Stent Evaluation Using Three Dimensional Optical Coherence Tomography

Takayuki Okamura, MD
Yamaguchi University Hospital
Ube, Japan

4th Imaging and Physiology Summit 2010
Case 1: 73 y.o. Male, Stable AP CCS3
[Risk factor: DM, HT, dyslipidemia]
1 Year Follow-up
1mm interval
N of strut: 151
% uncovered strut: 29.8%(45/151)
Coverage thickness: 68 ± 119µm
Fracture?
Case 2: 74 y.o. Male, Unstable AP
[DM, HT, dyslipidemia, Smoking, Renal failure]

1982 CABG (Ao-LAD, Ao-RCA)
2005 Nov, worsening AP
CAG: Ao-LAD, Ao-RCA occluded, RCA #1 90%, LCx #13 90%, LAD #7 100%, LAD to LAD, LCx to LAD, RCA to LAD collateral flow
LCx-PCI
Cypher stent: 4 year
Summary

- 3D reconstruction of OCT images can facilitate understanding of the spatial relationship between stents and vessel wall.
- Tissue coverage of stents and incomplete stent apposition after DES implantation and stent fracture can be evaluated with 3D OCT.
Thank you for attention.
ご清聴ありがとうございました。
How to make

OCT pullback (DICOM/AVI)

Strut detection (frame by frame)

3-D rendering (INTAGE Realia, Cybernet, Japan)

2 – 3 hours / stent
How to make

Fly through: Prox → Dist
Assessment of side branch orifice

BVS 1.0 – Serial change of side branch orifice (EHJ)

BVS 1.1 – Classification of jailing pattern
Assessment of bifurcation stenting

Culotte stenting (pig): MV Cypher select+, SB Nobori
Summary

• 3D reconstruction of OCT images can facilitate understanding of the spatial relationship between stents and vessel wall.

• Tissue coverage of stents and incomplete stent apposition after DES implantation and stent fracture can be evaluated with 3D OCT.

• 3D reconstruction may be useful for evaluation of side branch/bifurcation stenting.
Thank you for attention.
ご清聴ありがとうございました。