

A Modified Jailed Inflated Balloon Technique Prevents Side Branch Compromise in Coronary Bifurcation Lesions

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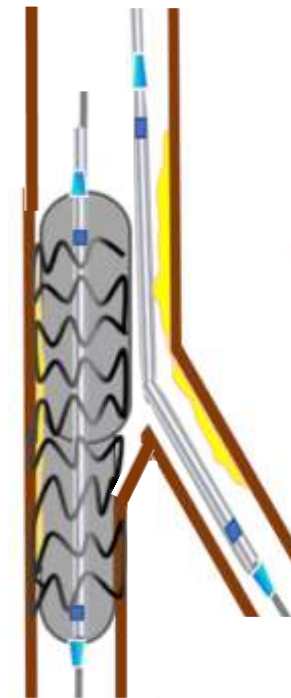
Background

- Coronary bifurcations remain challenging due to the high rate of side branch occlusion.
- Although a provisional stenting approach has been widely accepted, a jailed wire technique does not necessarily ensure side branch patency.
- Once a side branch is occluded, it would lead to serious complications.

Background

- A jailed balloon technique (JBT) was first reported in 2010 and has been used for some bifurcation lesions to reduce side branch occlusion.

A conventional JBT



Background

- POT or KBT is a prerequisite for the conventional JBT.
- They are useful ways of finishing up the JBT, but they need several steps and procedures during PCI.

Purpose

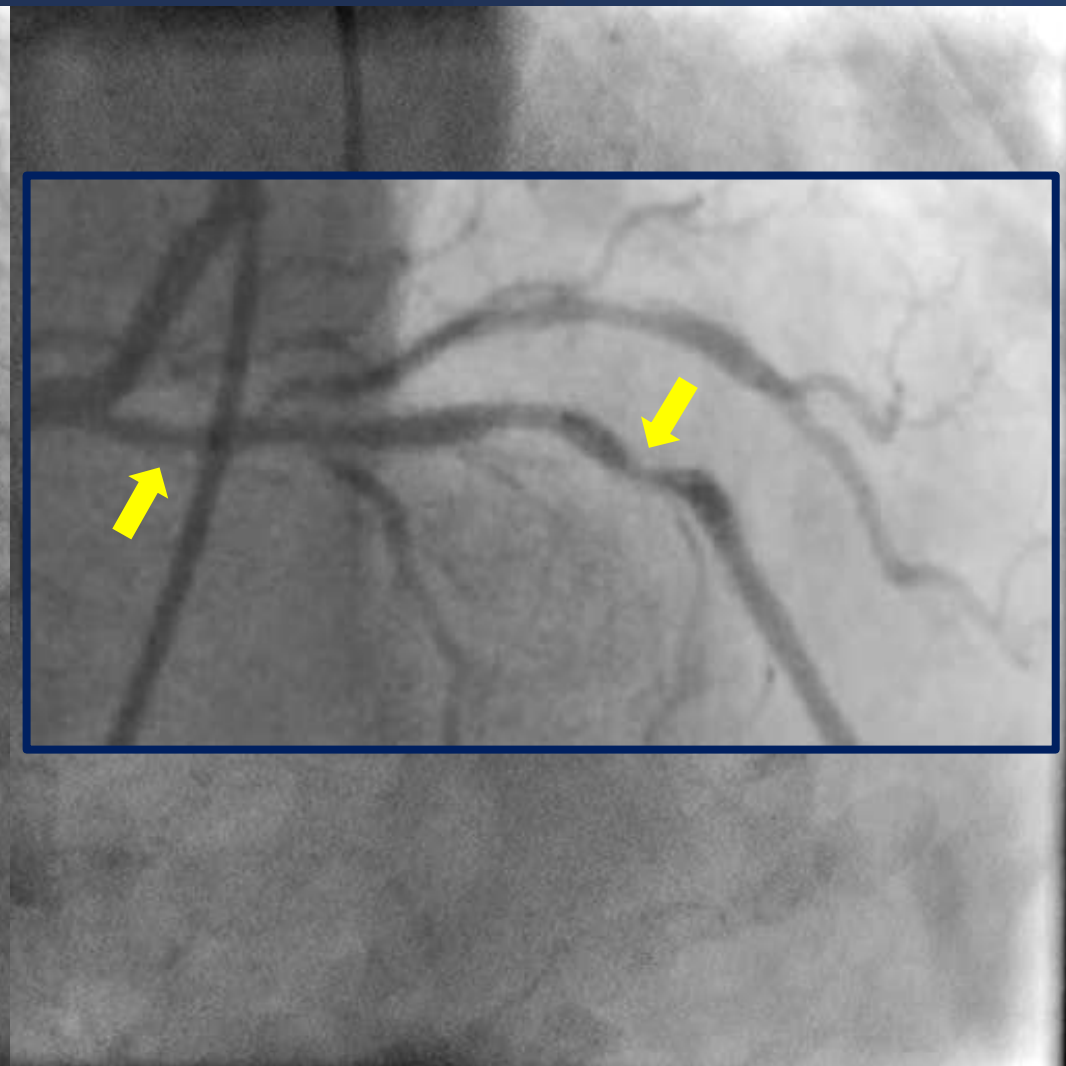
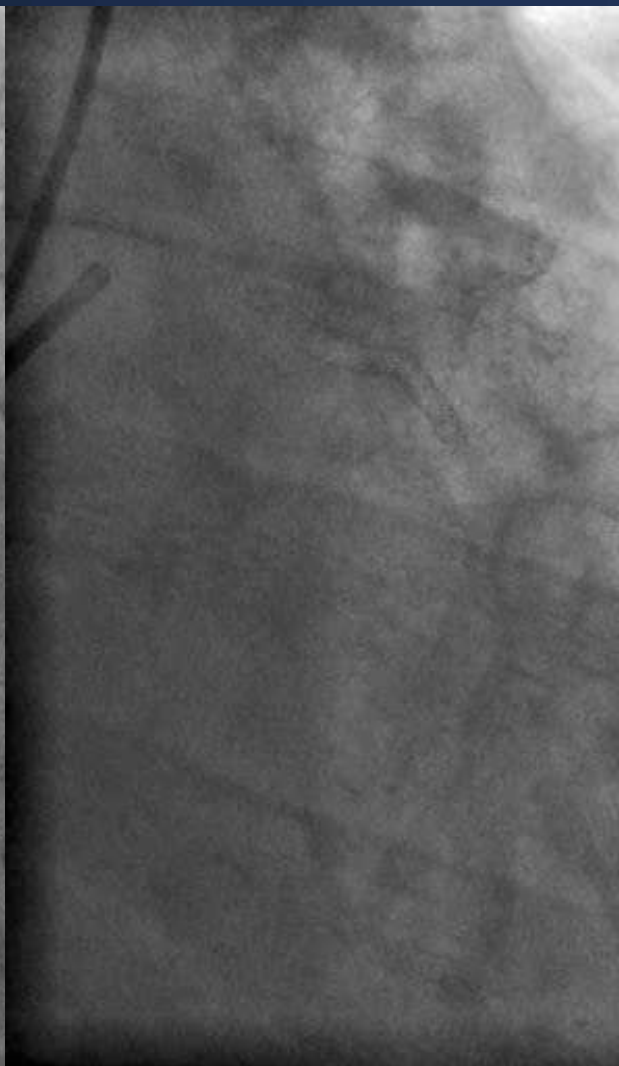
- We modified a jailed balloon technique and developed a new method to prevent side branch compromise and to simplify an overall procedure in the treatment of coronary bifurcation lesions.

Case presentation

- 77-year-old male, Chief complaint; chest pain
- Present history; recurrent exertional angina
- Previous history;
 - PCI for LCX (Ultimaster Tansei 2.25/38 mm, 90 → 0%)
 - catheter ablation for PAF
- Past smoking; +, HTN; +, DM; -, DL; +
- L/D; Cre 0.88 mg/dl, eGFR 64 ml/min/1.73m², LDL 76 mg/dl
- ECG: sinus rhythm, no ST-T change, CXp: CTR 46%, UCG; EF=63%

CAG

LAD proximal 75%, distal 90%

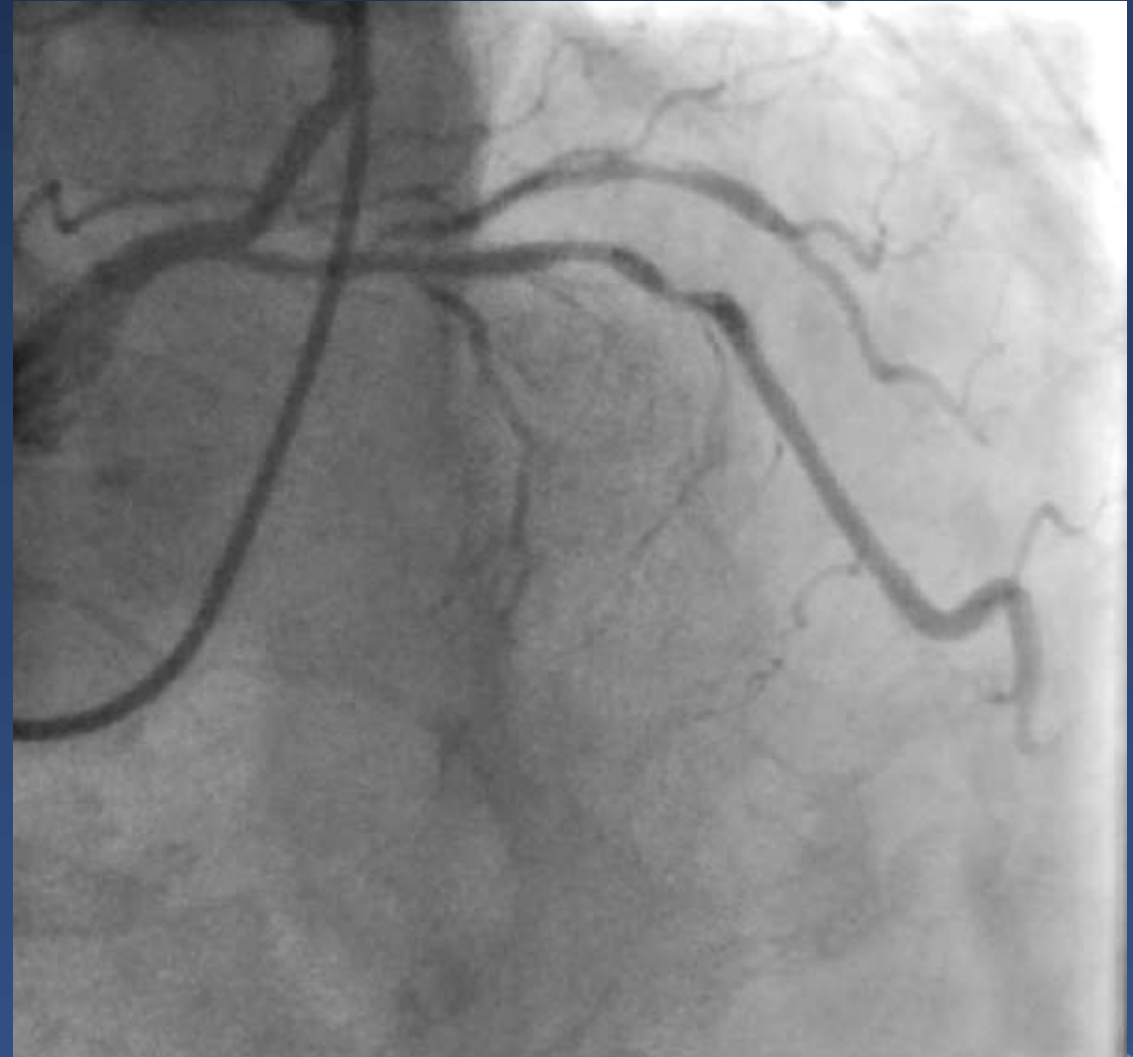


We diagnosed effort angina pectoris, CCS II

- CAG; Seg3 50%, Seg6 75%, Seg7 90%, Seg11 90%
- Target lesion of present PCI
Seg6 75% with complex bifurcation, Medina (1, 0, 1)
Seg7 90%

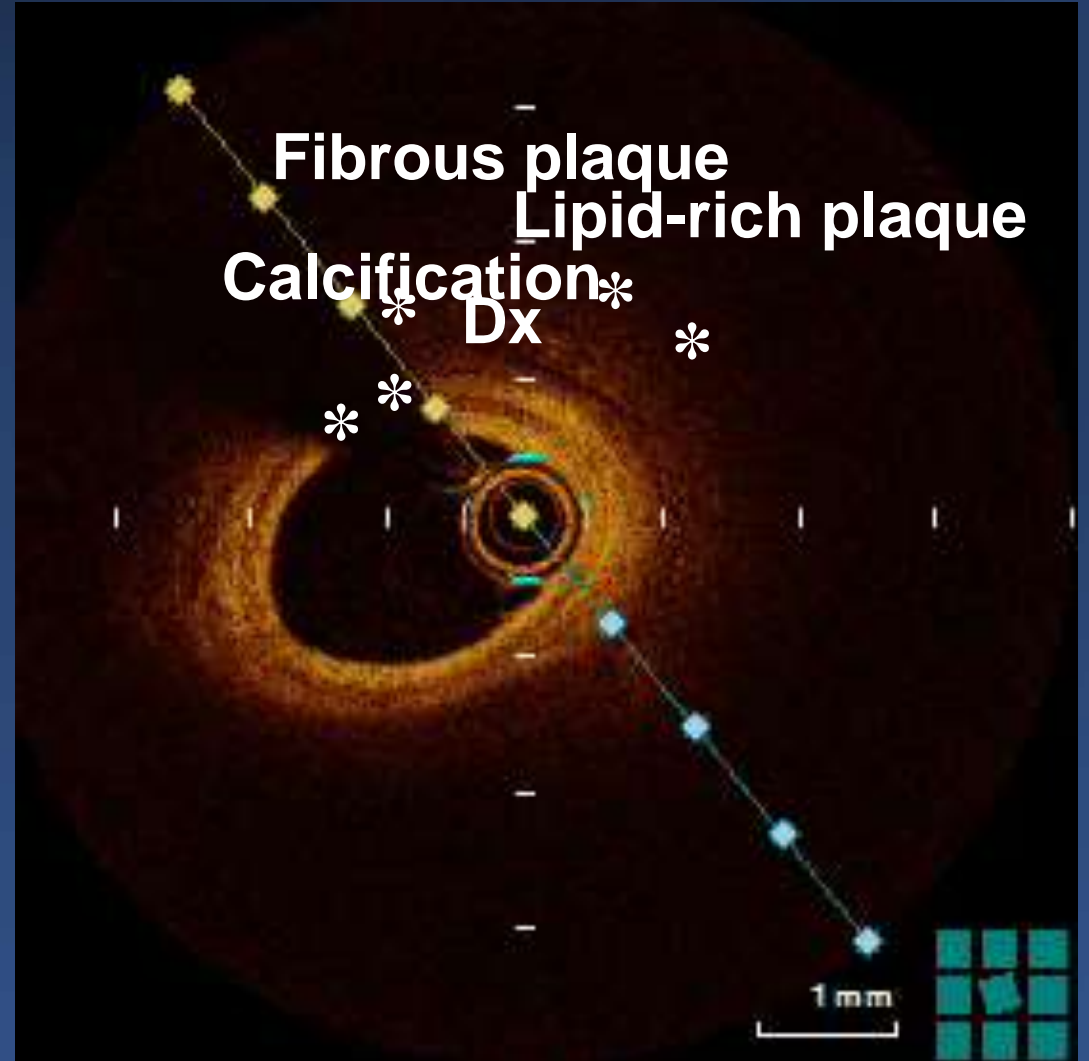
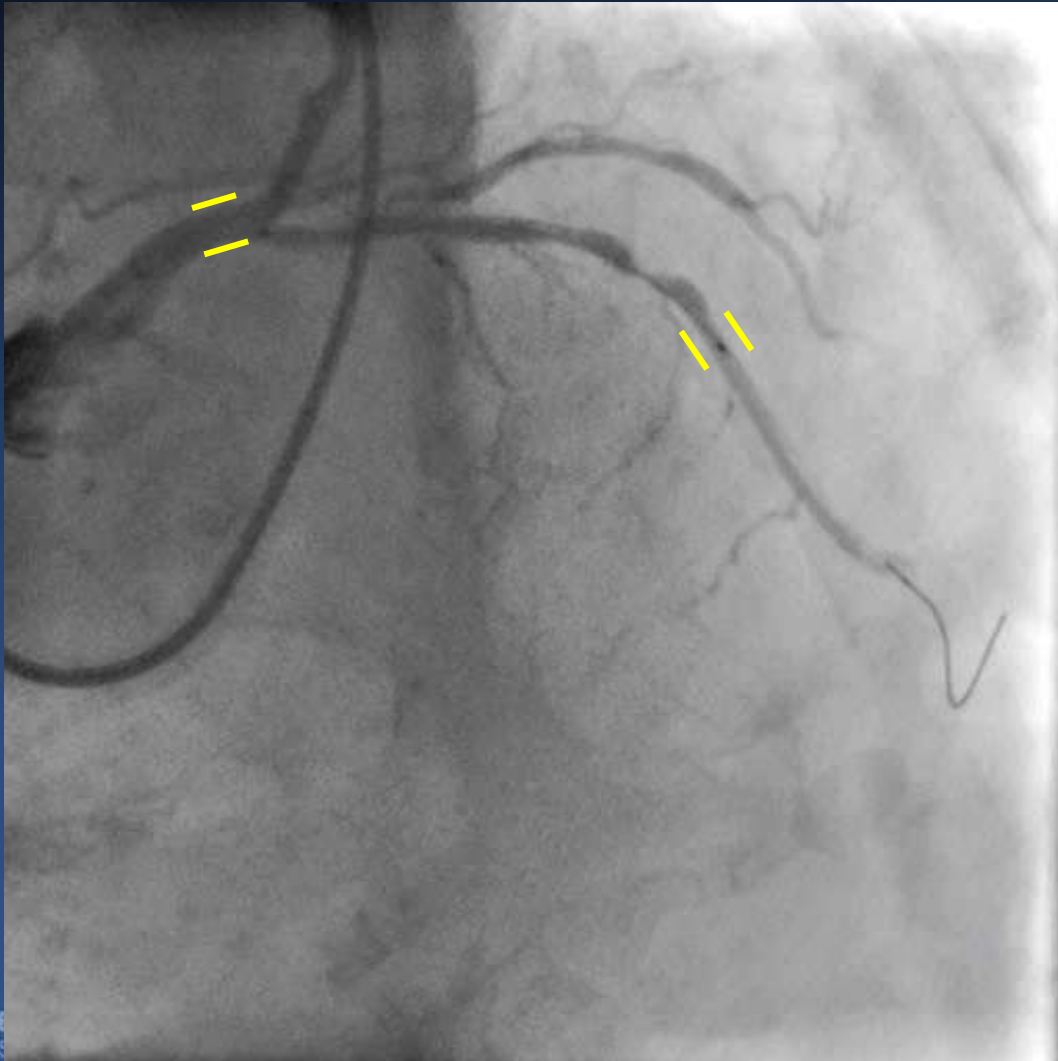
PCI Procedure

- Rt. Radial artery approach
- G/C: 6-Fr Heartrail BL 3.5
- G/W:
LAD, Runthrough NS Ultra Floppy

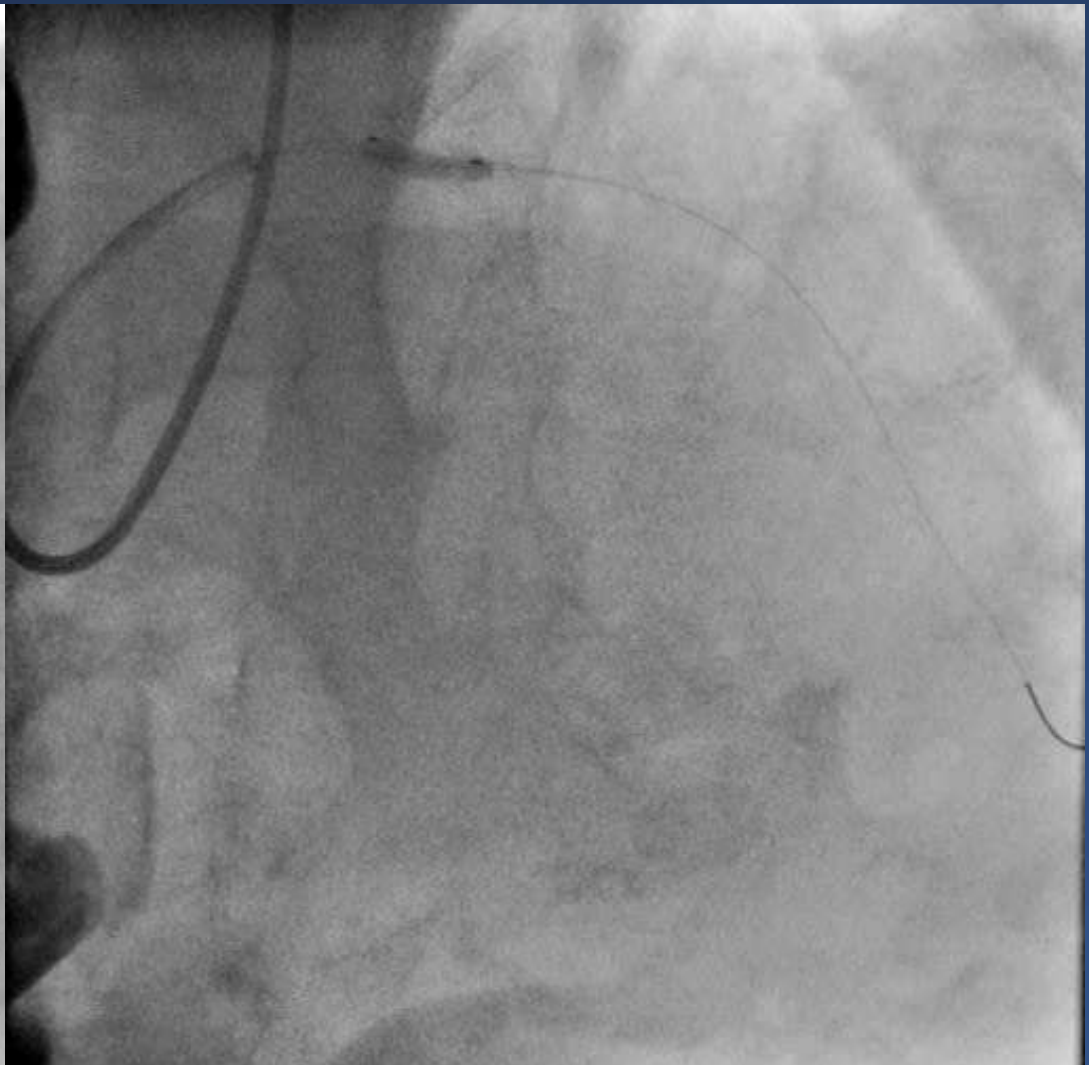
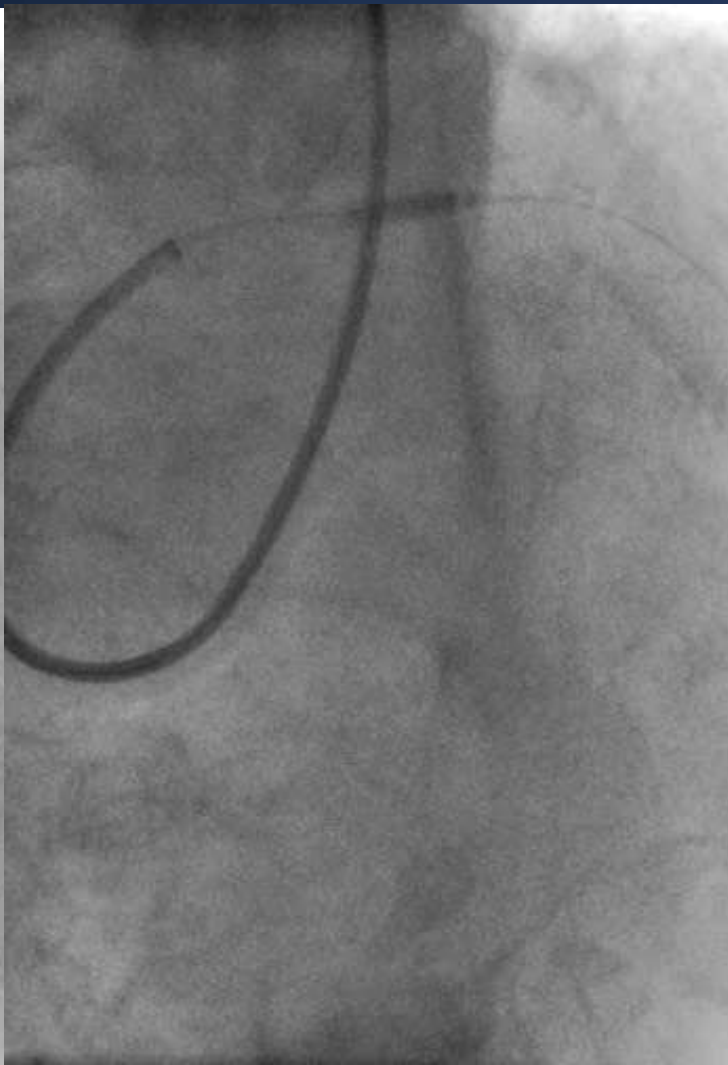
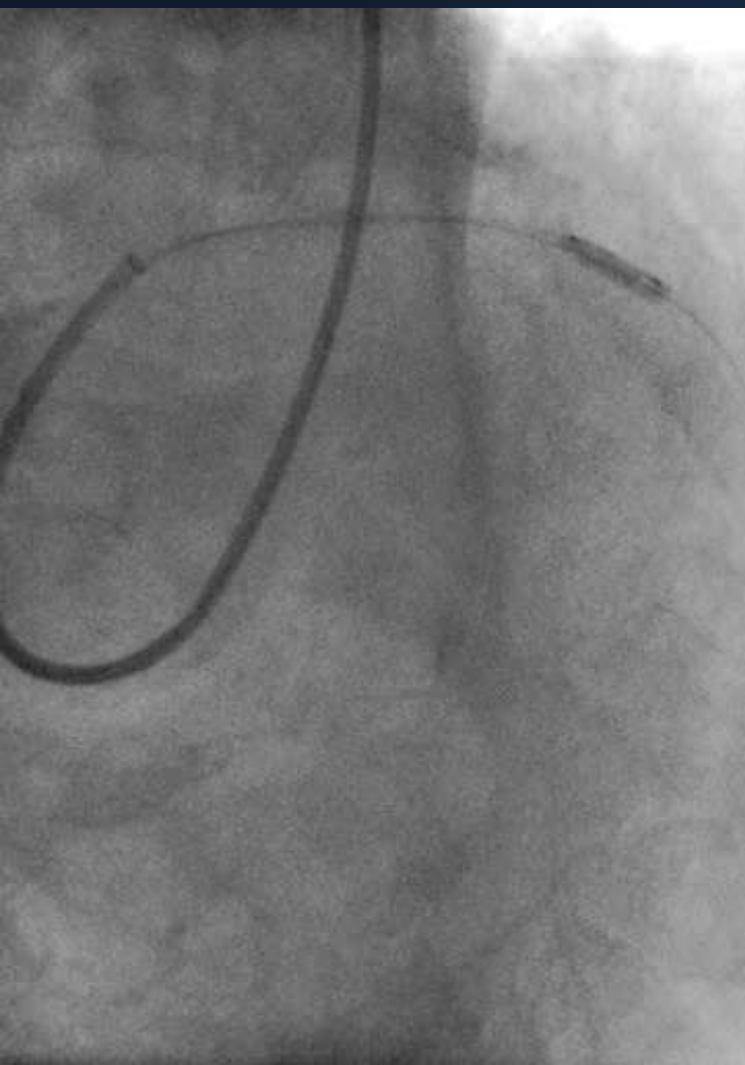


Pre-PCI OCT;

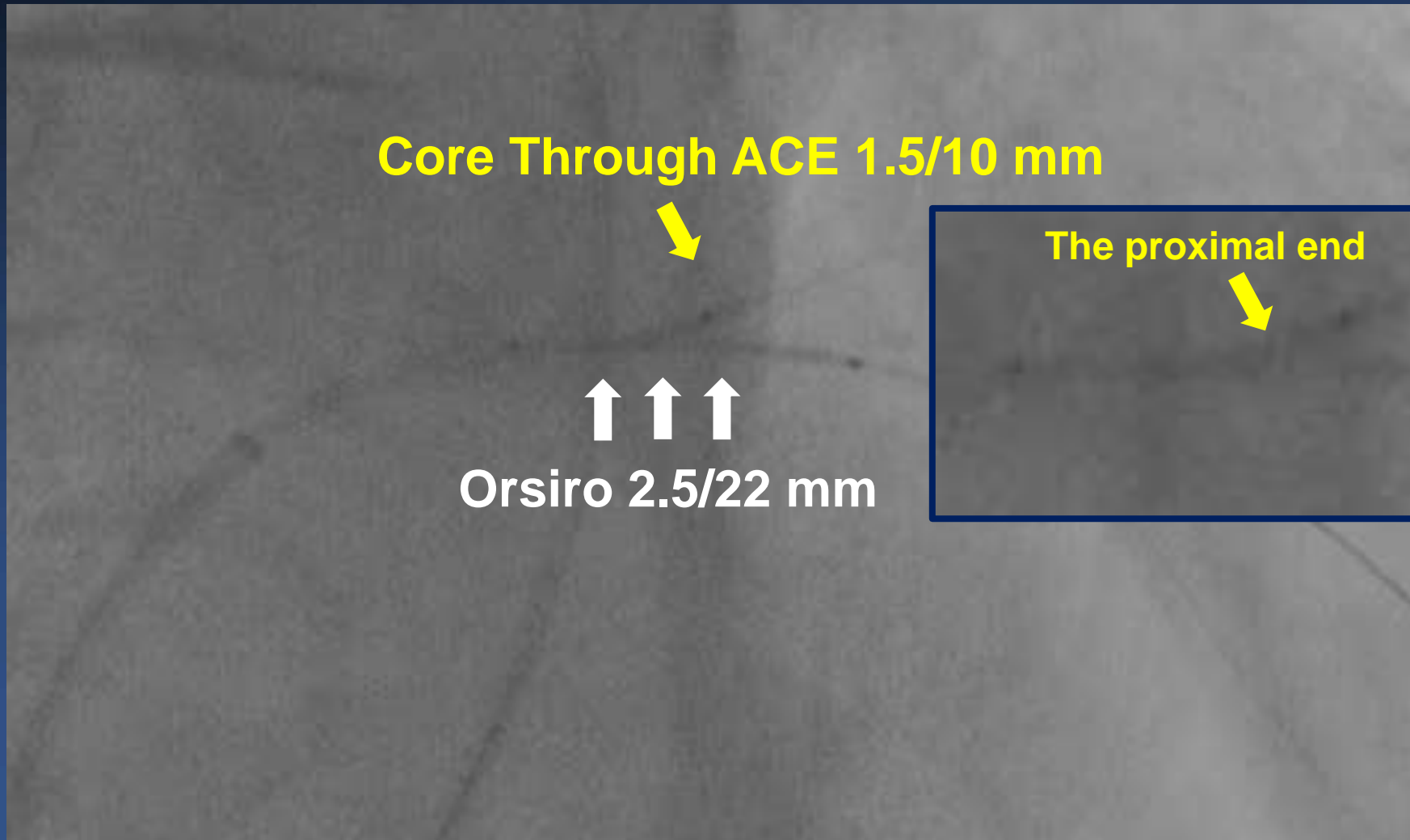
a true bifurcation lesion including calcification



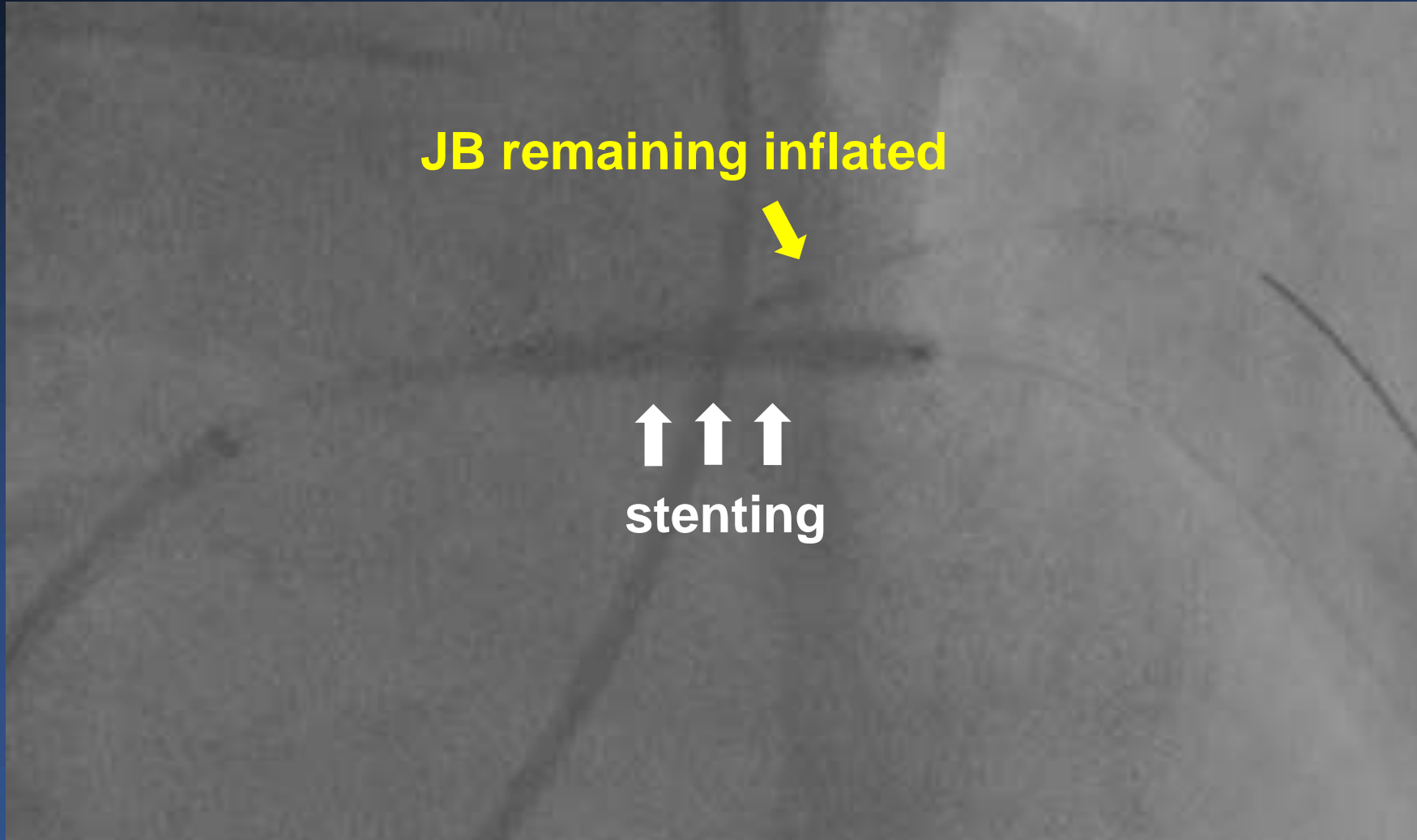
Pre-dilatation with ScoreFlex 2.5/10 mm



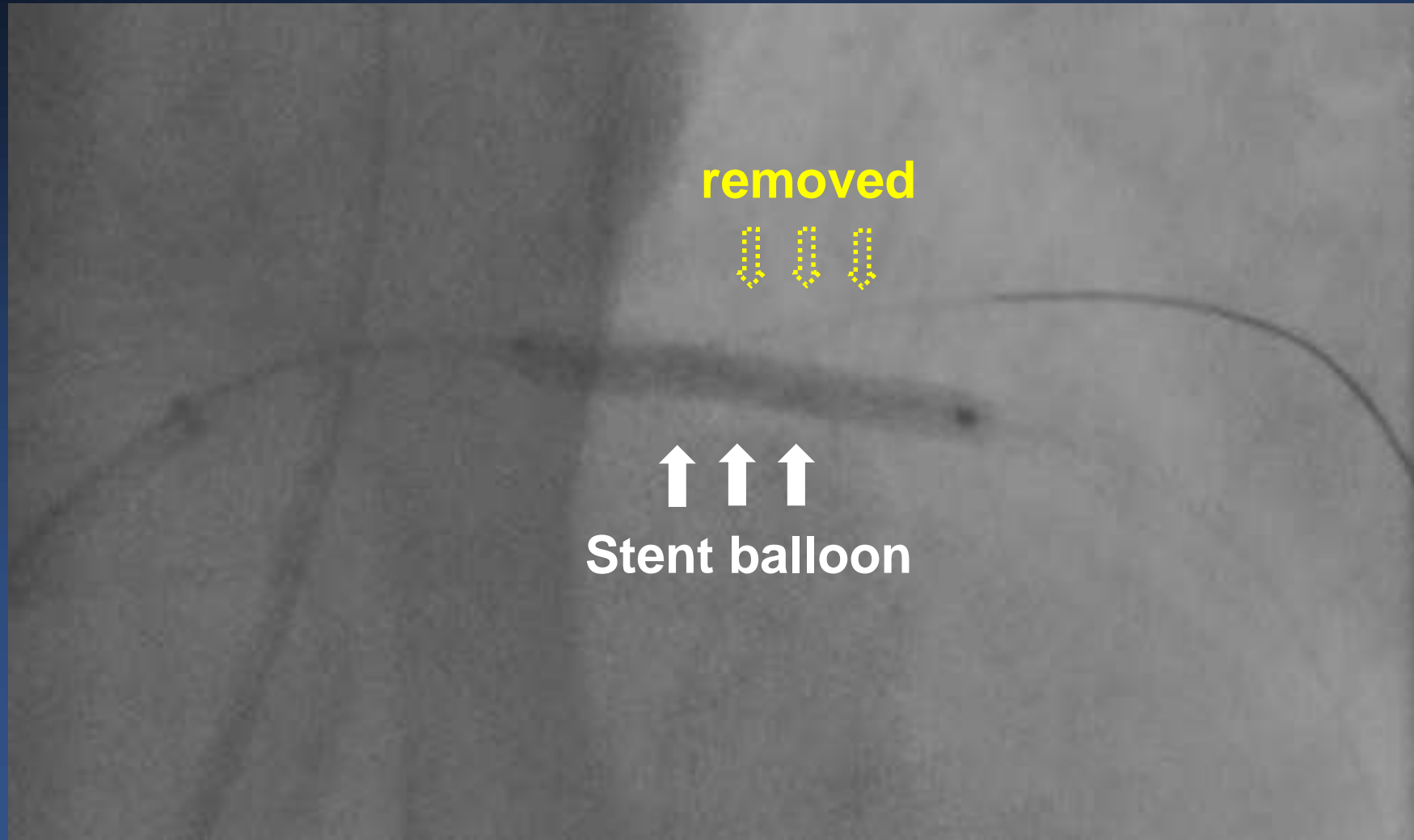
A modified jailed inflated balloon technique through SION blue into the D1



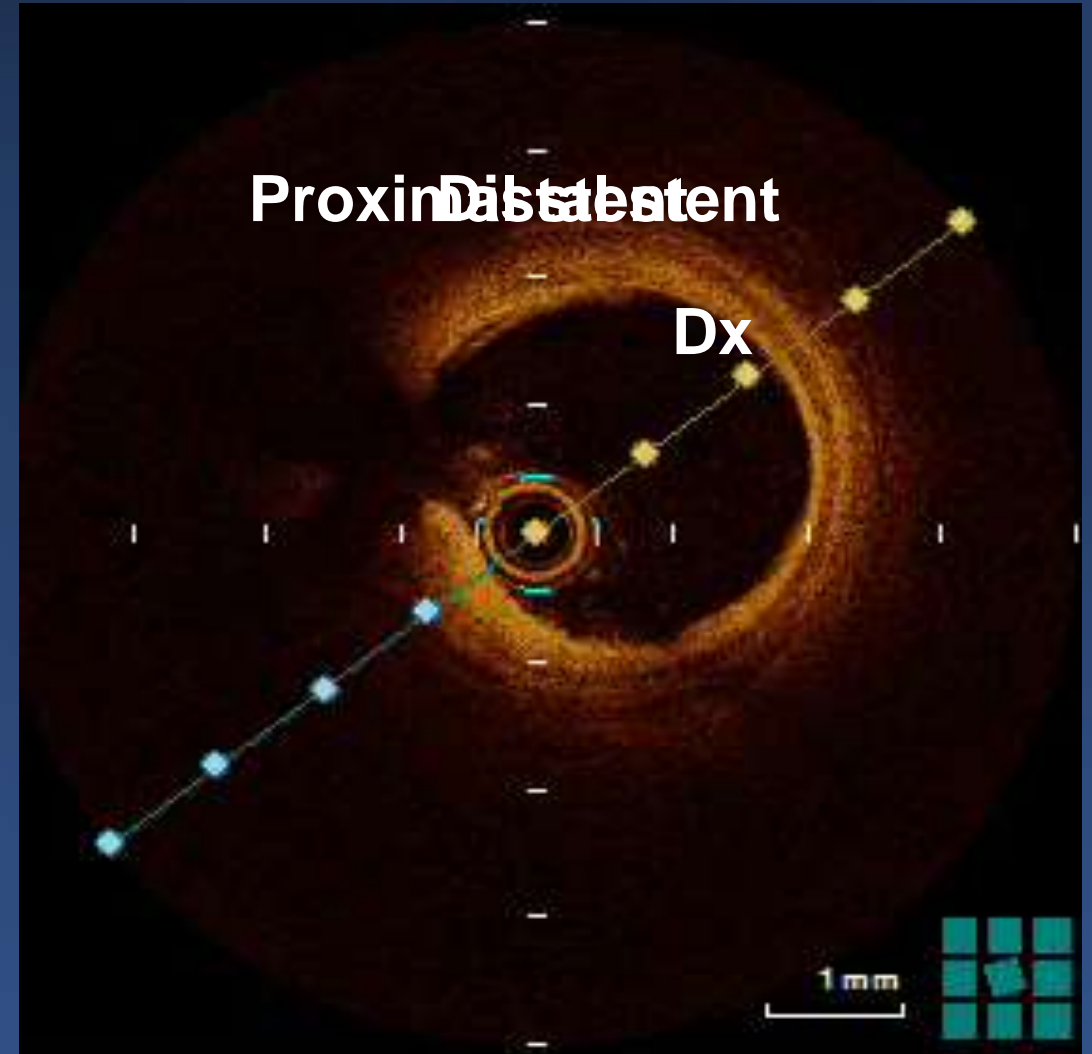
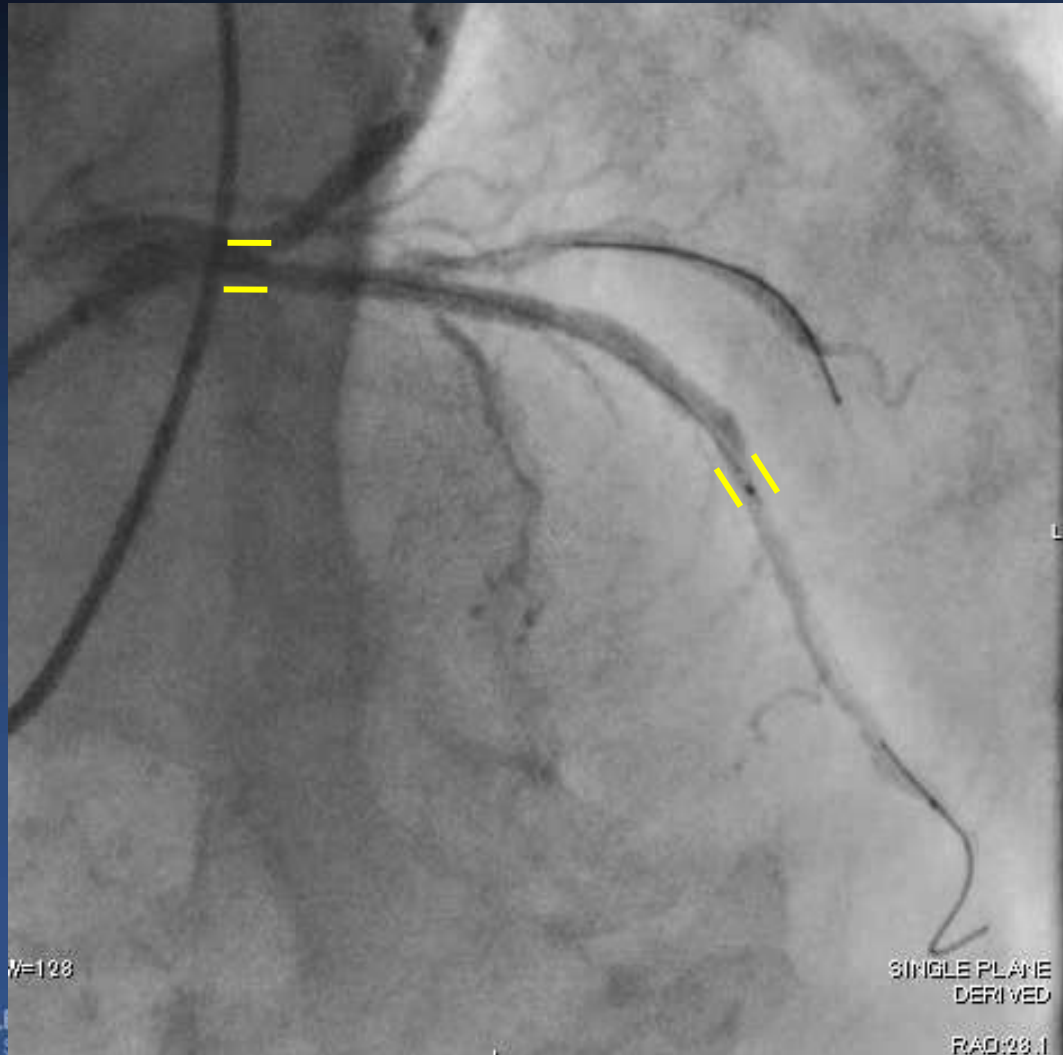
We implanted the DES while inflating the jailed balloon



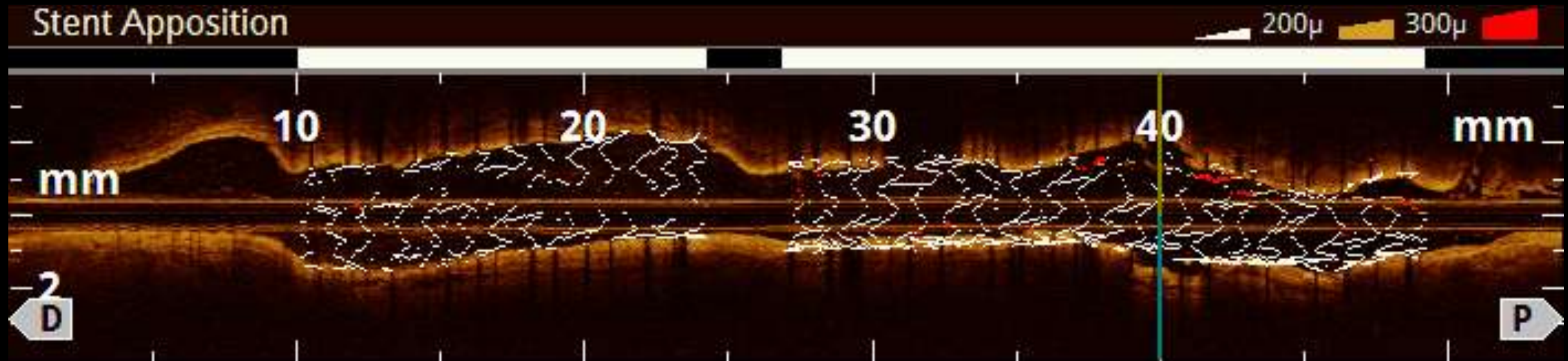
**After removing the jailed balloon,
we inflated the stent balloon again**



Post-PCI OCT after stent implantation



The reasonable stent apposition following a modified jailed inflated balloon technique

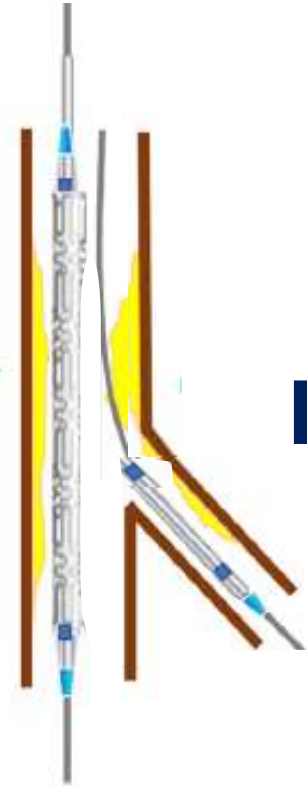


Discussion

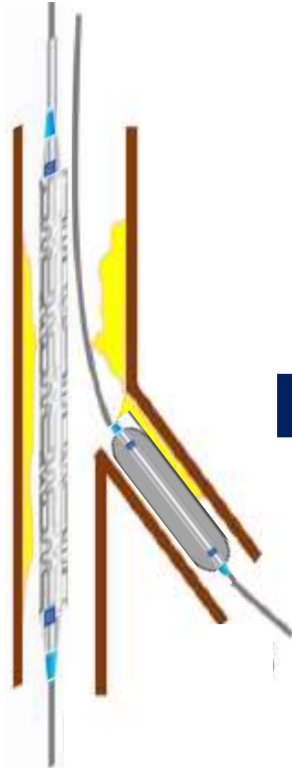
- A conventional jailed balloon technique has been designed as optimal treatment of bifurcation lesions to reduce side branch loss.
- There have been a lot of modified procedures ever proposed, but most of them postulate the re-cross of a guide wire into side branch through stent struts or tolerate the stent proximal deformity in main vessel.

Description of a modified jailed inflated balloon technique

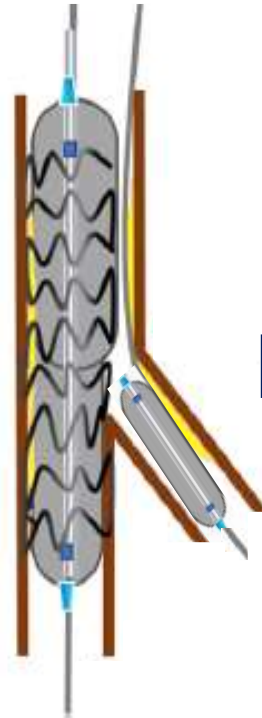
deployed



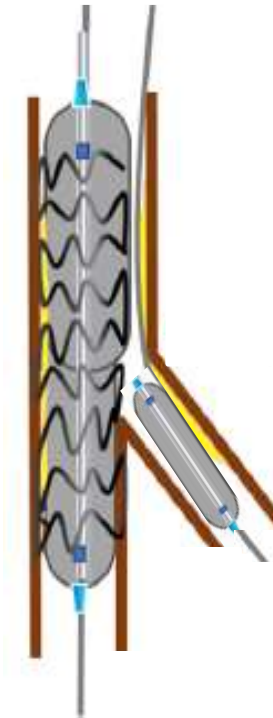
inflated the JB



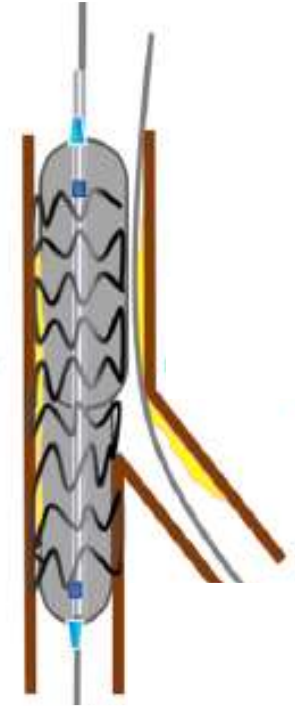
stent implant
+ JB



stent balloon
+ JB



stent balloon



Discussion Points

Secure side branch patency

- The stent implantation while inflating the jailed balloon prevents the plaque or carina shift into the side branch.

Simplifies a PCI procedure

- The full expansion using stent balloon after removing the jailed balloon does not require additional POT or KBT without causing stent deformity.

Conclusion/Take-home Message

- In conclusion, the proposed method is an applicable and therapeutic tool for side branch protection in coronary bifurcation lesions while minimizing a risk of stent deformity.