

# INTRAVASCULAR ULTRASOUND EVALUATION OF COMPLEX BIFURCATION LESIONS

## TREATED WITH TRYTON SIDE-BRANCH STENT IN CONJUNCTION WITH EVEROLIMUS-ELUTING STENTS



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The authors have nothing to disclose

### BIFURCATION LESIONS

- Restenosis of bifurcation lesions remains high even in the DES era, particularly with the two-stent technique
- Crush-stent technique offers complete coverage of SB but postprocedural IVUS imaging showed\*:
  - MSA significantly smaller in SB than in MV
  - SB stent frequently underexpanded, typically at the ostium
  - MSA of SB <4 mm<sup>2</sup> in 55%, <5 mm<sup>2</sup> in 90%
  - Incomplete SB or MV stent apposition in the crush area (60%) Stent underexpansion not detected by angiography

\*Costa et al. JACC 2005; 46:599-605

### BACKGROUND

The Tryton Side-Branch Stent was designed to treat complex bifurcation lesions (BL). The results of FIM study demonstrated safety and feasibility and low restenosis rate at 6-month angiographic follow-up.

**PURPOSE:** To evaluate clinical outcome, restenosis rate and ultrasound results after BL treatment with the Tryton Stent.

### TRYTON stent CHARACTERISTICS

- Cobalt Chromium alloy
- Strut thickness= 0.0033" (85 μm)
- Stent length= 18 mm
- Angles: all
- Generous landing zone (*positioning tolerance*)

### DELIVERY SYSTEM

- Rapid exchange catheter
- Single-wire tracking
- No need for rotational orientation
- Low Profile
  - 5Fr guide compatible
- Balloon Semi-compliant

### TRYTON vs. CRUSH

Postprocedural IVUS Data

	TRYTON N=10	CRUSH* N=15
SB Ostium MSA	4.71±1.05	4.2±1.0
SB Distal MSA	4.45±1.1	4.5±2.3
SB stent CSA < 4 mm <sup>2</sup>	21%	55%
SB stent CSA < 5 mm <sup>2</sup>	66%	90%
SB Dmin/D max	0.83	N/A

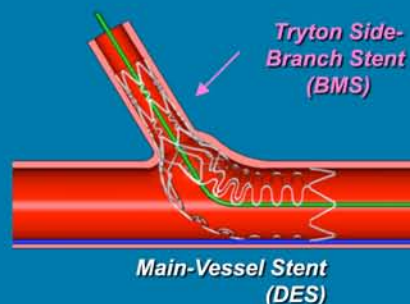
\* Non LM lesions

Costa et al. JACC 2005; 46:599-605

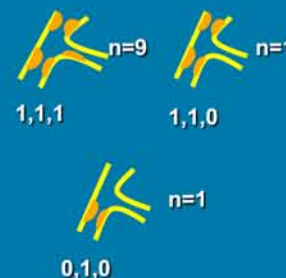
### Study Design:

- Single-center prospective study (n=30 patients)
- Six-month angiographic and IVUS F/U
- Postintervention and F/U IVUS analysis in both branches
- 40-MHz IVUS catheter (BSC) advanced 10 mm beyond and proximal to the stented segments
- IVUS imaging recorded during automated transducer pullback (0.5 mm/s) onto a CD rom for off-line analysis

### HYBRID STRATEGY



### MEDINA Classification



### PRELIMINARY RESULTS

- 11 patients (8 men, 3 women, mean age 64±12 yrs)
- 10 LAD-Diag and 1 LCx-OM
- All Tryton stents correctly implanted in SB and all DES (Xience V) properly placed in MV
- Kissing balloon performed in all cases
- 100% angio and procedural success
- IVUS imaging of all SB and of 10/11 MV

### 6-Month Clinical F/U (n=9)

MACE: 1 death (@14 days in recent large anterior STEMI)

TLR: 0

TVR: 1 MV (disease progression on LM-LAD)

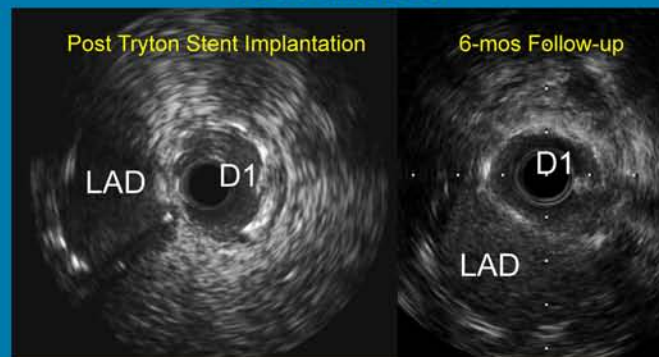
### 6-Month angiographic F/U (n= 8 [80%])

In-stent restenosis at 6 months

Main Vessel 0%

Side branch: 0%

### IVUS IMAGES



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When used in conjunction with a DES, the Tryton stent is associated with good clinical outcome and low restenosis rate

These preliminary IVUS results show:

- Complete coverage of side branch ostium
- Complete stent expansion
- Large final area
- High symmetry (Dmin/Dmax) of the Tryton
- This may contribute to the low restenosis observed in Tryton I

These preliminary data suggest that the Tryton stent approach provides a reliable and reproducible strategy to stent the SB and its origin