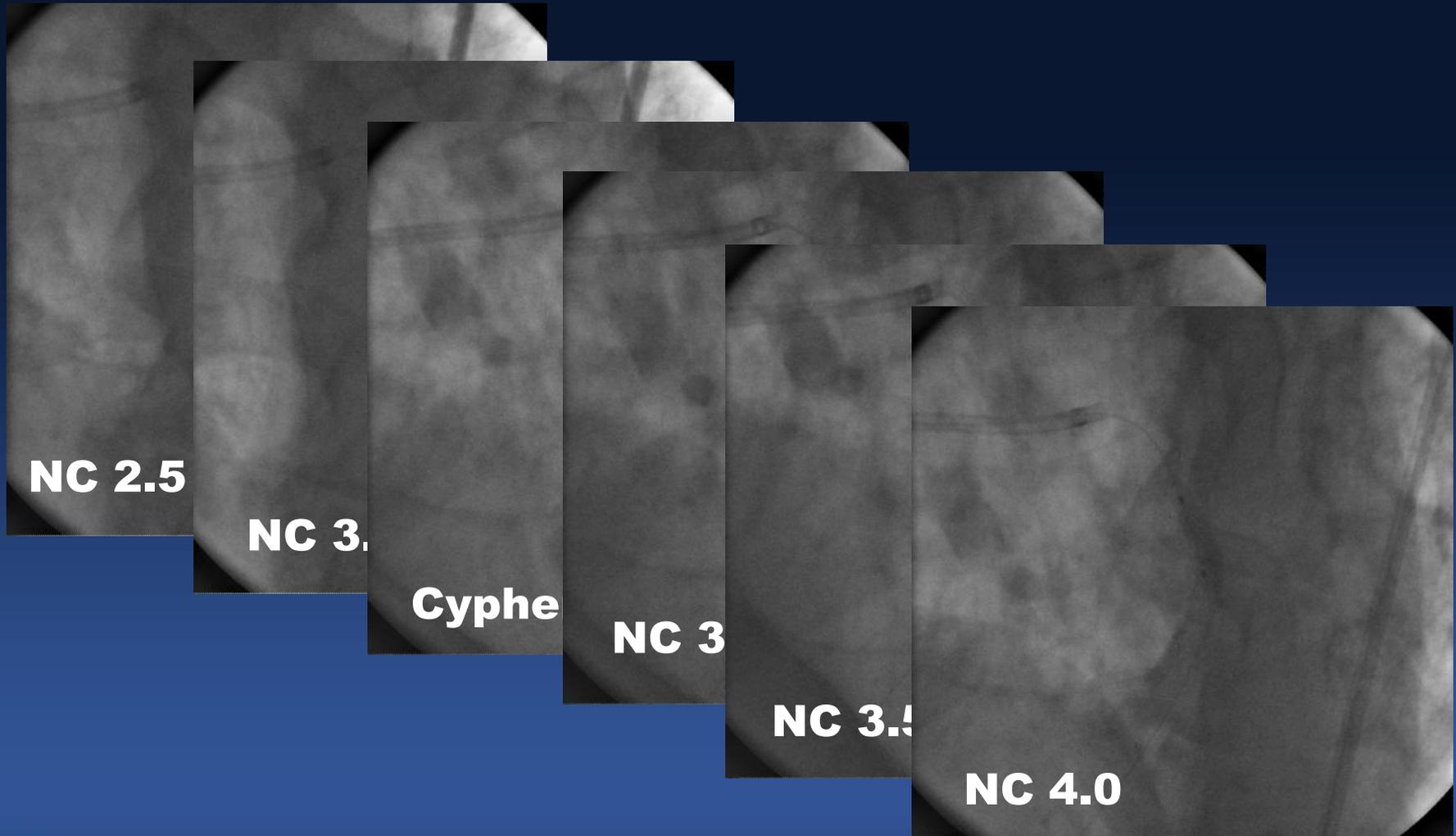
Large Vessel (>4mm) with Severely Underexpanded Stent



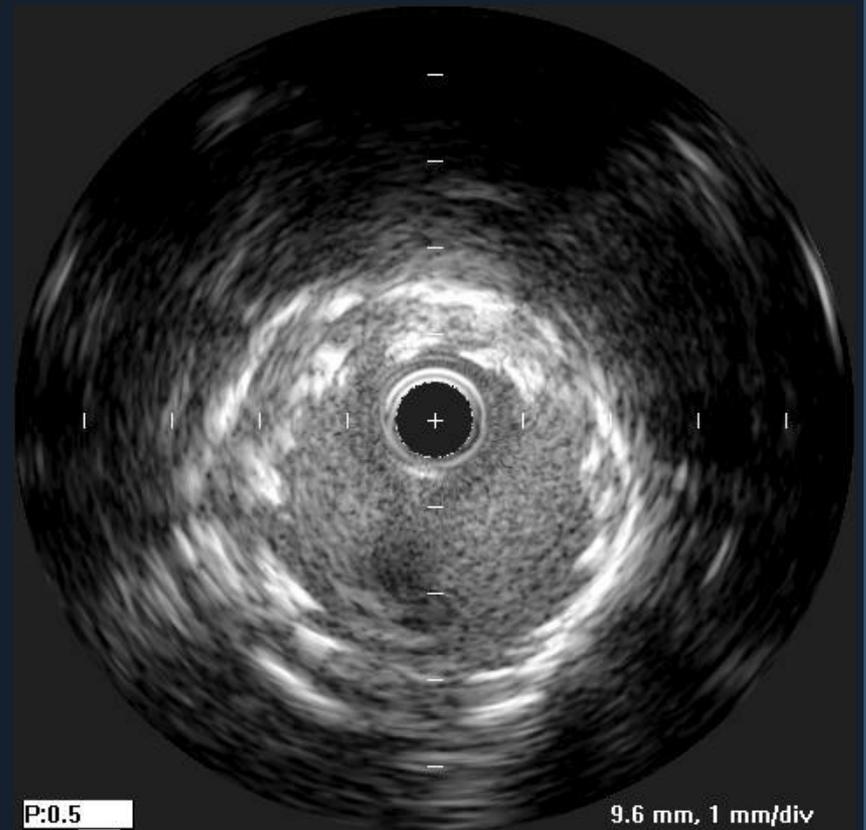
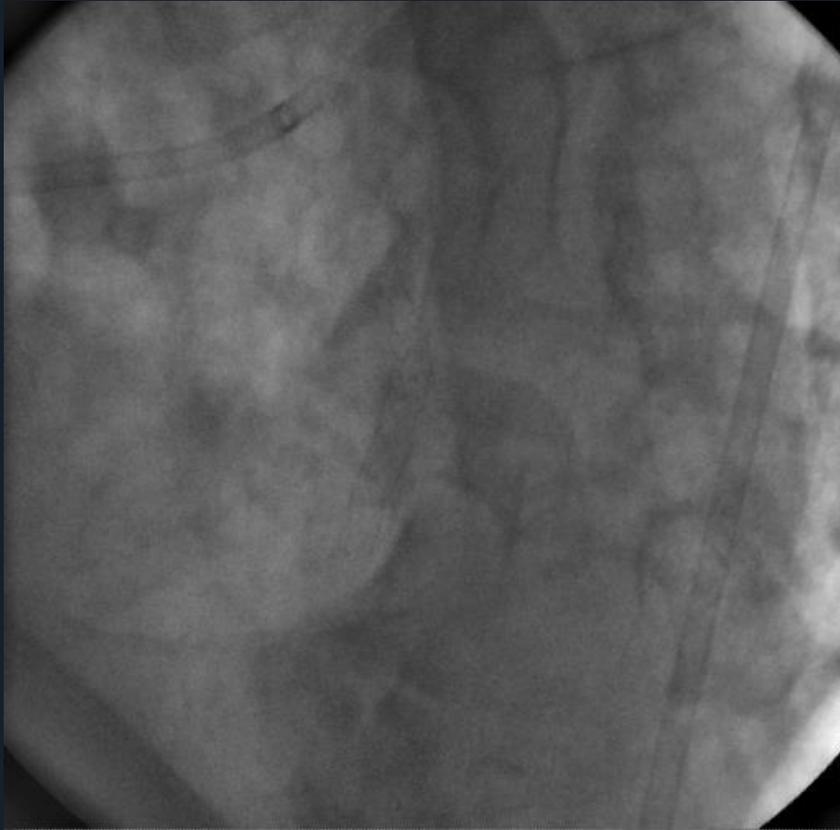
Rotablation: 1.5 and 1.75 burr



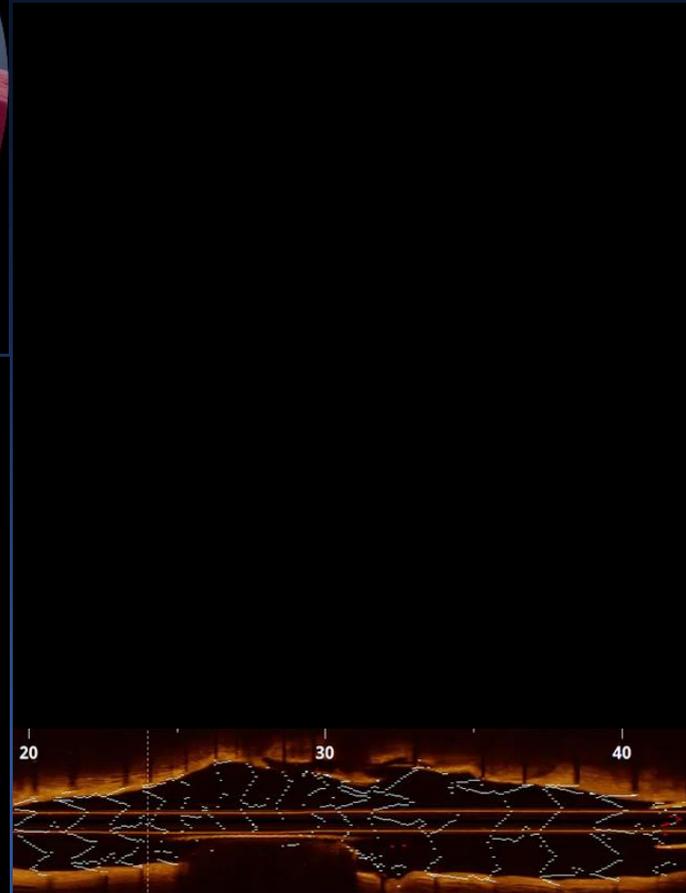
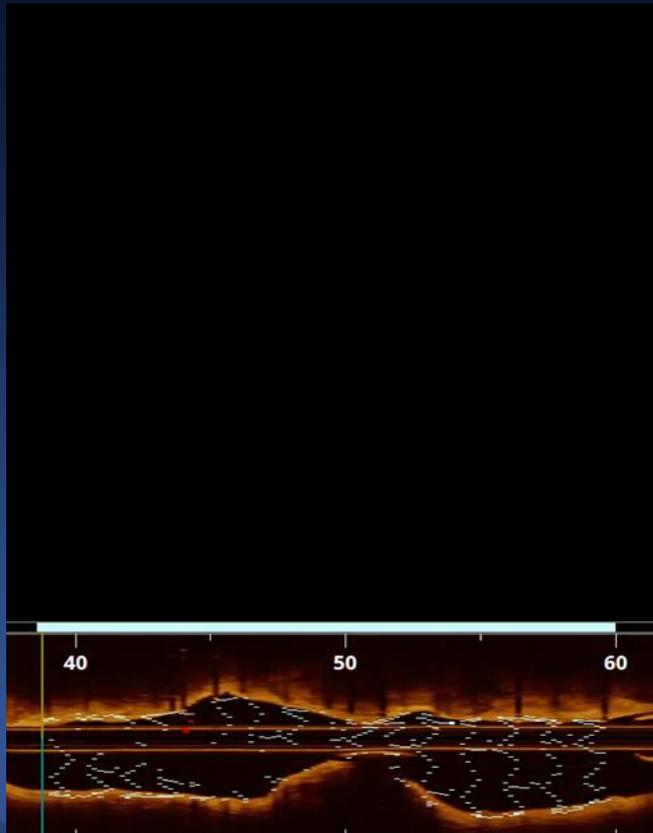
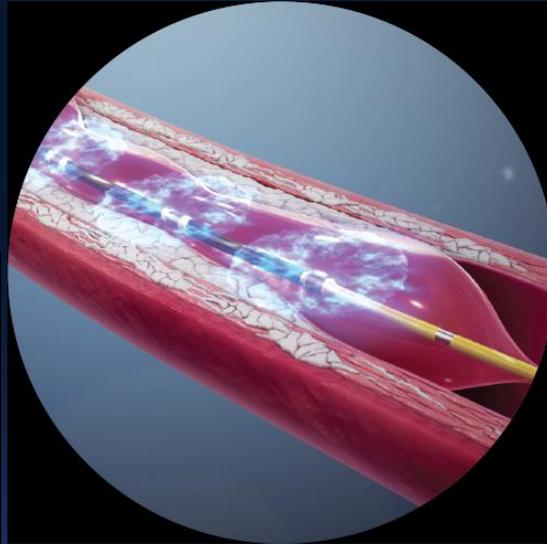
Additional High Pressure and Stenting



Final CAG and IVUS



Case 2: Intravascular Lithotripsy



Summary

- Before stent implantation, pre-lesion modification is very important, particularly in severely calcified stenosis.
- If lesion modification is not adequately performed, stent implantation should be avoided.
- For severely underexpanded stent due to underlying calcification, if aggressive balloon dilatation using high pressure balloon did not work, stent ablation using rotablator or calcium destruction using shock wave device would be the treatment of choice.
- Operators should avoid the potential complications of such devices.



Thank you.