SERIAL CHANGES OF TINY STENT MALAPPOSITION NOT DETECTED BY INTRAVASCULAR ULTRASOUND: FOLLOW-UP OPTICAL COHERENCE TOMOGRAPHY STUDY

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Background: Morphologic changes of small-sized post-stent malapposition (SM) have not been sufficiently evaluated. We investigated serial changes of tiny post-SM with follow up optical coherence tomography (OCT) study.

Methods: 26 patients with tiny post-SM who underwent post-stent OCT, intravascular ultrasound (IVUS), and follow up OCT were analysed. Zotarolimus-eluting stent (ZES) or non-ZES (sirolimus-eluting stent or paclitaxel-eluting stent were deployed in 17 and 9 patients, respectively. Mean durations of follow-up OCT study were 5.7 months (4.0 months in ZES and 9.1 months in non-ZES). The tiny post-SM can not be detected by IVUS, but be visualized with OCT imaging. Serial changes of number and percent of malapposition struts, and mean extra-SM area were measured.

Results: Percent of malapposition struts significantly decreased from 12.2 ± 11.0% post-stent to 1.0 ± 2.2% follow up (p<0.001). There was a significant decrease in mean extra-SM area from 0.35 ± 0.16 mm² post-stent to 0.04 ± 0.11 mm² follow-up (p<0.001). Complete disappearance of SM was also observed in 22 (85%) patients (Figure).

Conclusions: Tiny SM which is not detectable by IVUS may disappear or decrease in follow up OCT imaging. This results suggests that the postprocedural tiny SM after stenting likely represents a benign phenomenon.

Figure: (A) Struts have malapposition struts with the extra-stent lumen. Post-SM is only visualized with OCT imaging. (B) Follow up OCT images shows that all strut surfaces is covered by neointima