Technical Tips of 2 stent technique . What do we have? (Mini)Crush/Culotte/TAP

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No conflict of Interest

- No Disclosures

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Contemporary Stent Treatment of Coronary Bifurcations

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Milan, Italy

Treatment of coronary bifurcation lesions represents a challenging area in interventional cardiology. The introduction of drug-eluting stents (DES) reduced restenosis in the main branch (MB). However, restenosis at the ostium of the side branch (SB) remains a problem. Although stenting the MB with provisional SB stenting seems to be the prevailing approach, in the era of DES various two-stent techniques emerged (crush) or were re-introduced (V or simultaneous kissing stents, crush, T, culottes, Y, skirt) to allow stenting in the SB when needed. This review describes in detail various techniques used for implantation of two stents by intention to treat. (J Am Coll Cardiol 2005;46:1446–55) © 2005 by the American College of Cardiology Foundation

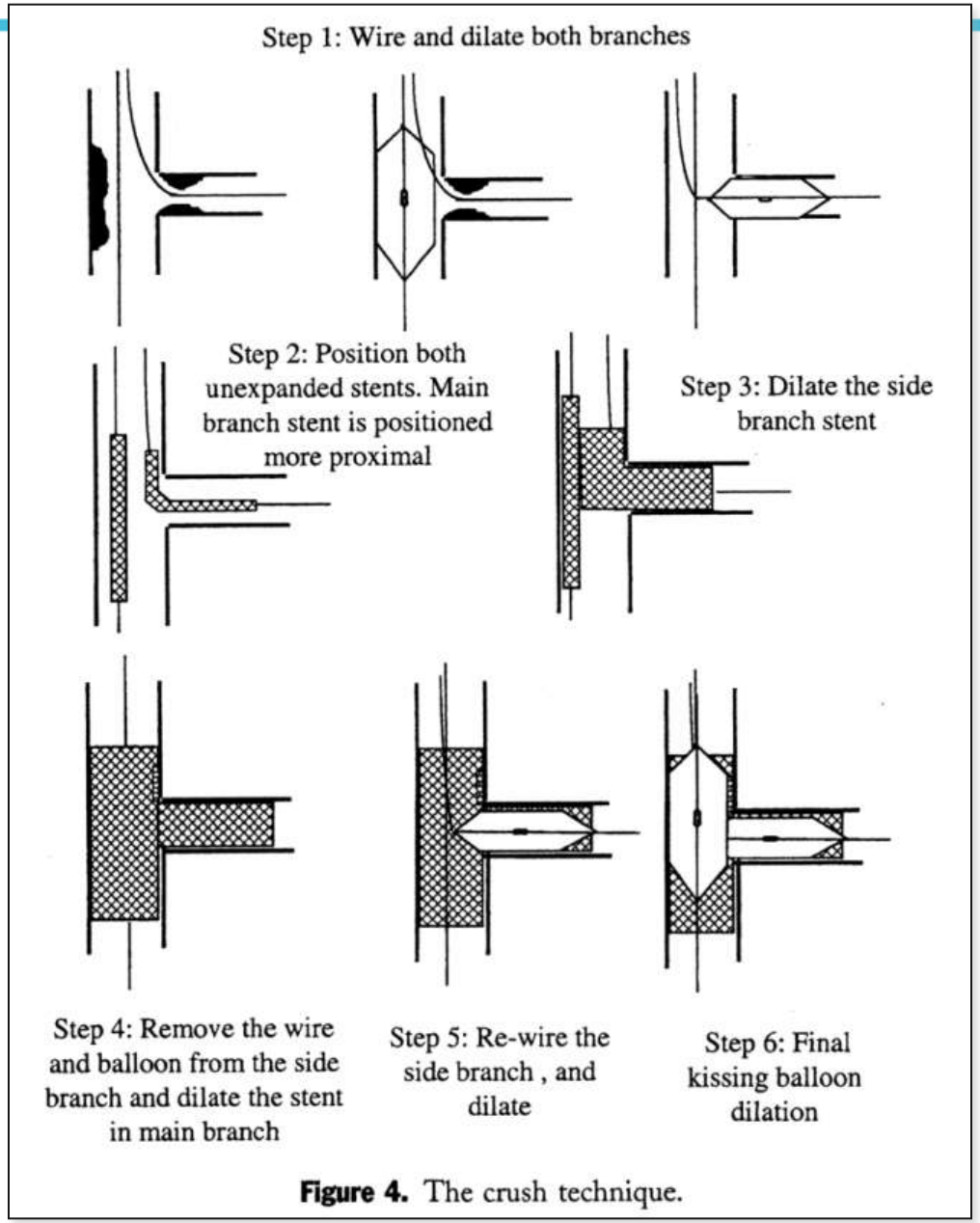

Figure 4. The crush technique.

Bifurcation Lesion Stenting

Impact of Stent Geometry

and

Technique

on

Outcomes

(and Potential for Dedicated Bifurcation Stents)

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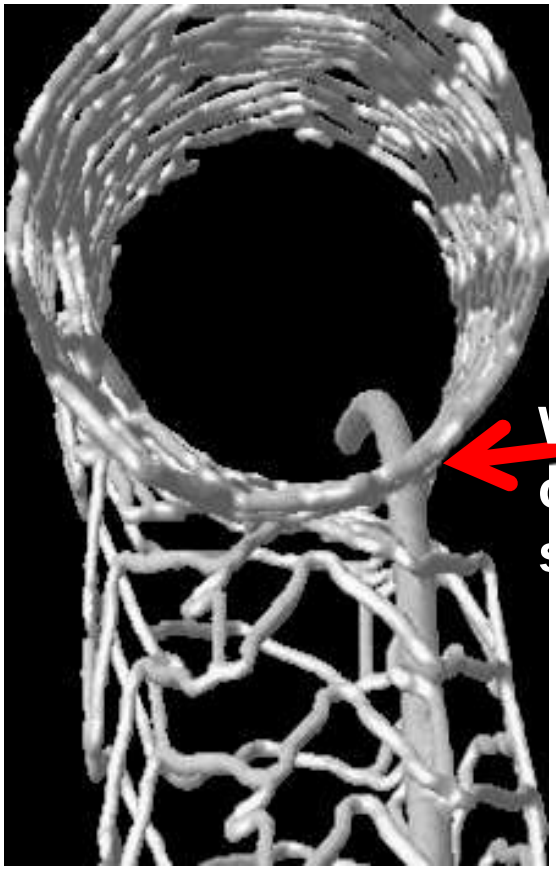
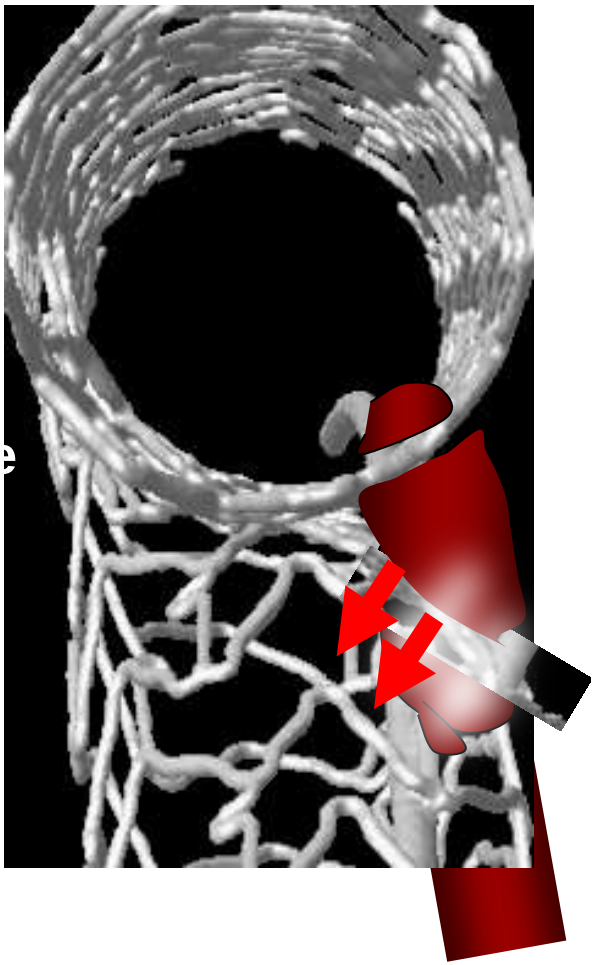
Interventional Cardiologist Mercy, Auckland, North Shore Hospitals

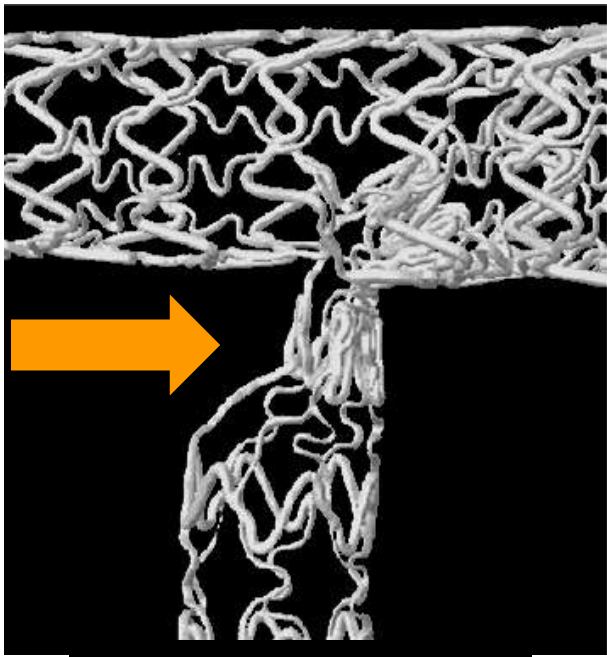
10:30 AM - 10:45 AM

- Wire exiting from lumen with “Crush” stenting
- Wire crosses the gap between MB and SB Inflation of a balloon tracking over the wire causes gap

Ormiston JACC Int 2008







Gap in strut coverage

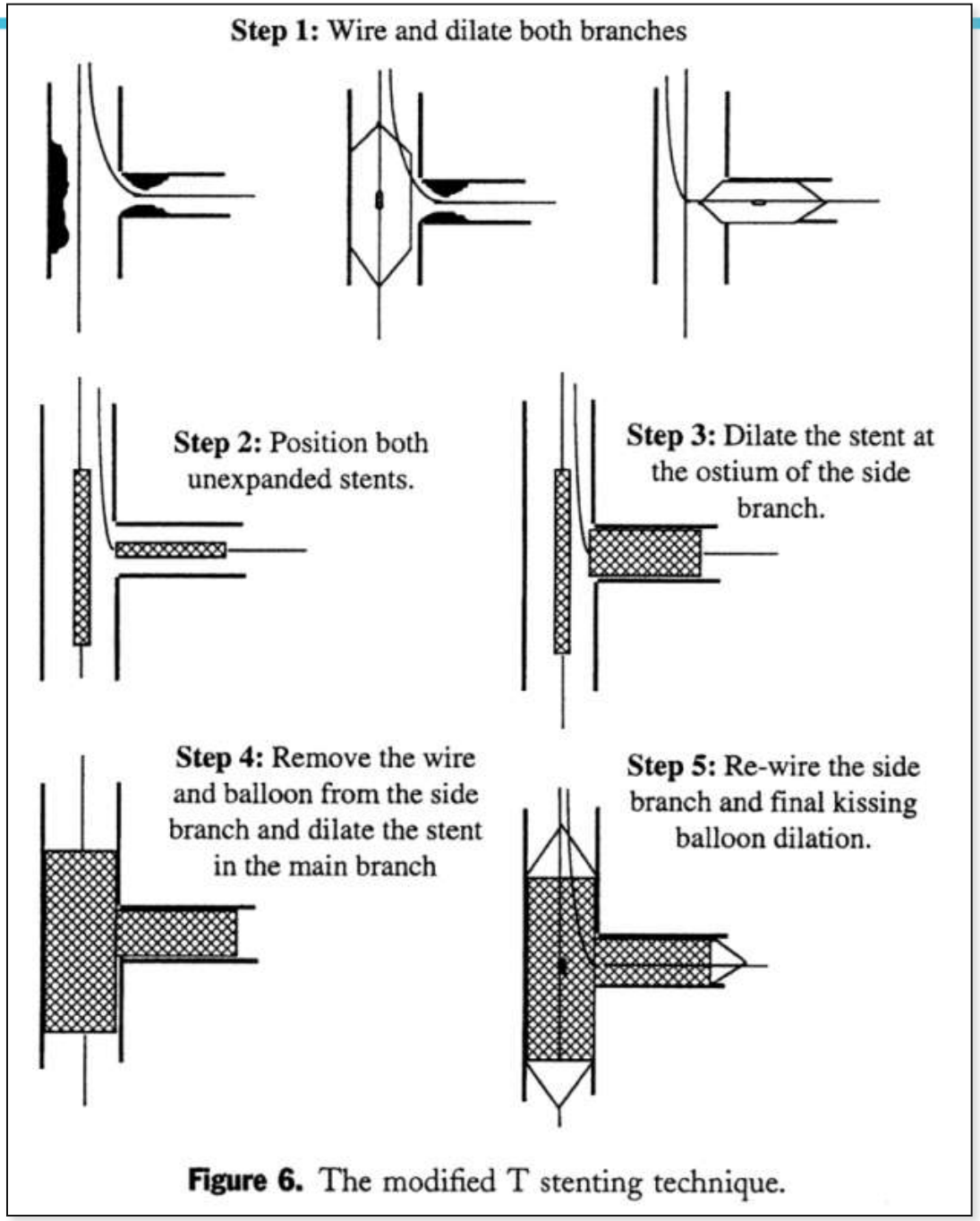
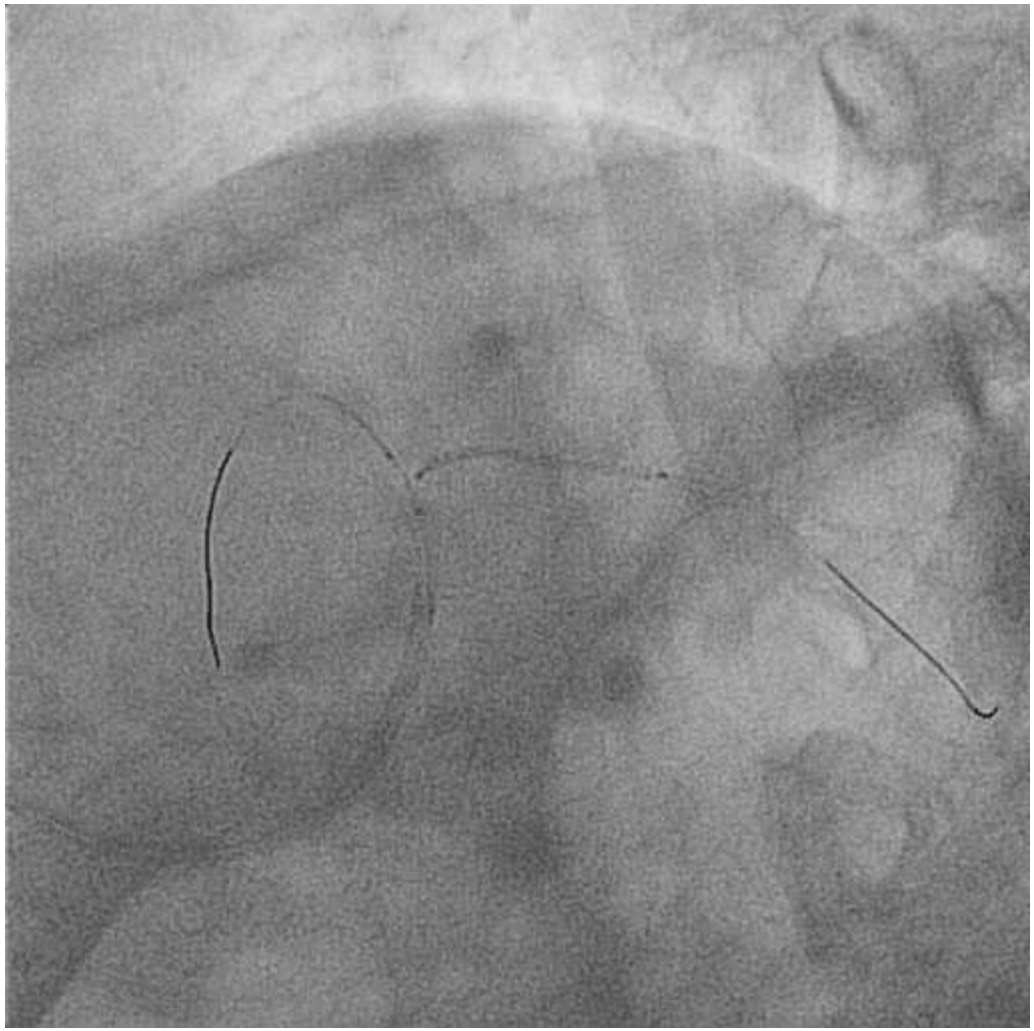
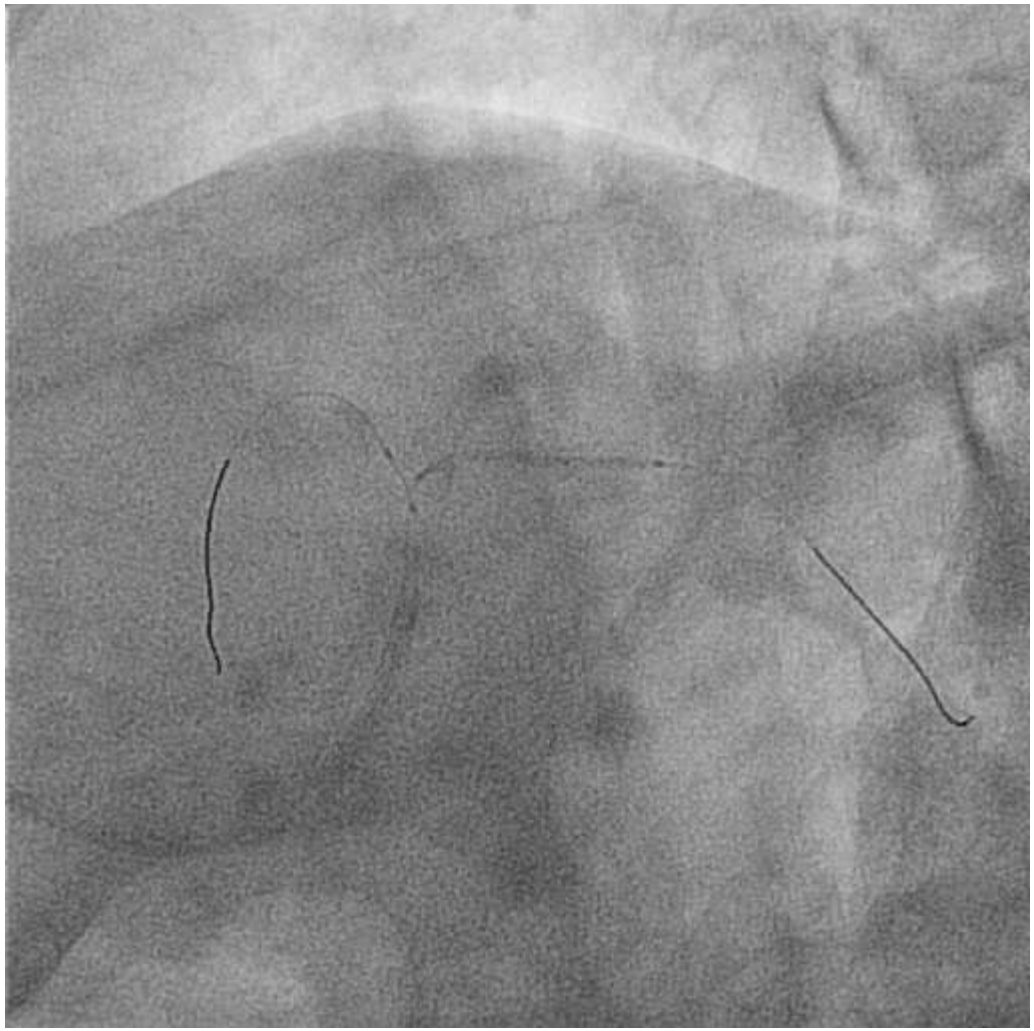
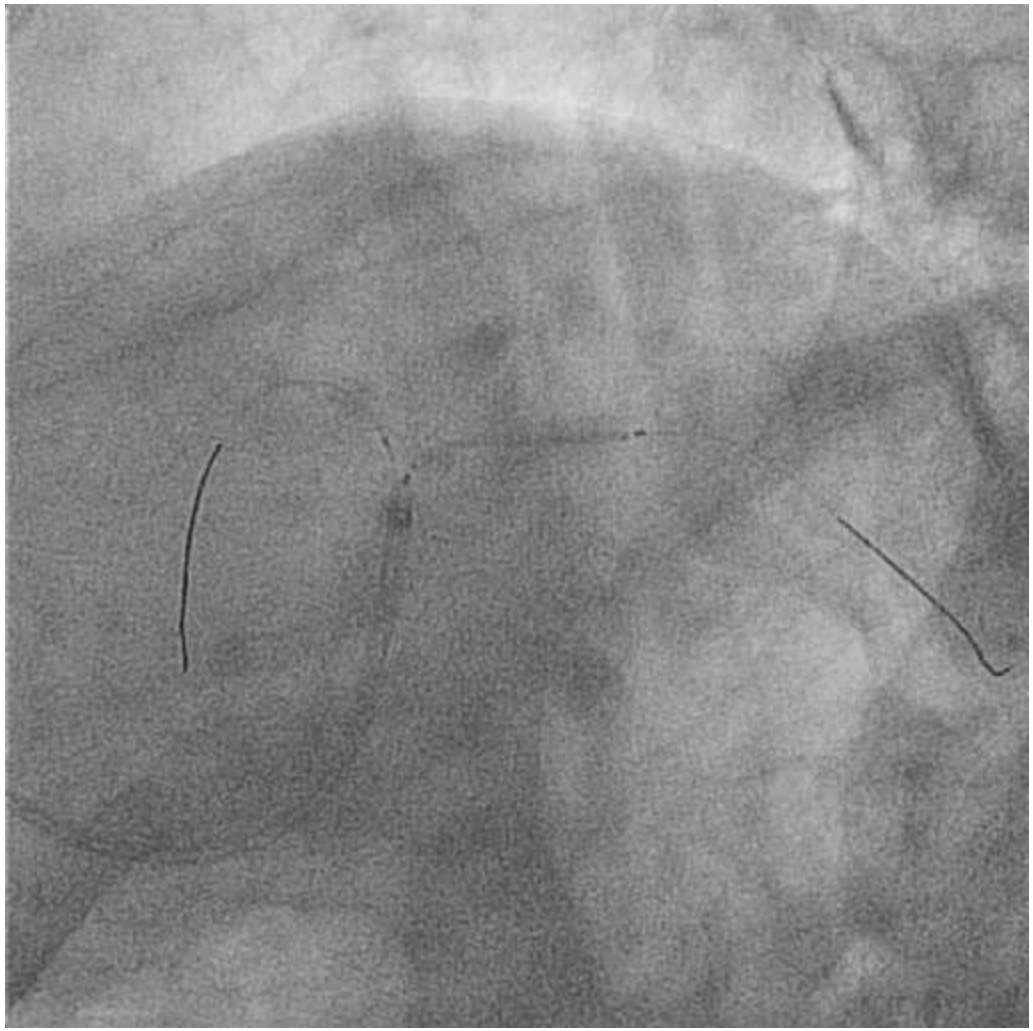
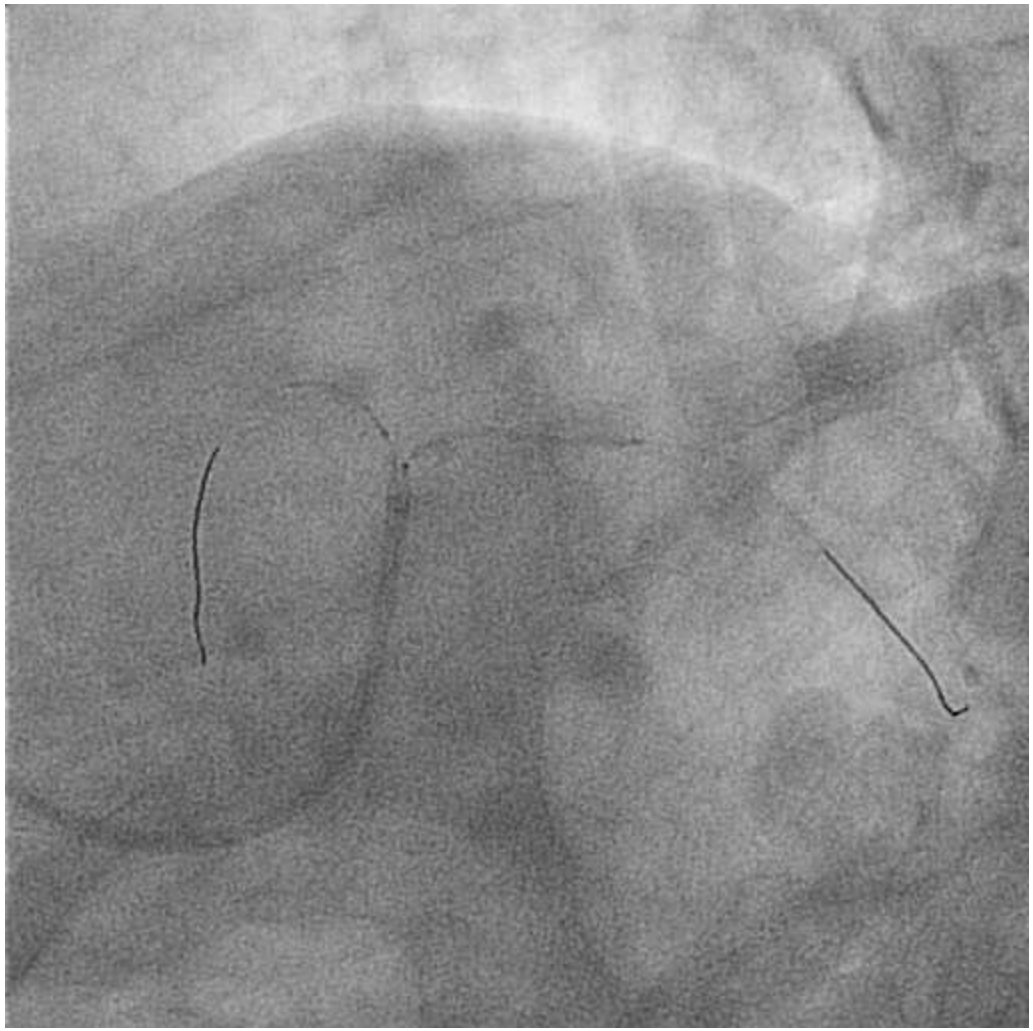


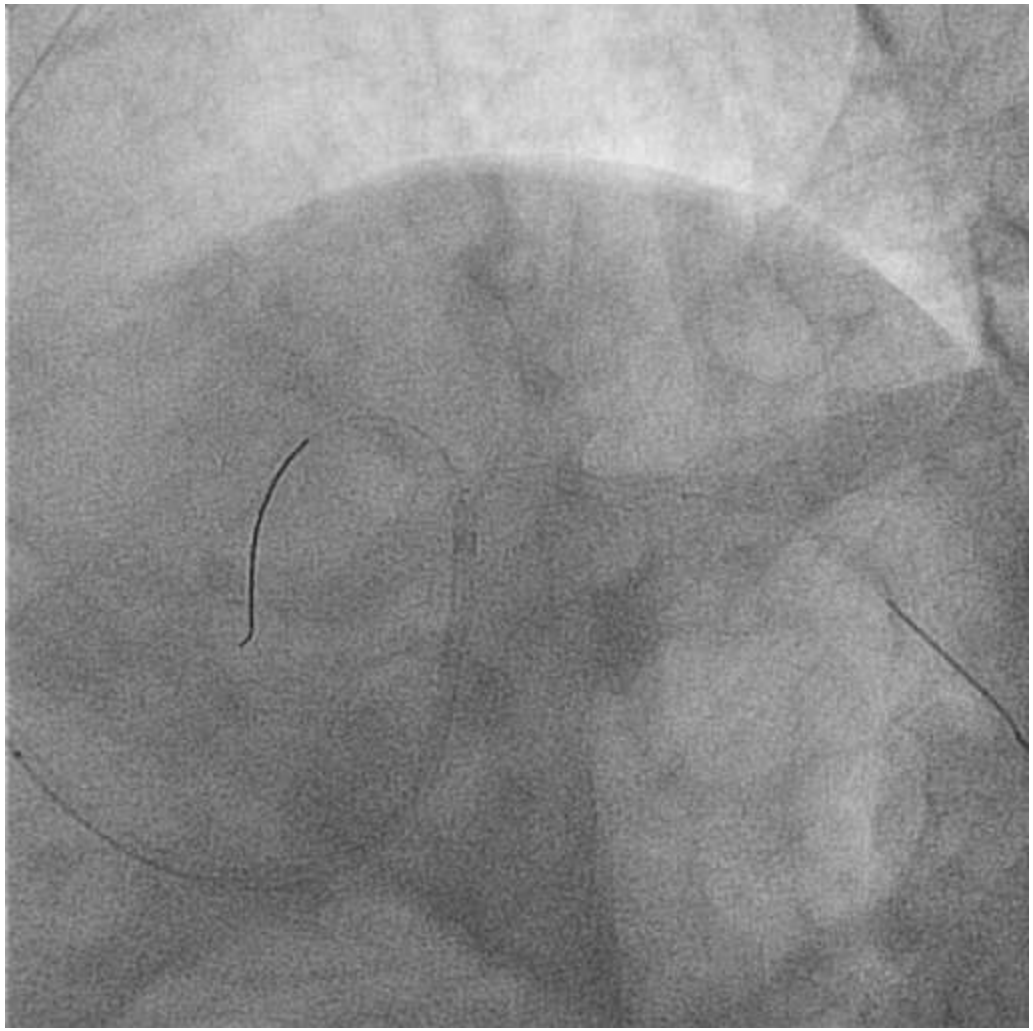
Figure 6. The modified T stenting technique.











Remarks

- Preferred when vessel sizes mismatch
- Outcome as compared to other techniques?
- Angle dependent

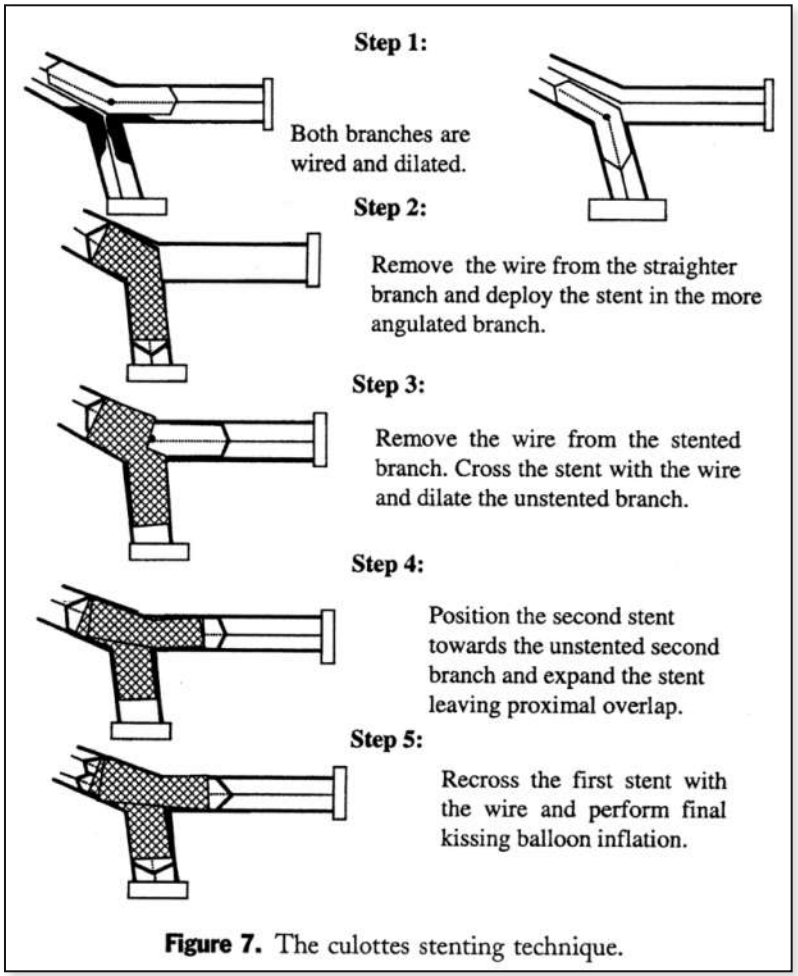
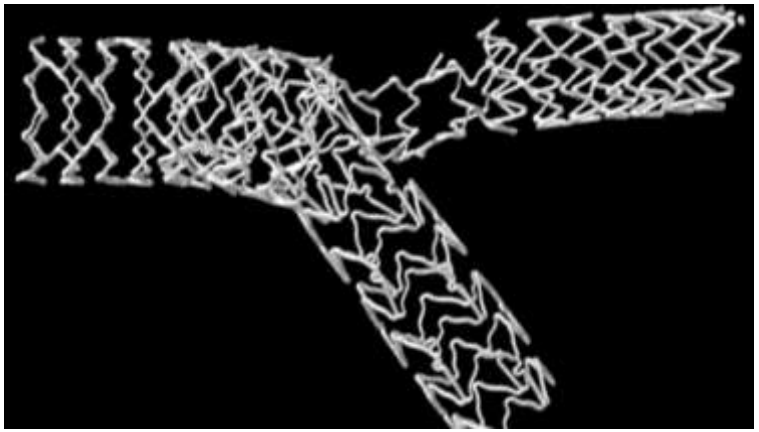
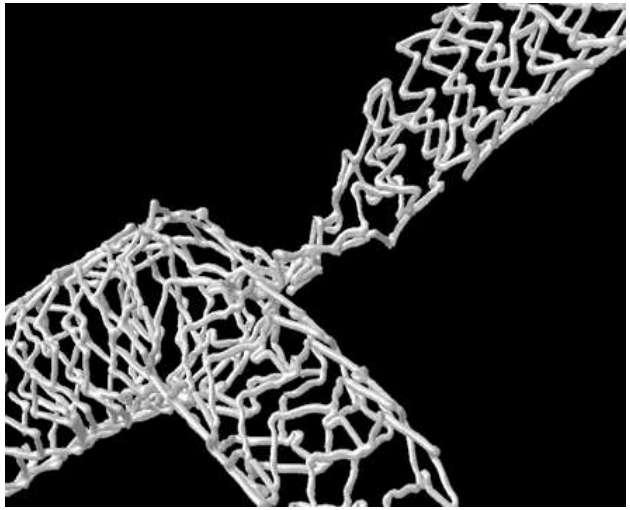


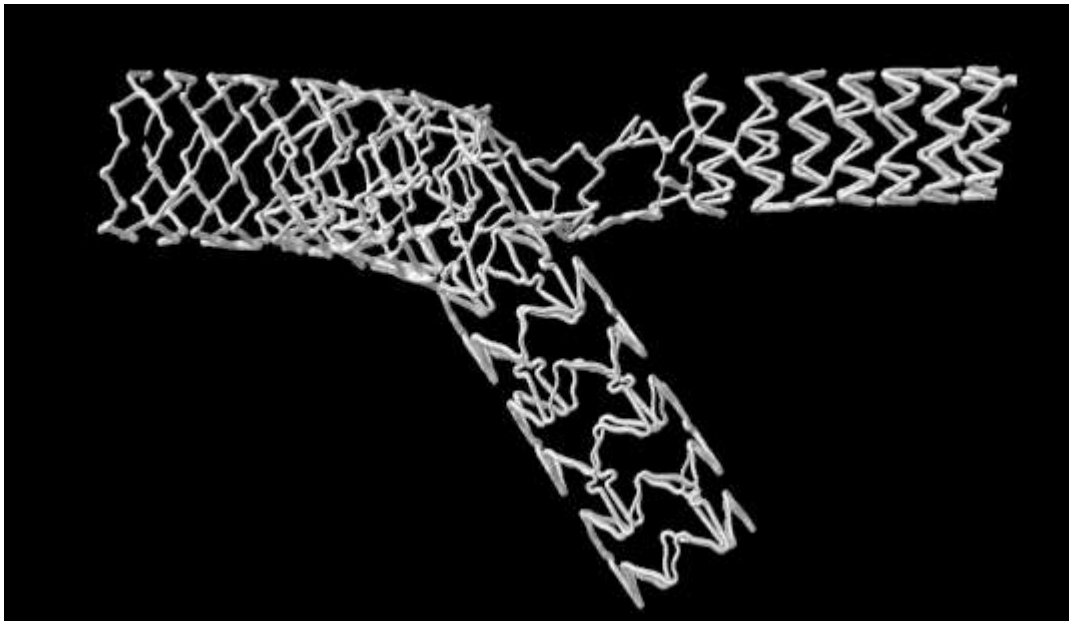
Figure 7. The culottes stenting technique.

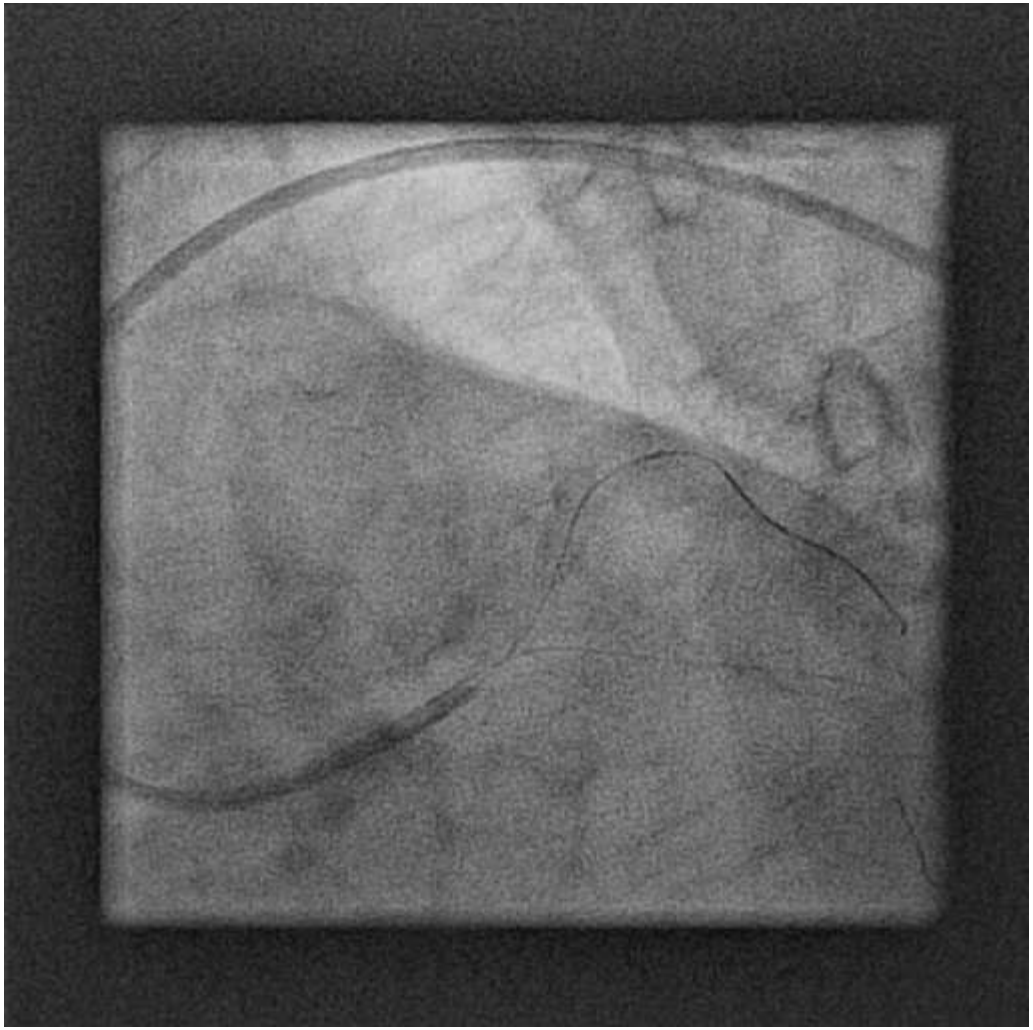


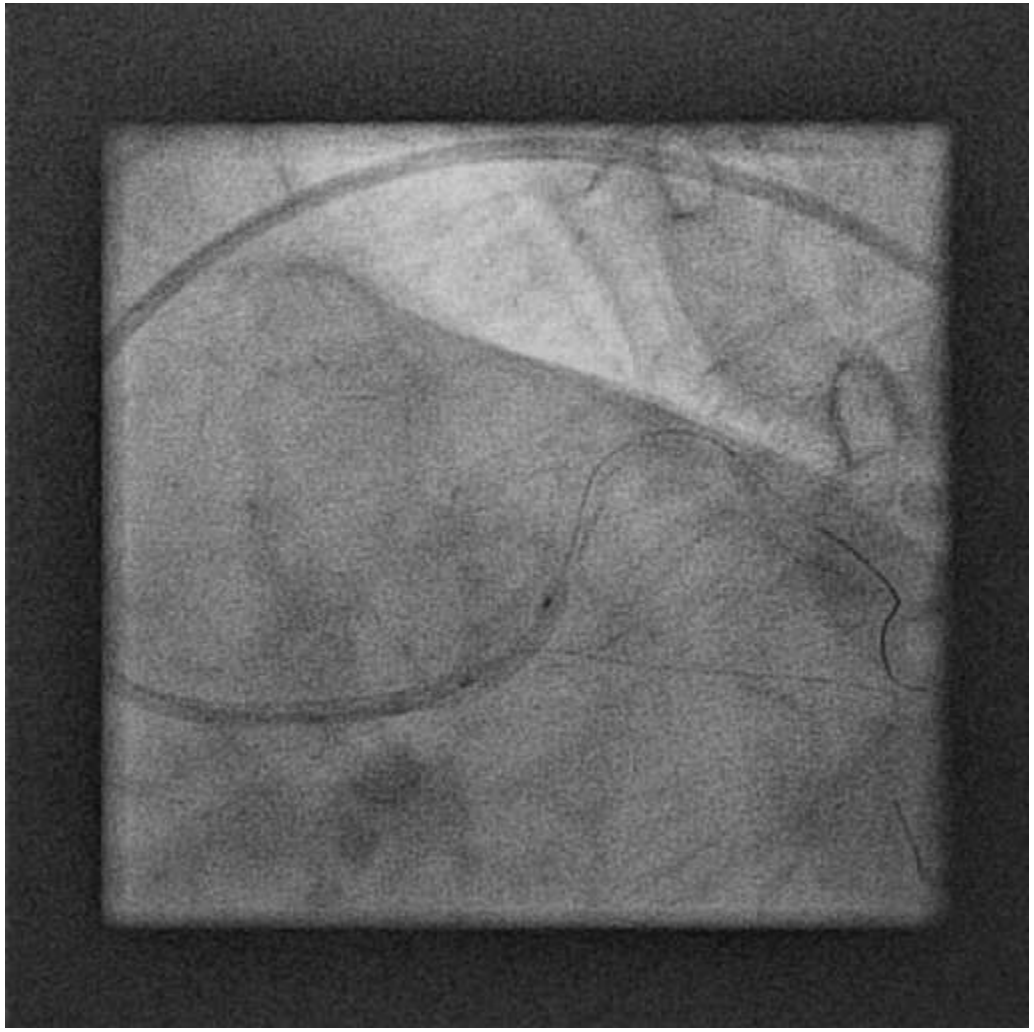
Culotte stenting

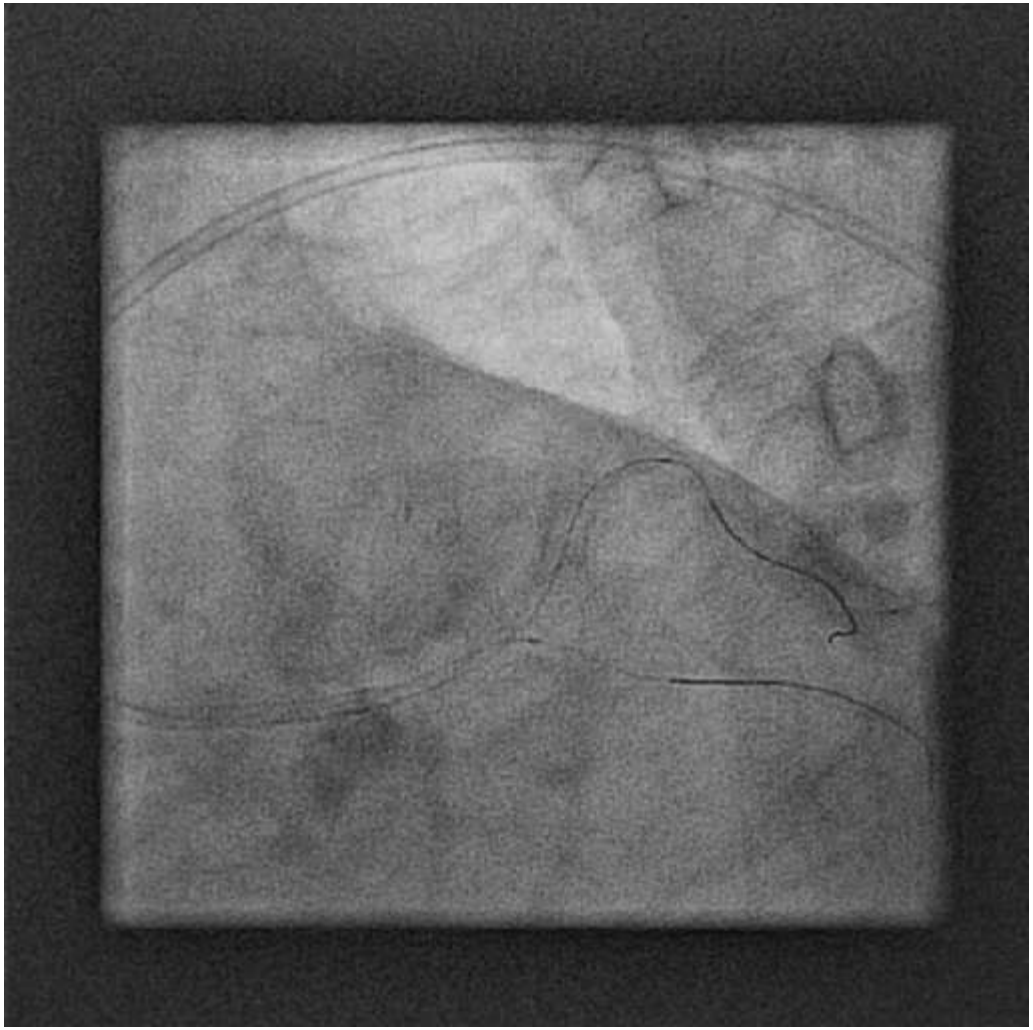
- A wire followed by a balloon has passed through the side of the MB stent and re-entered
- Distortion with balloon inflation

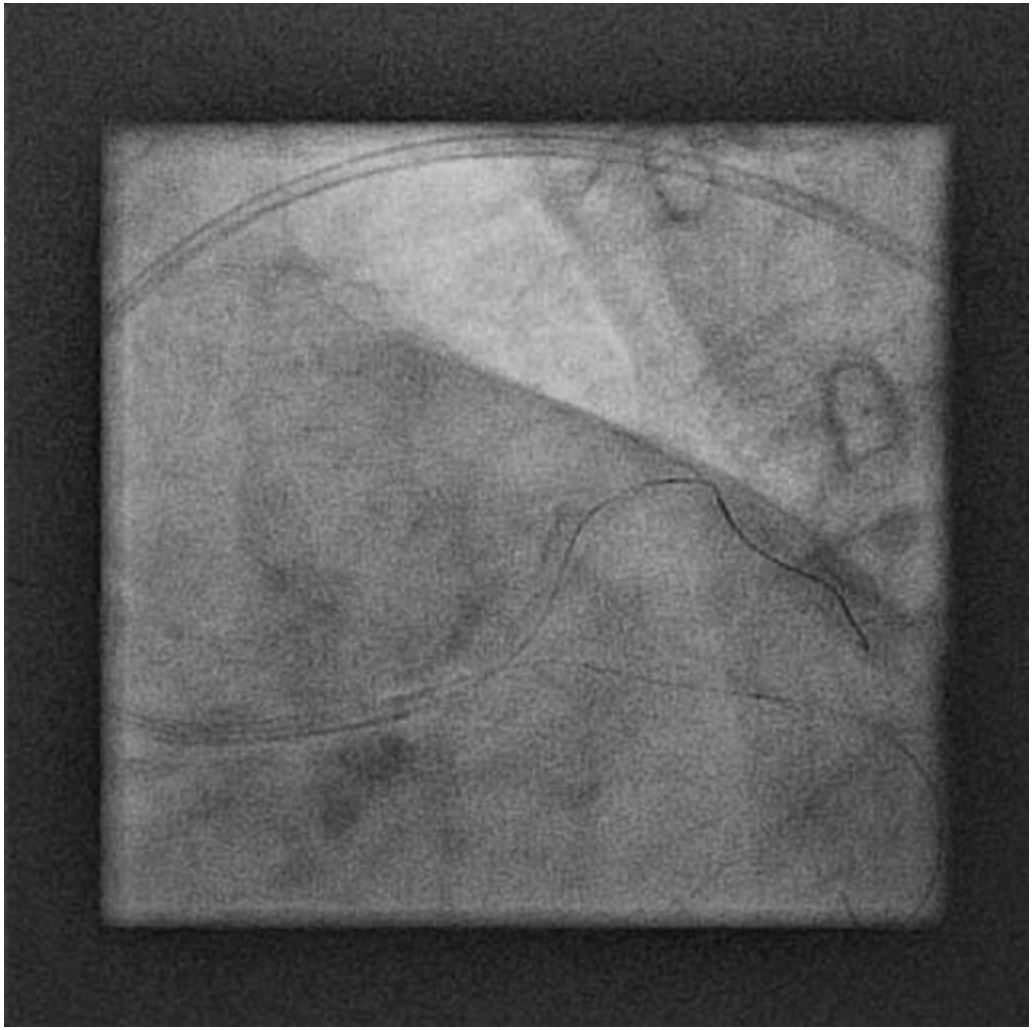


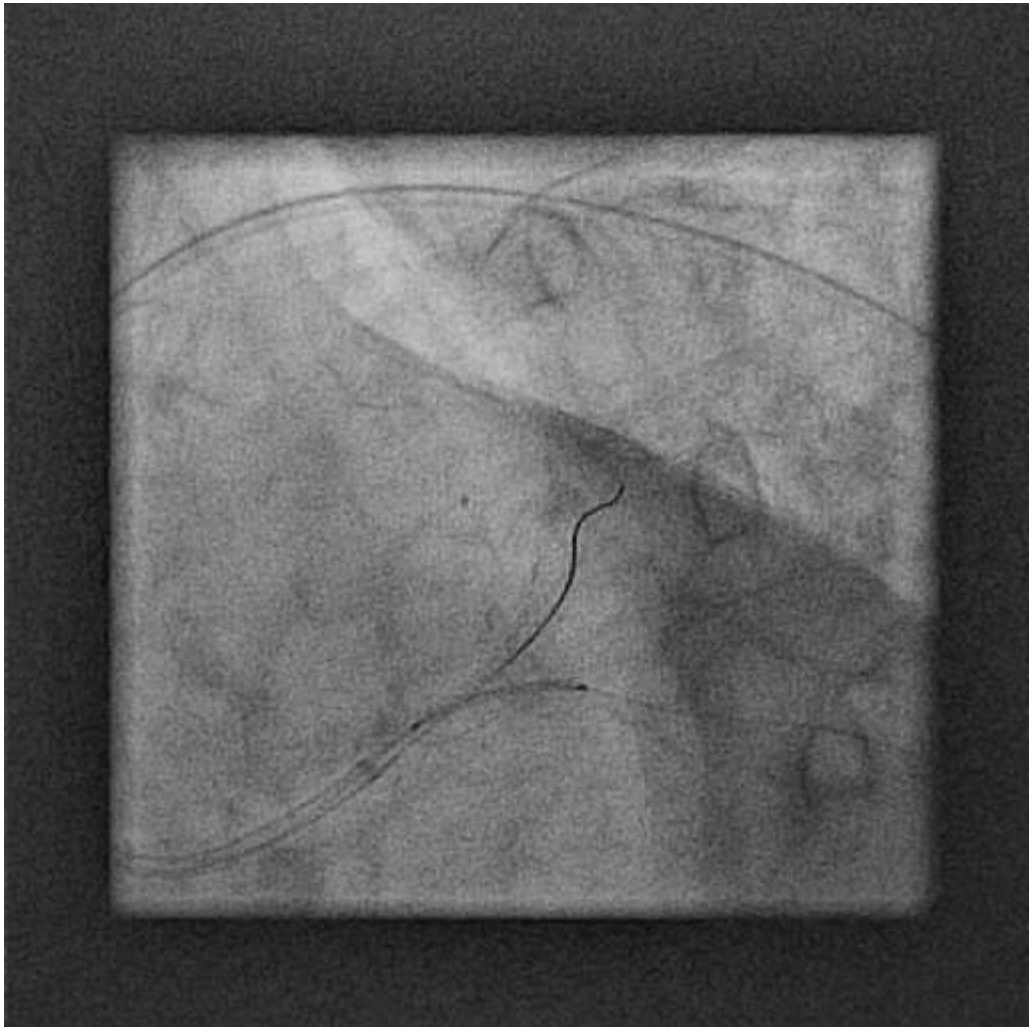


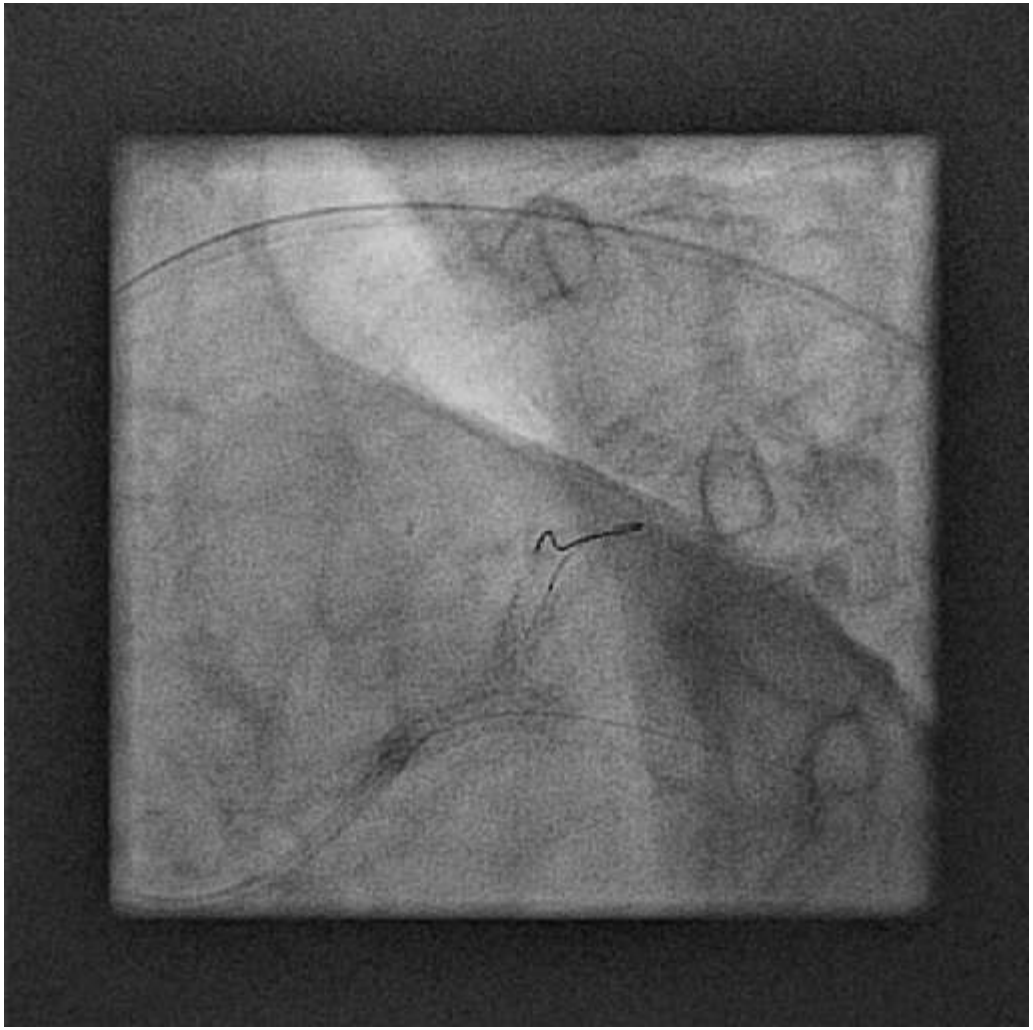


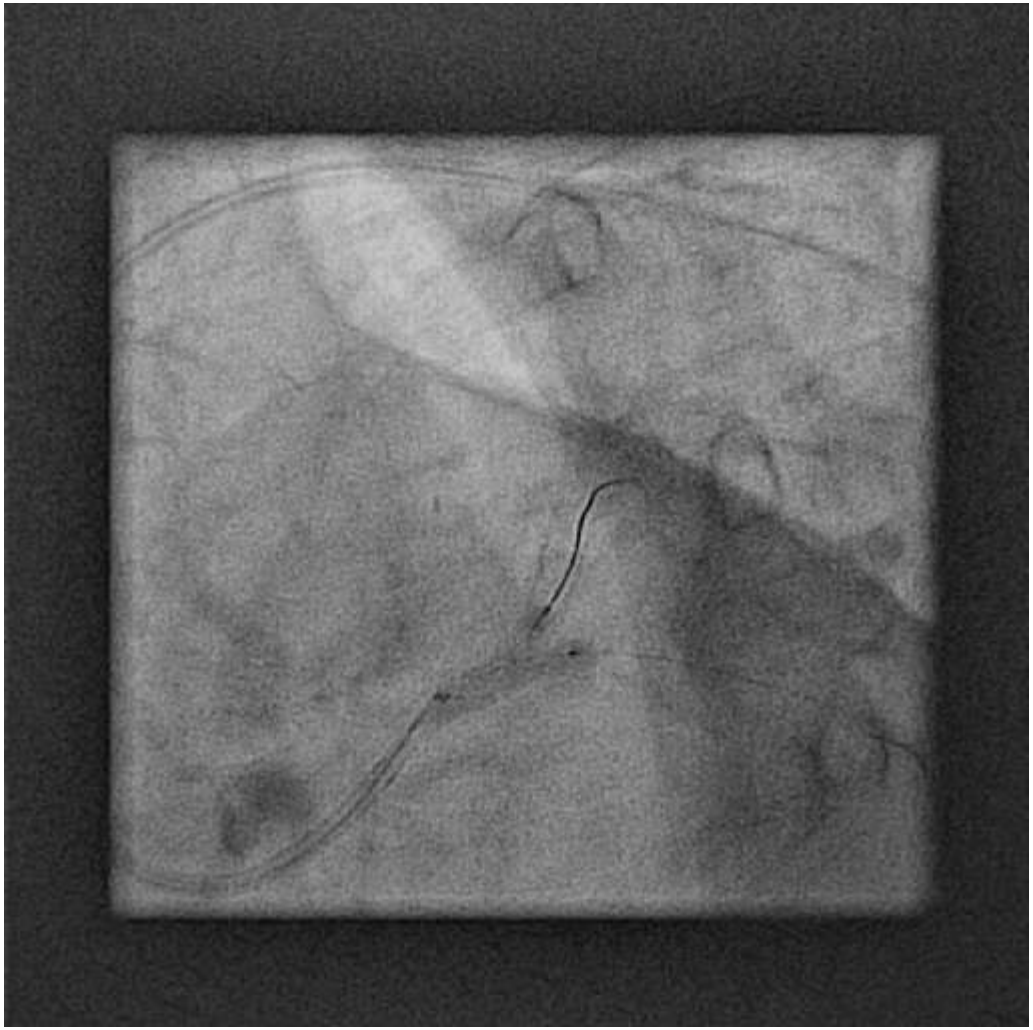


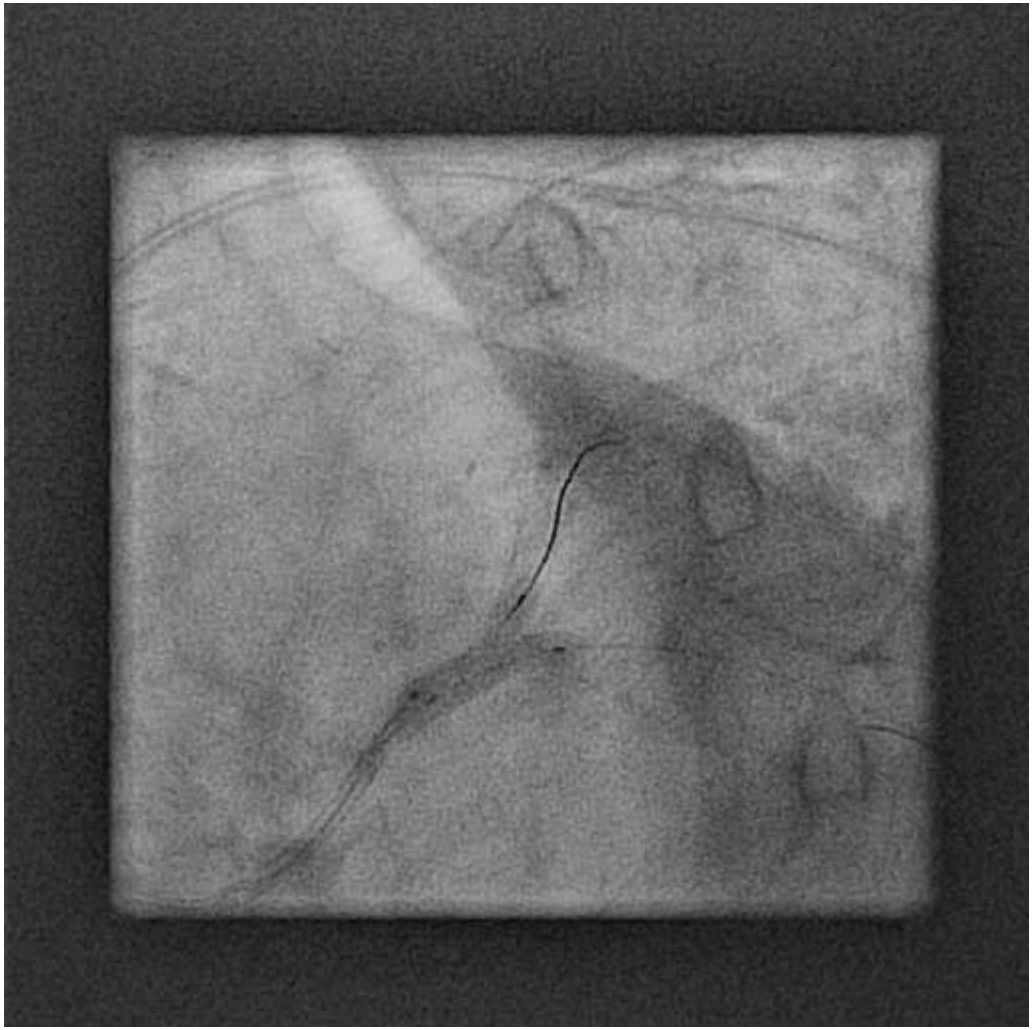


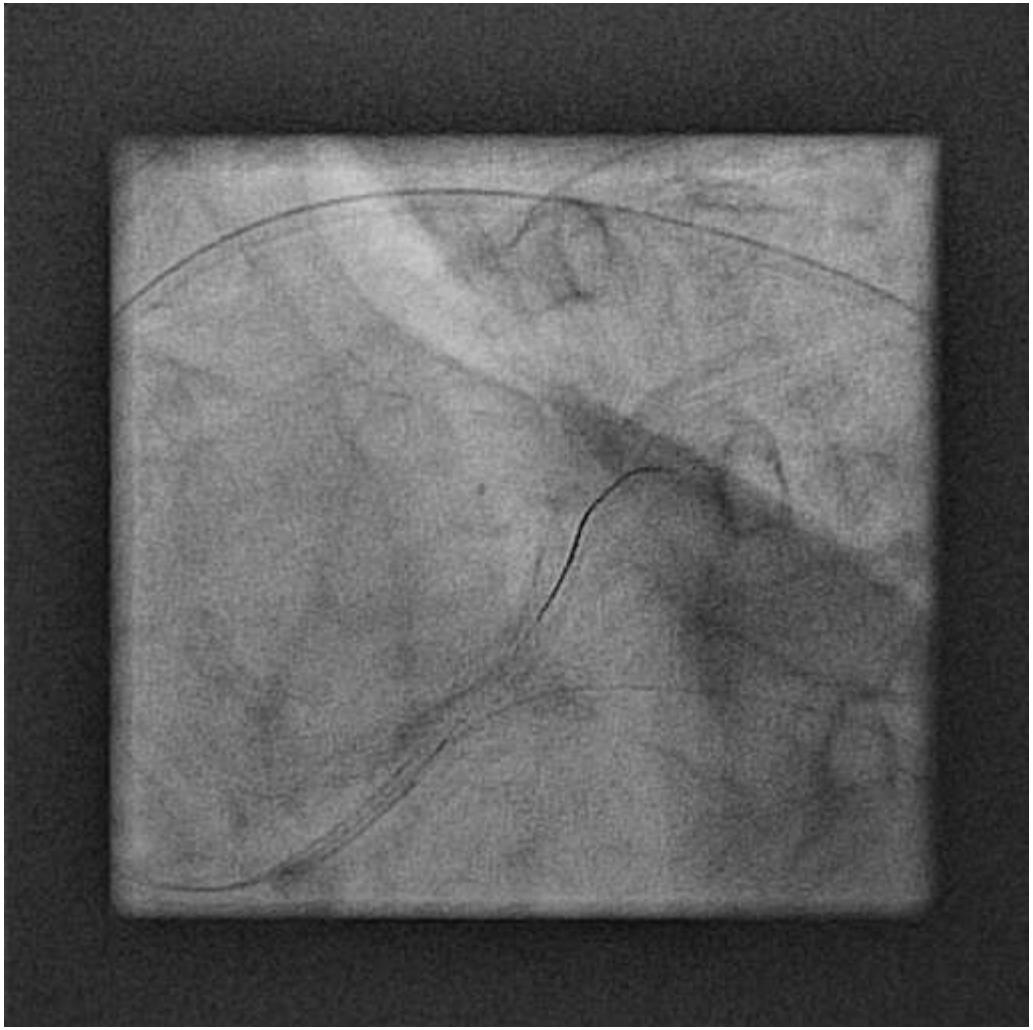








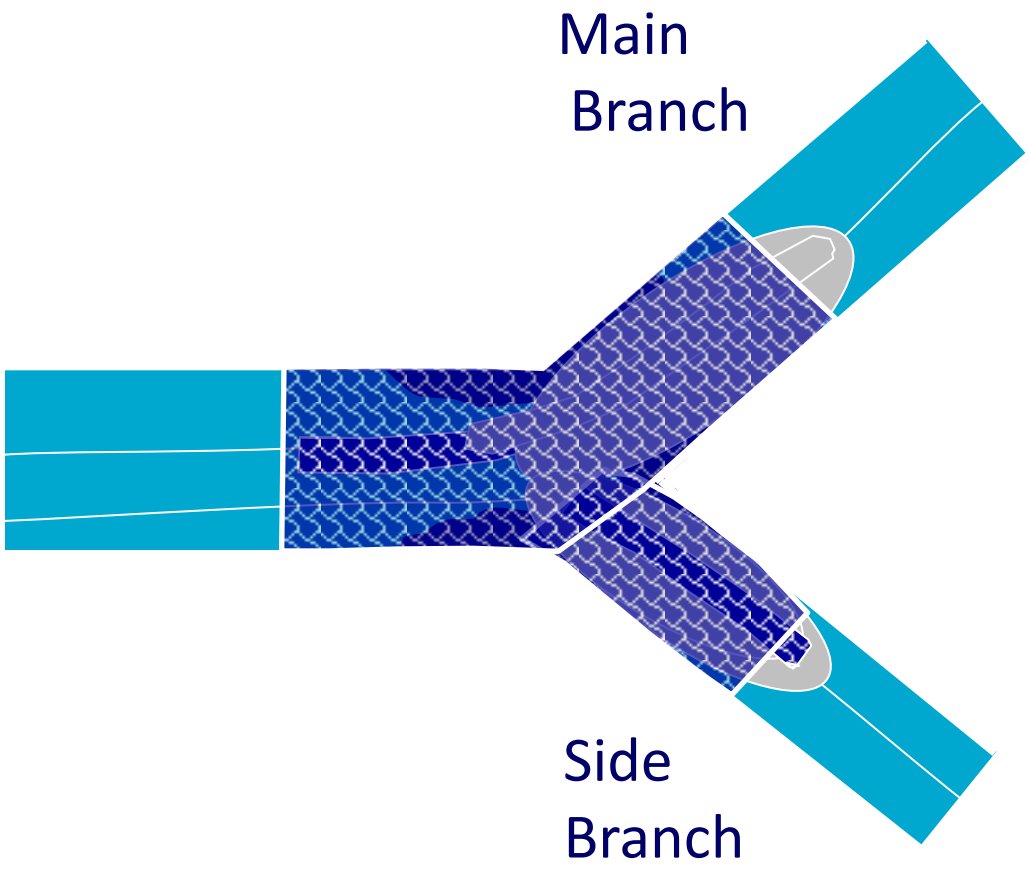




Remarks

- Preferred when vessel sizes match
- Little bit more complex
- Angle dependent

The TAP Technique
T stent And Protrusion



- Wire both vessels
- Pre-dilate as needed
- Position and deploy main branch stent
- **Rewire side branch and balloon dilate (KEY)**
- Position side branch stent so proximal edge protrudes slightly into main branch, ‘backstop’ balloon in main branch
- Deploy side branch stent first, then inflate main branch balloon to kiss

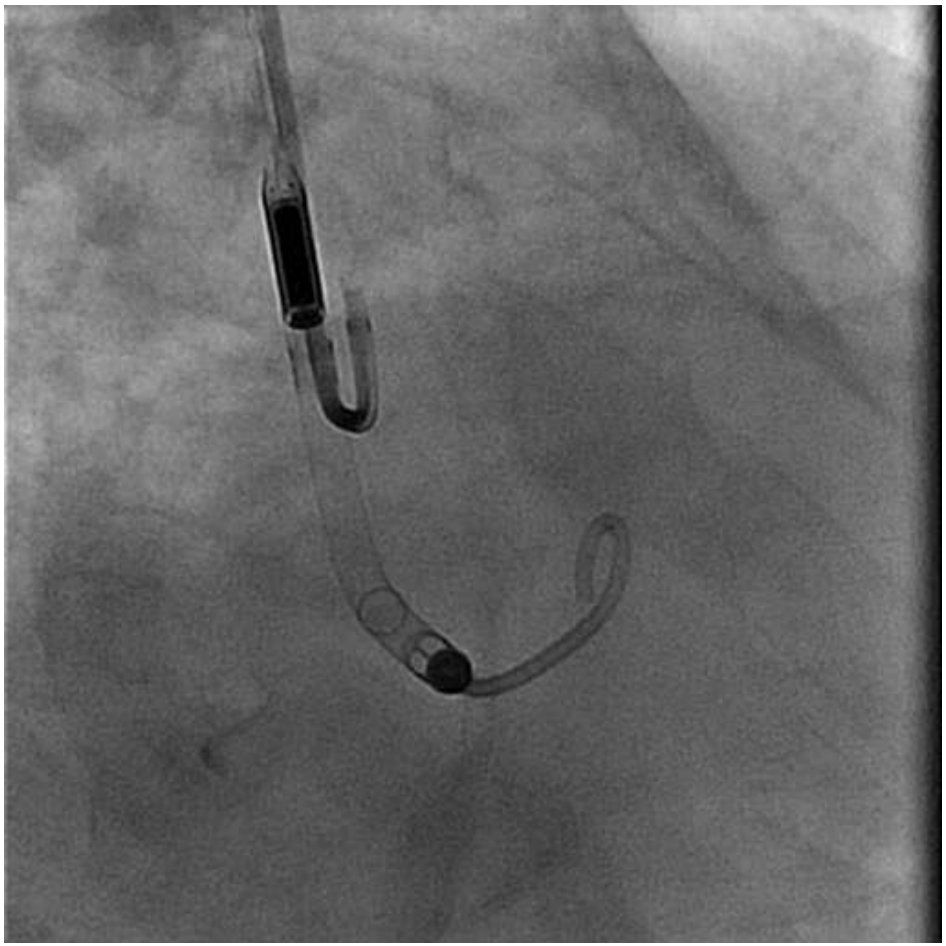
TAP: Pros and Cons

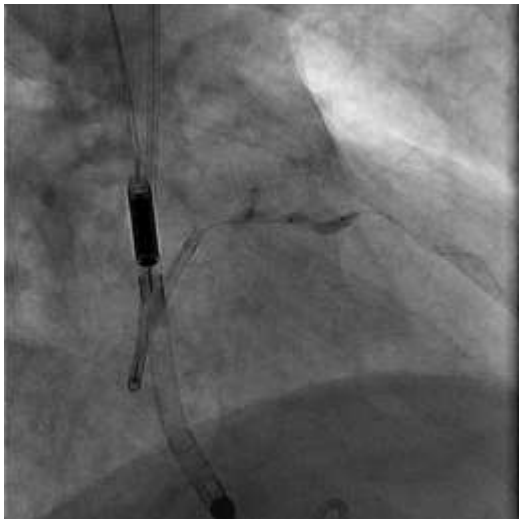
Advantages:

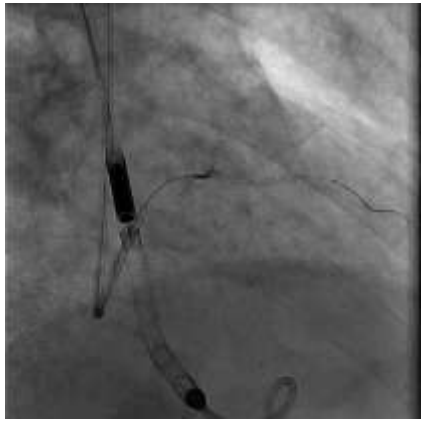
- Relatively simple
- Assures ostium coverage
- Less metal at side branch ostium compared to crush

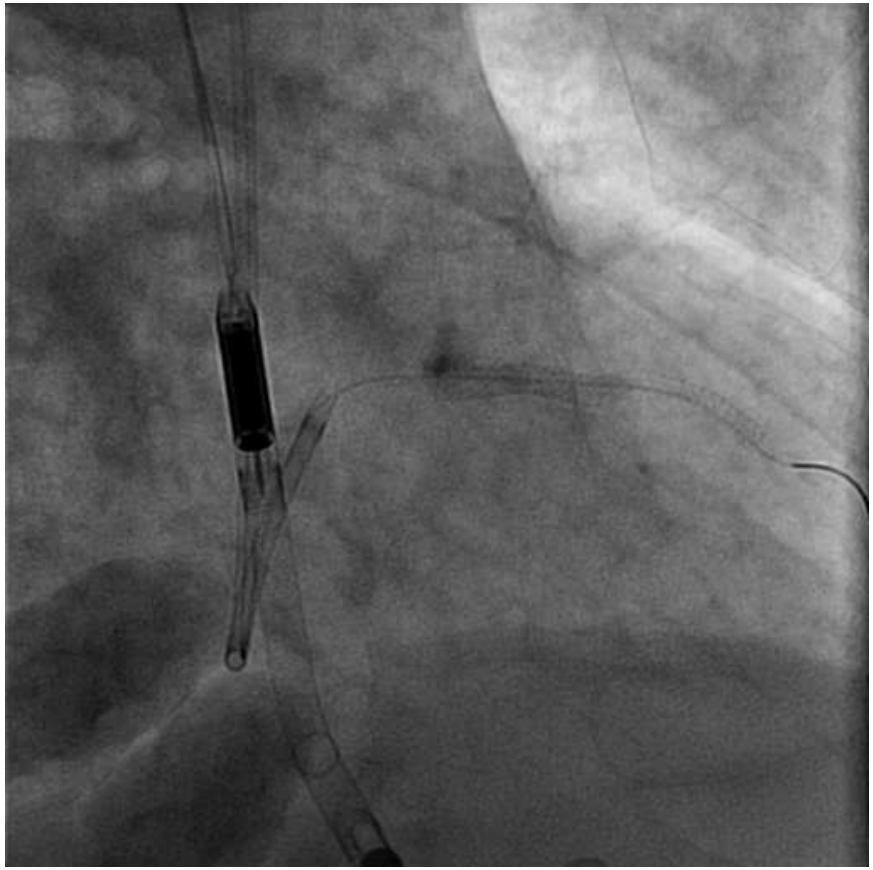
Disadvantages:

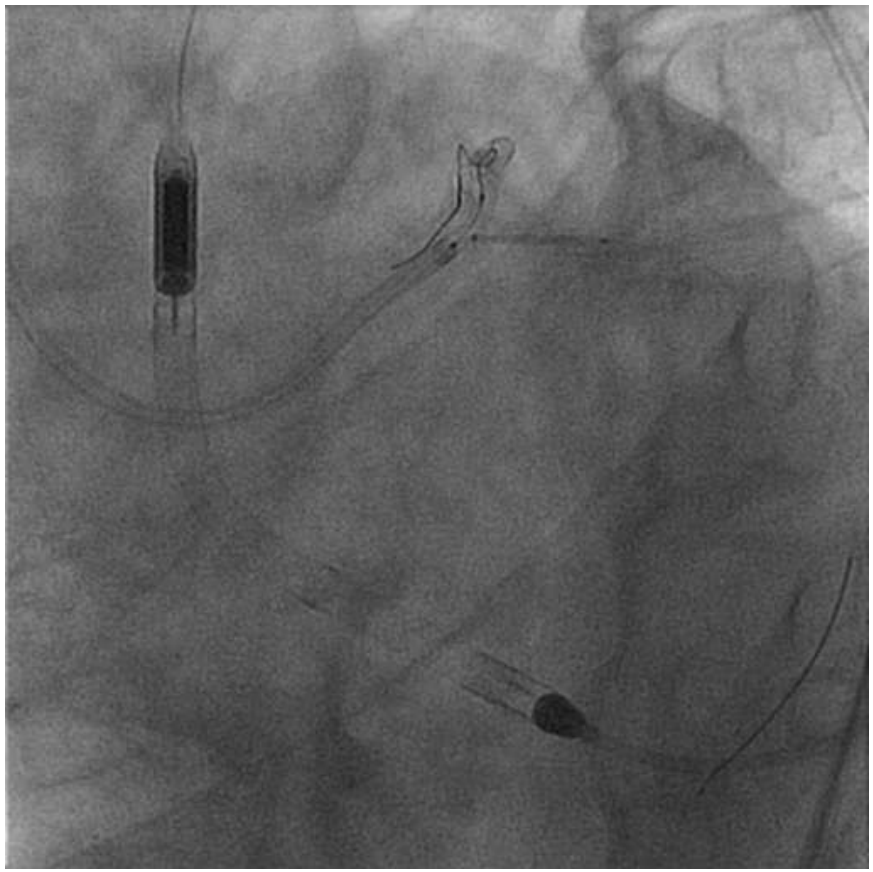
- Excessive stent protrusion can cause main branch access problems later
- May be harder to treat restenosis

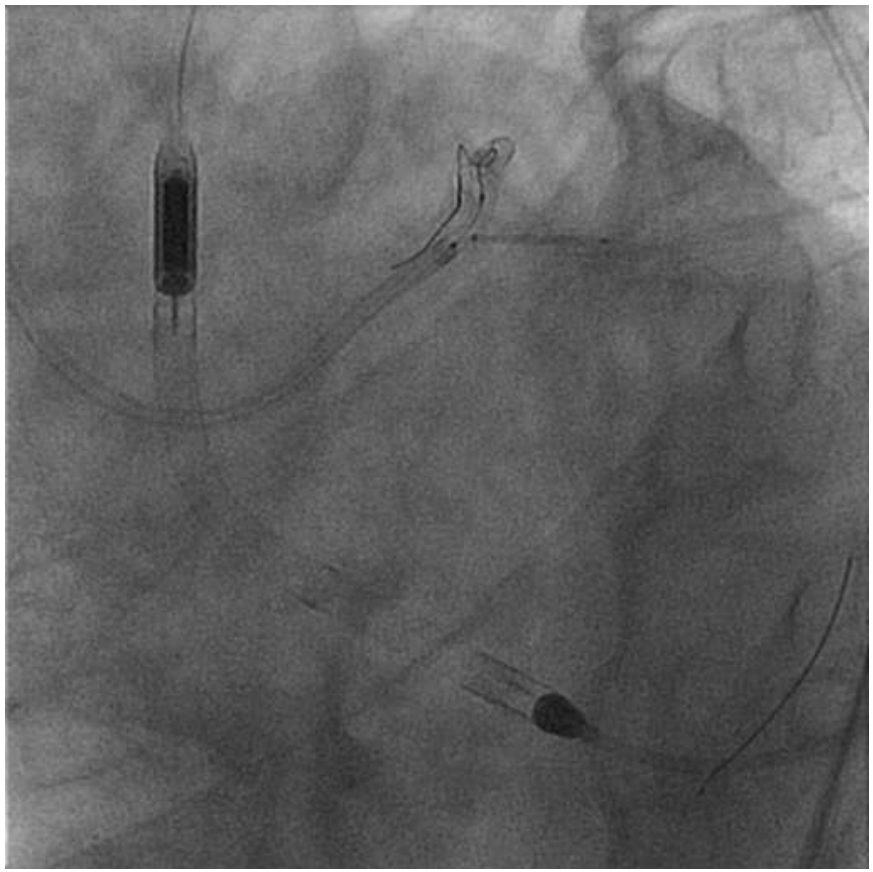


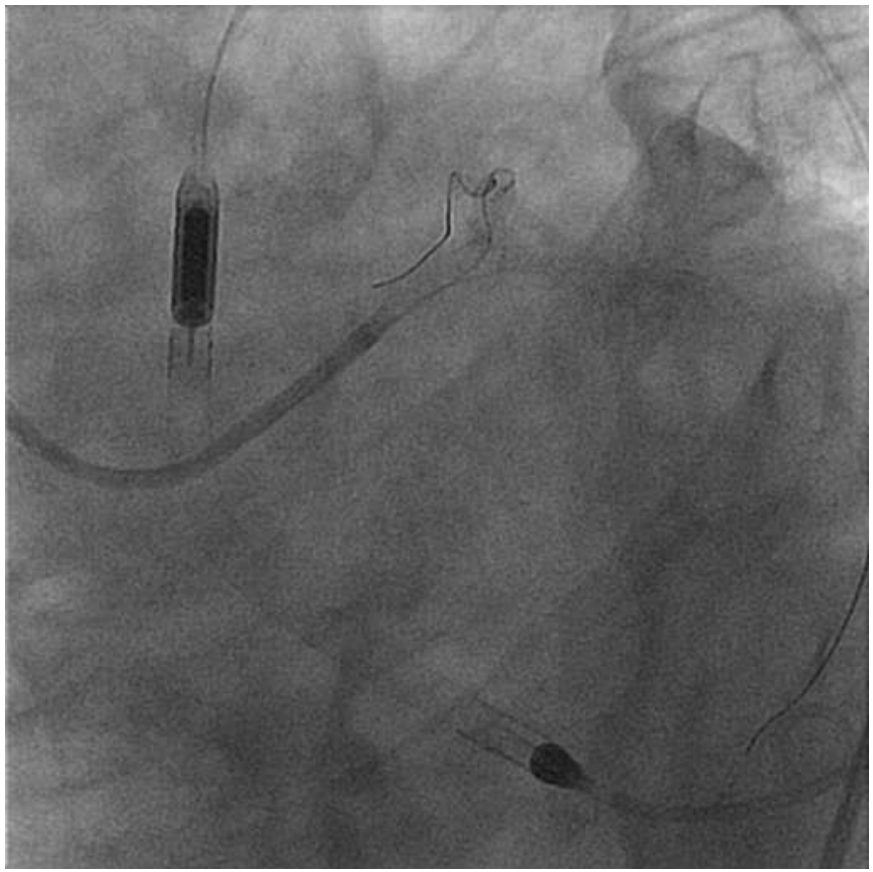




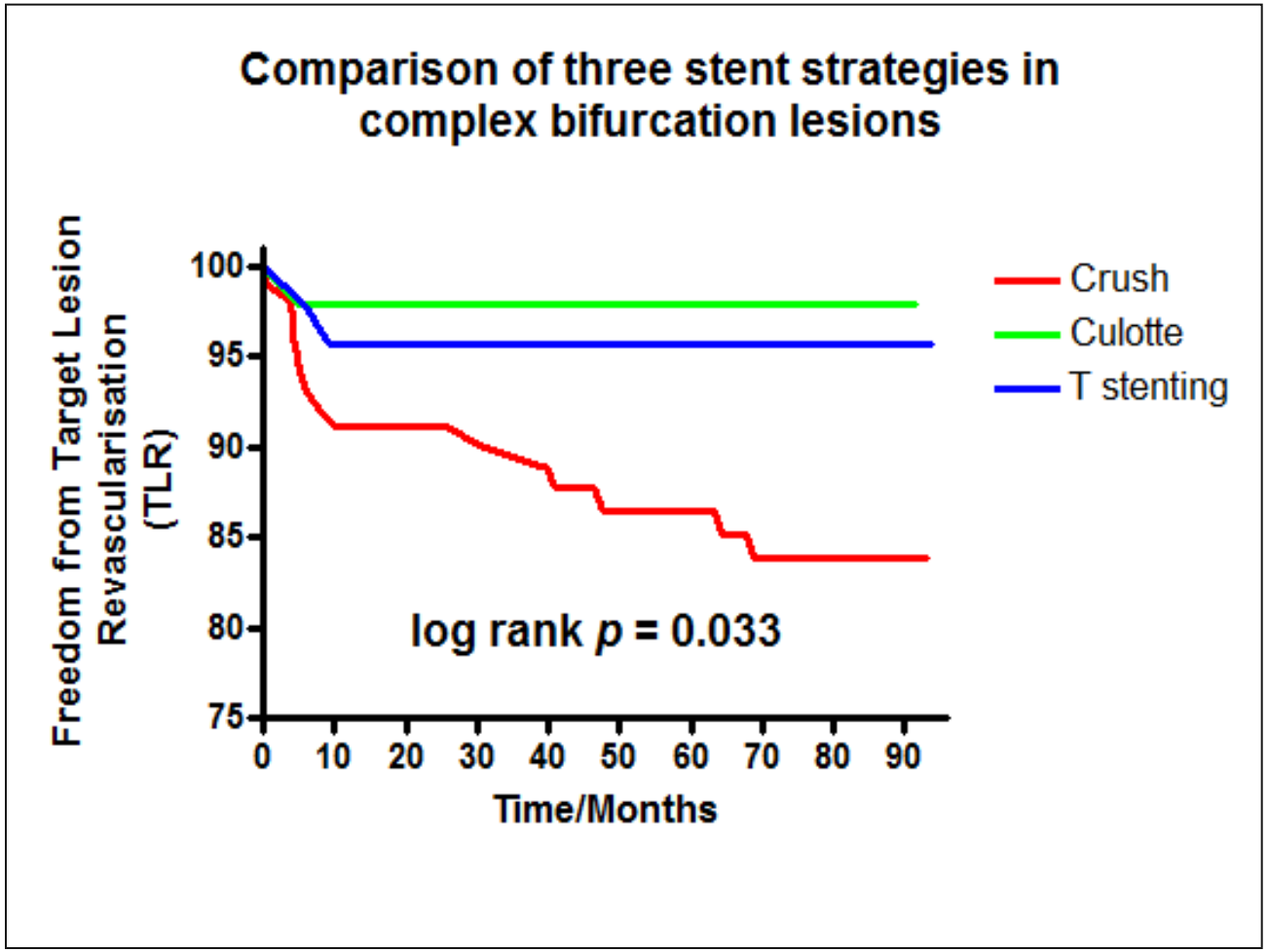








Results


Comparison of three stent strategies in complex bifurcation lesions
Freedom from Target Lesion Revascularisation (TLR)
100
95
90
85
80
75
0
10
20
30
40
50
60
70
80
90
Time/Months
log rank p = 0.033
Crush
Culotte
T stenting

General remarks:

- PROVISIONAL IS PREFERRED
- 6F is possible -7F is easier.
- How large is the side branch and how important?
- What is the angulation?
- Wire both!
- How diseased is the main branch?

What determines the technique used. Anatomy, outcome and skills.

- Preferable provisional
- Extensive disease (Medina 1-1-1), more likely 2-stent technique
- Disconcordant vessel size: probably crush technique
- Main and side branch ≤ 0.5 mm difference: favors culotte
- Angulation >90 ^{o}, more likely Mini-Crush technique

TRY IT
But have a strategy and learn first

Thank you