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IMPACT OF THIN CAPPED-FIBROATHEROMA ON THROMBUS BURDEN IN ACUTE CORONARY SYNDROME : AN OPTICAL COHERENCE TOMOGRAPHY ANALYSIS

Poster Contributions
Hall C
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Background: We used Optical Coherence tomography (OCT) to evaluate the thrombus (TH) burden, Thin-capped fibroatheroma (TCFA) and their correlates in pts with acute coronary syndrome (ACS).

Methods: In 64 pts with ACS, the coronary angiographic thrombus grade (TIMI grade) was evaluated and compared to the pre-thrombectomy OCT thrombus score. The Thrombus score was evaluated (using a scoring system devised by Prati and coworkers) before thrombectomy. Thin-capped fibroatheroma (TCFA) on OCT were defined as those with fibrous cap thickness less than 65 µm and a large underlying lipid core subtending at least one or more quadrants.

Results: OCT images were suitable for thrombus evaluation in 59 pts 51% (30/59) of culprit lesion contained TCFA, and the plaque rupture was observed in 32 pts. (54.2%) and plaque erosion seen in 5 pts. (8.5%). There was no correlation between angiographic TH grading and OCT TH score (r=0.075, p=0.575). In addition, OCT detected TH in 14 pts without angiographic-visible thrombus. Pts with TCFA had a higher OCT TH score (28.33±19.29 vs 18.26±16.60, p=0.043) and a longer lesion length (19.75±8.40 mm vs 14.96±6.80 mm, p=0.026). However, minimal lumen area (2.16±1.47 mm2 vs 2.79±1.84 mm2, p=0.161) and vessel size (7.59±2.95 mm2 vs. 7.36±3.00 mm2, p=0.773) were similar in both groups. There was no correlation between the time of presentation, diabetes, and smoking status, vs. OCT TH burden. The red TH were observed in 43.6% (24/55) of pts and in 46.6% (14/30) with TCFA. Patients with a red TH had a higher OCT thrombus score than those with a white TH. (13.96±11.93 vs. 39.50±14.81, p<0.0001). Importantly, the presence of a red TH correlated with microvessels in the culprit lesion (r=0.404, p=0.002) and macrophage accumulation (r=0.614, p<0.0001).

Conclusions: Presence of TCFA predicted a larger thrombus burden and a higher OCT Thrombus burden predicted a red thrombus with prominent inflammation.