Title

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Intravascular Ultrasound Documentation of Plaque Removal During Peripheral Extraction Atherectomy

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To determine the effect of transcutaneous extraction catheter (TEC) atherectomy + balloon angioplasty, intravascular ultrasound (IVUS) studies were performed before and after TEC (2.7mm) atherectomy, and after adjunctive balloon angioplasty in 14 occluded superficial femoral arteries. Lumen diameter, lumen cross-sectional area (CSA), atheroma CSA, vessel CSA and % area stenosis were compared at the same section of the artery before and after TEC, and after adjunctive balloon dilatation.

	pre TEC	post TEC	post balloon
Lumen diameter (mm)	3.4±0.7	4.0±0.8	5.4±0.9**
Lumen CSA (mm^2)	7.1±2.8	10.8±5.7**	19.0±5.8**
Atheroma CSA (mm^2)	22.5±13.3	18.4±9.4	21.1±5.6
Vessel CSA (mm^2)	29.0±12.1	29.3±10.8	40.1±7.7*
% area stenosis (%)	71±15	62±13**	52±11*

(**p≤0.01, *p≤0.05)

Post TEC atherectomy, lumen CSA and % area stenosis were significantly improved, but atheroma CSA did not decrease appreciably. Post adjunctive balloon angioplasty, lumen diameter, lumen CSA, vessel CSA, and % area stenosis were improved and the outer vessel wall was stretched. The 2.7mm TEC catheter removes a small amount (18%) of atheroma, but the major increase in lumen CSA is due to balloon dilatation. IVUS provides an accurate quantitative method to detect the immediate effects of these interventional procedures.