Role of MDCT in PCI Planning
“Focus on CTO Treatment”

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Calcification

Appropriate WW/WC

WW 350, WC 40
WW 750, WC 200
WW 1000, WC 350
Histogram of HU of calcium

- N = 23
- Mean = 789.6
- Std. Dev = 283.2

Values:
- N = 23
- Mean = 789.6
- Std. Dev = 283.2
Chronic total occlusion
Very Short Occlusion
Collapsed Occlusion

Worst Slice

Occlusion

Occlusion

Occlusion
Thrombotic Occlusion?
Stent like deep calcification
Thrombus with micro-channel?
Necrotic Core?
Comparison between IVUS and MDCT

- Single experienced CTO operator
- Consecutive successful 44 cases
Comparison between IVUS and MDCT

Occlusion Length: IVUS=12.4 ± 13.1mm, MDCT=18.5 ± 18.7mm

Mean of IVUS and MDCT length
mean difference -11.8mm
Comparison between IVUS and MDCT

Lesion Vessel Diameter: IVUS=4.4 ± 0.8mm, MDCT=4.2 ± 1.1mm

Mean of IVUS and MDCT Lesion Vessel Diameter
mean difference 0.22mm
Comparison between IVUS and MDCT

Proximal Vessel Diameter: IVUS=4.1 ± 0.8mm, MDCT=4.3 ± 0.7mm

Mean of IVUS and MDCT Lesion Vessel Diameter
mean difference 0.21mm
Comparison between IVUS and MDCT

**Distal Vessel Diameter:** IVUS = 3.3 ± 0.7mm, MDCT = 3.1 ± 0.9mm

Mean of IVUS and MDCT Lesion Vessel Diameter

Mean difference 0.22mm
Comparison between IVUS and MDCT

Maximum Arc of Calcification

- Protruding to lumen: 149±75°
- Small, on the wall: 117±74°
- Cannot detect by MDCT: 30±39°
Comparison between IVUS and MDCT

Mean HU of the occlusion segment

- Attenuated Plaque by IVUS: 92±29
- No Attenuated Plaque: 70±24
MDCT Occlusion Length

(9.8±8.3) mm (Ante-Soft wire)

(16±10.4) mm (Ante-Stiff wire)

(35.3±27.9) mm (Retro)
Predictors/Guidance for Wire Cross?

- Occlusion Length
- Calcification (protruding, restricted on the wall)
- Contrast Staining
- Vessel Collapse
- Angulation Distal to the Proximal Cap
- Hounsfield Unit (HU)?