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## LESION-SPECIFIC MEASUREMENTS ON NON-CONTRAST-ENHANCED CORONARY CT STRONGLY CORRELATE WITH PLAQUE BURDEN AND LUMINAL SIZE BY INTRAVASCULAR ULTRASOUND

i2 Oral Contributions

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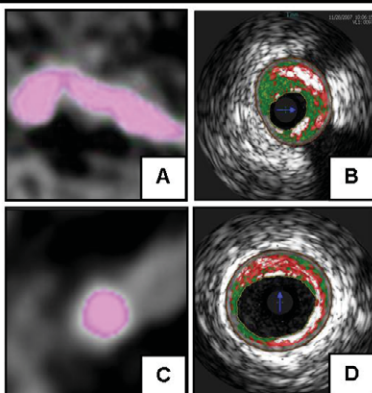
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**Background:** Geometrical parameters by intravascular ultrasound (IVUS) such as minimal luminal area (MLA), minimal luminal diameter (MLD), and plaque volume have not previously been correlated with certain lesion-specific coronary artery calcification (LS-CAC) parameters such as lesion width (LS-W) by non-contrast computed tomography (CT).

**Methods:** We examined a total of 59 lesions from the left anterior descending (LAD) coronary artery of 35 patients with known coronary artery disease with non-contrast CT and IVUS. Each lesion was matched based on distance from the LAD ostium. LS-CAC score and LS-W were obtained; linear regression analysis was performed in correlation with MLA, MLD, and plaque volume as measured by IVUS.

**Results:** Table 1 shows strong correlation between LS-CAC with plaque volume measurements from IVUS. Additionally, there is a moderate correlation between LS-W and plaque volume derived by IVUS. In addition, there is mild negative correlation between LS-CAC, and IVUS geometrical parameters such as MLD and MLA, likely due to positive remodeling vessel effect. Figure 1.

**Conclusions:** LS-CAC scores and LS-W are effective correlates of plaque volume in atherosclerotic lesions; however, they are less effective at predicting MLA and MLD.

N=59	Statistical Analysis			
	LS-CAC	IVUS	R <sup>2</sup>	
Vol Score	Plaque Vol	0.86	< 0.00001	
Agat Score	Plaque Vol	0.86	< 0.00001	
Width	Plaque Vol	0.68	< 0.00001	
Vol Score	MLD	-0.18	0.0005	
Agat Score	MLD	-0.18	0.0006	
Width	MLD	-0.25	0.00004	
Vol Score	MLA	-0.12	0.005	
Agat Score	MLA	-0.12	0.005	
Width	MLA	-0.20	0.0003	

**Figure 1.-** Large calcified lesion on CAC (A) correlates with large plaque volume and small luminal area on IVUS (B); a smaller calcified lesion on CAC (C) is associated with small plaque burden and larger lumen area (D).