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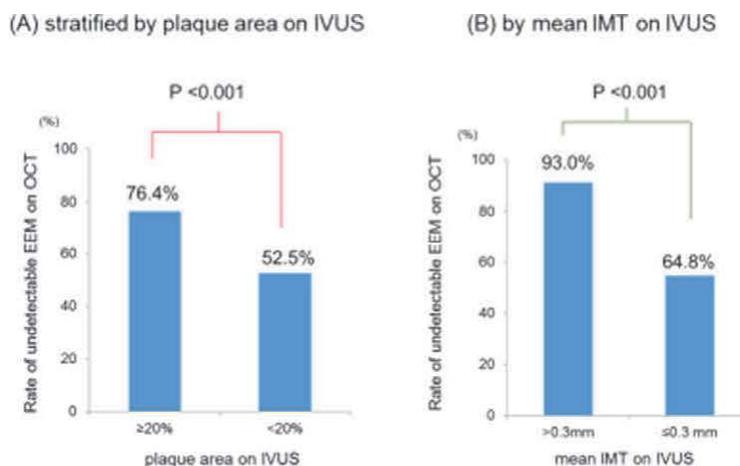
## TCT-641

**Comparison of Intravascular Ultrasound (IVUS) and Optical Coherence Tomography (OCT) assessment of Coronary Allograft Vasculopathy (CAV) in patients after orthotopic heart transplantation**Koichiro Matsumura<sup>1</sup>, Rubine Gevorgyan<sup>2</sup>, William M. Suh<sup>3</sup>, Jonathan Tobis<sup>4</sup><sup>1</sup>UCLA, Los Angeles, CA, <sup>2</sup>UCLA School of Medicine, Los Angeles, CA, <sup>3</sup>University of California, Los Angeles, Los Angeles, CA, <sup>4</sup>David Geffen School of Medicine, UCLA, Los Angeles, United States

**Background:** Coronary allograft vasculopathy (CAV) in patients after orthotopic heart transplant (OHT) is a major cause of graft failure. Intravascular Ultrasound (IVUS) is more sensitive than angiography for detecting early CAV. The newer imaging modality of Optical Coherence Tomography (OCT) has not been assessed for CAV. We compared intravascular imaging of coronary arteries after heart transplantation utilizing IVUS and OCT.

**Methods:** 17 patients with OHT were enrolled in this study. The left anterior descending coronary artery (LAD) was imaged by IVUS and OCT. 20 sections distributed evenly of the LAD were used to compare the measurements of the diameter and the area of the external elastic membrane (EEM), calculated plaque area, and intima-media thickness (IMT) between IVUS and OCT.

**Results:** The borders of the EEM were visualized and the vessel area was measured in 37% of OCT cases, compared to 90% of IVUS images ( $p < 0.001$ ). Figure 1 shows the ability to detect the EEM on OCT and IVUS was compared for smaller and larger plaques determined by IVUS measurements.



**Conclusions:** We identified a significant difference in the ability of IVUS and OCT to detect the EEM in patients following cardiac transplantation. The lack of EEM border detection affects the measurements of plaque volume and IMT. Larger volume of plaque and IMT affect the ability of OCT to assess plaque volume and IMT. For accurate assessment of plaque volume and thickness, intravascular ultra-sound imaging is more reliable than OCT especially for the assessment of transplant vasculopathy.