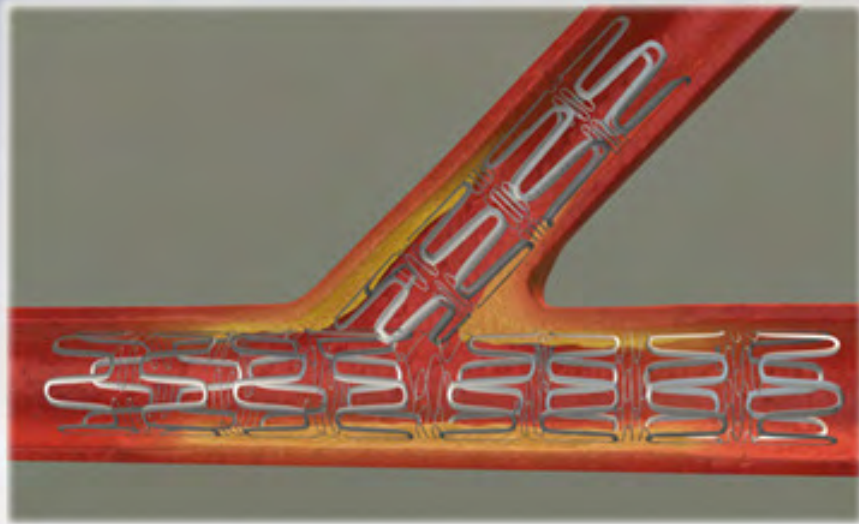


Bifurcation Lesions

Clinical Issues

Technical Challenges

and Emerging Solutions



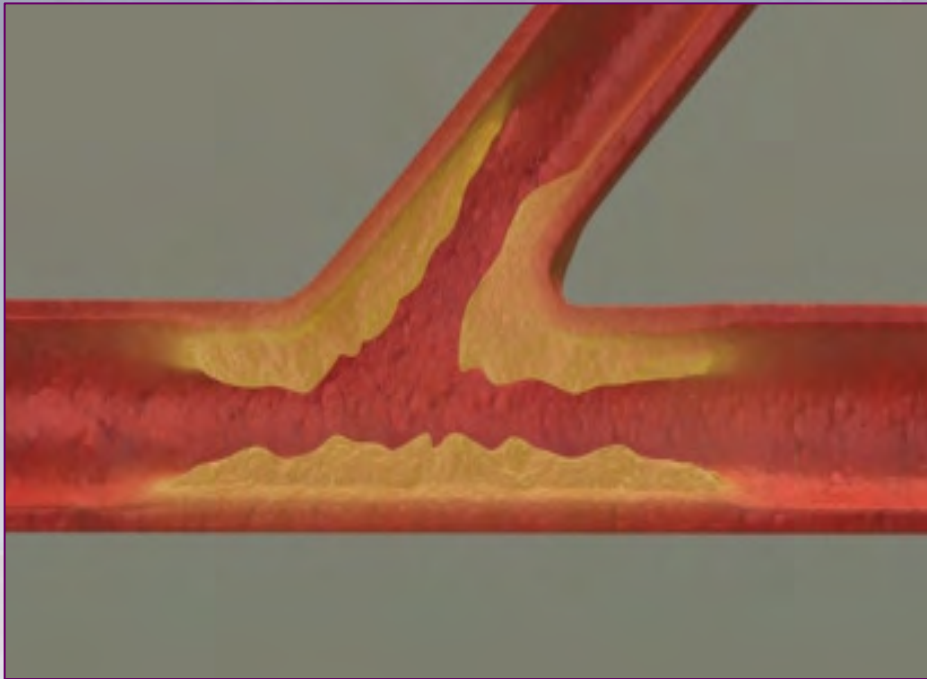
Ran Kornowski, MD, FESC, FACC

Division of Interventional Cardiology,
Rabin Medical Center, Petach Tikva,
Associate Professor of Cardiology
Tel-Aviv University, Israel



Clinical Issues

*Side branch involvement in at least 30% of all PCI cases
(need treatment in ~15% of cases)*



- Clinical aspects
- Anatomy classification
- Bifurcation techniques
- Strategic PCI planning
- Emerging technologies

Medina Classification (1/0)

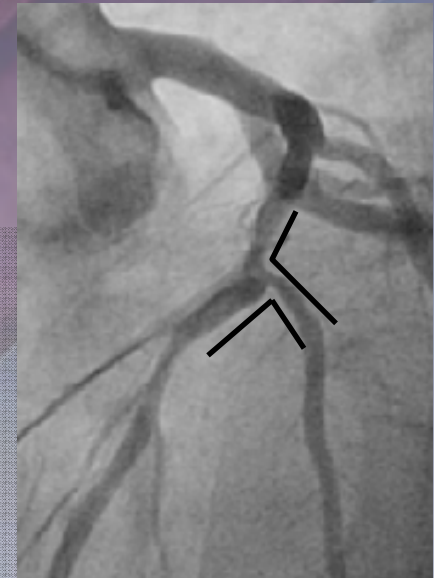
Main vessel and/or side branch involvement



Medina A et al. Rev Esp Cardiol 2006;59:183

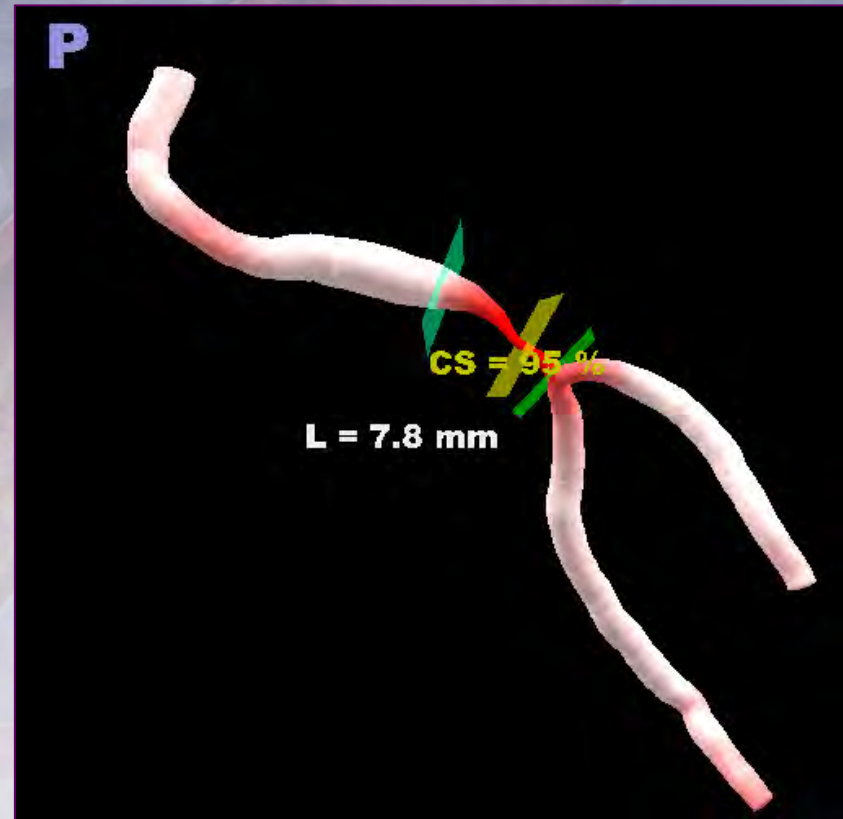
Side-branch inspection

- **Careful inspection of the SB is mandatory:**
 - Severity of SB narrowing
 - SB diameter ($>/< 2.5$ mm)
 - SB angulation ($>/< 50^\circ$) in relation to the MB
 - Lesion length ($>/< 5$ mm) beyond the ostium
 - Degree of calcification
 - Changes in SB angiographic findings during PCI:
 - Plaque or carina shift
 - Dissection
 - \downarrow flow, abrupt closure
 - Symptoms, ECG changes, hemodynamic status



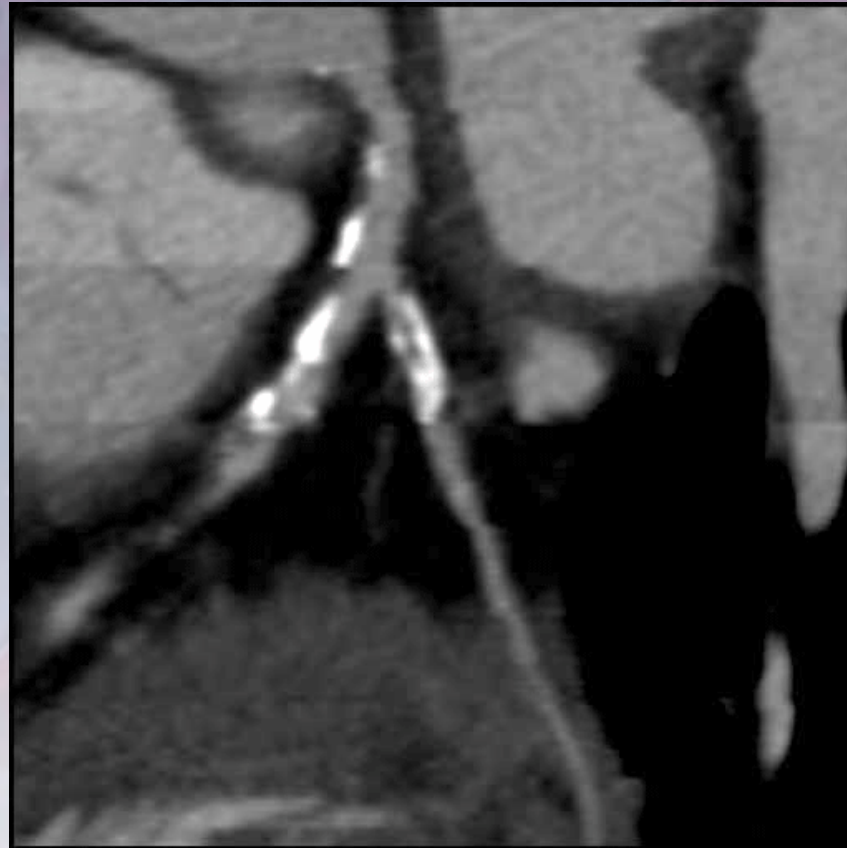
3D Angiography

3D reconstruction techniques (Paieon-CardiOp™)



Bifurcation Lesion Imaging

The role of CTA

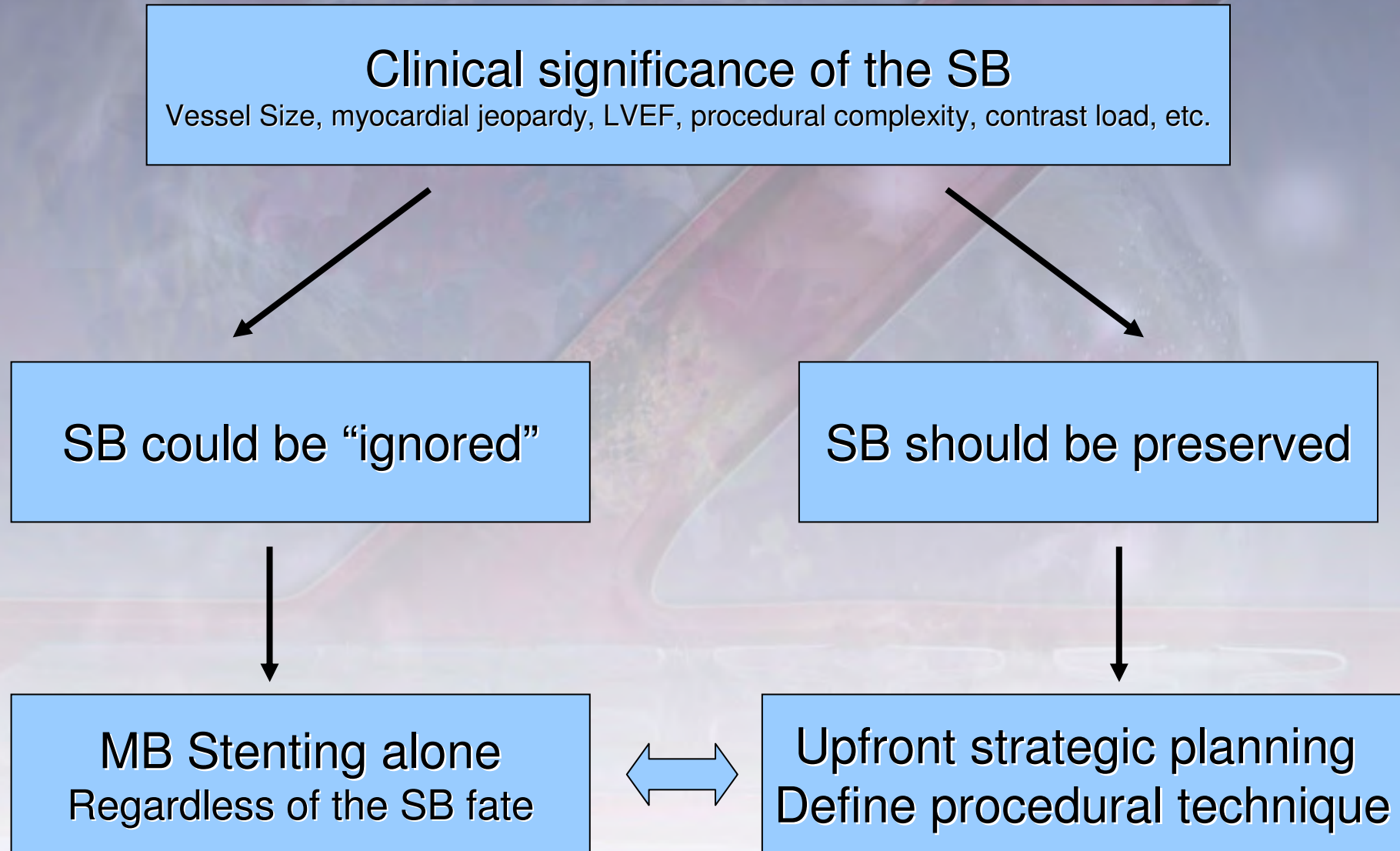


Technical Issues

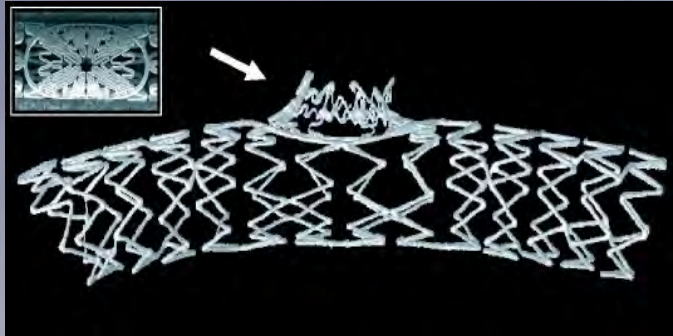
Specialized techniques w/ standard devices

- Main branch stenting
- Provisional side-branch stenting
- T or modified T stenting
- Y or Culottes stenting
- V or “Kissing” stenting
- “Crush” or “Mini Crush” technique
- Reverse “Y” or “Crush” technique
- Etc.

Strategic planning



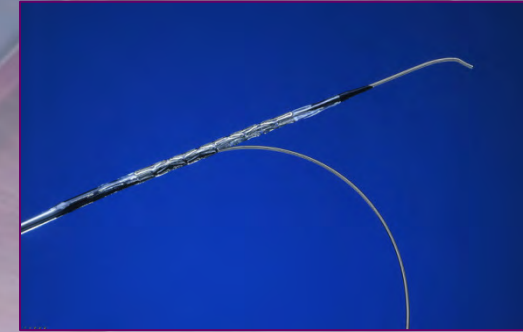
Dedicated Bifurcation Stents



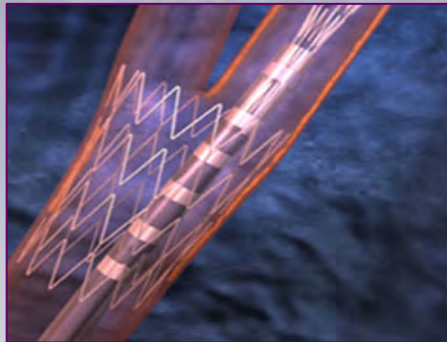
TAXUS petal



Guidant frontier



YMed sidekick



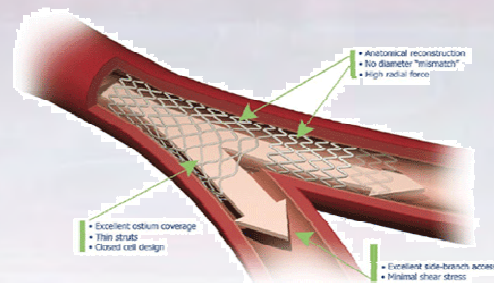
Devax (+ BA9)



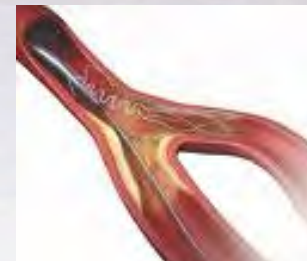
"true" bifurcation designs



sidebranch designs



Stentys



Tryton

Bifurcation Lesions

Conclusions (1)

- Catherer-based treatment of bifurcation lesions remains a major therapeutic challenge
- The optimal mode of treatment remains to be elucidated
- Provisional” technique using DES may be the preferred mode of treatment in suitable cases.
- Two stents are mandatory when sub-optimal results are achieved in the side-branch or excessive plaque burden is located in the SB origin.

Bifurcation Lesions:

Conclusions (2)

- Dedicated bifurcation stents systems address the technical challenges of bifurcation lesions and might improve the management and outcomes.
- Variability of lesions anatomy should be considered as the major challenge for specific dedicated bifurcation systems.