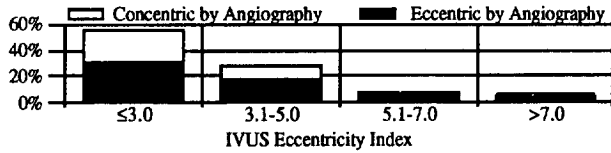


one-quarter of the apparently normal lumen. **Results:** (1) Only 162 lesions (16.8%) had an arc of disease-free arterial wall within the lesion. (2) The mean IVUS Ecc index was 3.4 ± 2.3 ; only 5 lesions (<1%) were completely concentric (Ecc index = 1.0), and 419 (43.5%) were Ecc. Ecc lesions had larger lumen cross-sectional areas, smaller P + M and external elastic membrane cross-sectional areas, and smaller arcs of calcium (compared to concentric lesions) suggesting that they represent less advanced disease. (3) By angiography 547 lesions (56.8%) were Ecc ($p = 0.0182$ vs IVUS). Angiographic Ecc lesions had a larger IVUS Ecc index that was the result of a *thicker maximum P + M*, not a *thinner minimum P + M*. Similarly, the angiographic classification of lesion Ecc tended to increase (to 68%) with a larger IVUS Ecc index ($p = 0.0619$).

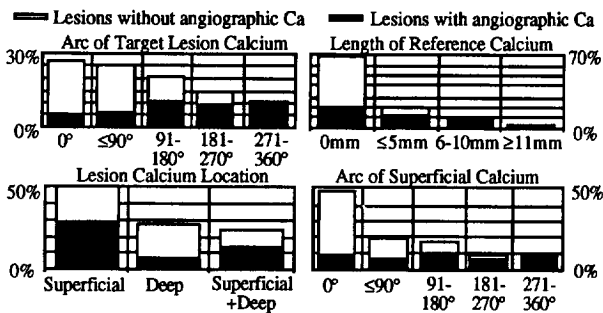


Using discriminant analysis, a predictive model of angiographic Ecc was constructed; it included lesion length and IVUS maximum P + M thickness, but correctly predicted angiographic Ecc in only 57.7%. **Conclusions:** (1) Target lesions that fit the *pathologic* definition of Ecc are unusual. (2) Lesions are less often Ecc than suggested by angiography, partly because longer lesions more often appear to be Ecc by angiography. (3) There is substantial disagreement between IVUS and angiography in the assessment of Ecc (concordance rate = 52.8%). Therefore, IVUS assessments should be the standard for evaluating plaque distribution if device therapy strategies are determined by target lesion eccentricity.

934-27 Patterns of Target Lesion Calcification in Coronary Artery Disease

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Intravascular ultrasound (IVUS) and coronary angiography were used to assess target lesion calcium (Ca) in 1155 native vessels in 1117 pts. IVUS detected lesion Ca in 841 (73%). The arc of Ca measured $115 \pm 110^\circ$ and the length 3.5 ± 3.7 mm. Lesion Ca was only superficial in 48%, only deep in 28%, and both superficial and deep in 24%. The arc of superficial Ca measured $85 \pm 108^\circ$ and the length 2.4 ± 3.4 mm. 373 reference segments (32%) contained Ca; the arc measured $42 \pm 80^\circ$ and the length 1.7 ± 3.6 mm (all $p < 0.0001$ vs lesion). Angiography detected Ca in only 440 lesions (38%, $p < 0.0001$ vs IVUS). The angiographic detection of Ca was then compared to the arc, length, distribution (superficial vs deep), and location (lesion vs reference) of IVUS Ca. Using discriminant analysis, a model for predicting angiographic Ca included the arc of target lesion Ca, arc of superficial Ca, and length of reference Ca. It correctly predicted angiographic Ca in 74.4%.



We Conclude: IVUS imaging shows that Ca is highly prevalent in most native vessel lesions (73%) and is usually superficial (70%). Angiography identifies only half of the calcified lesions; its sensitivity is influenced by the circumferential distribution and superficial location of lesion Ca and by the length of reference segment Ca. IVUS may be a necessary adjunctive imaging modality if device therapy strategies are determined by the presence, location, and distribution of Ca.

934-28 Sensitivity and Specificity of Angiographic Markers for Thrombus: A Prospective Comparison with Angioscopy

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The limitations of angiography for the detection of intracoronary thrombus are well recognized. Between November 1991 and July 1994, we performed 402 angiography procedures in 225 vessels in 202 patients, with the Image-Cath (Baxter).

We performed a prospective study in 190 of these patients, who had an interpretable angiography performed just before PTCA to determine the sensitivity and specificity of predetermined angiographic criteria that are considered to be indicative of the presence of intracoronary thrombus. Angiographically verified thrombus was used as the gold standard for comparison. Lesions were classified on angiography (2 orthogonal views) by independent observers. The presence of an intraluminal filling defect, of overhanging edges, of haziness, or of ulceration were noted. The characteristic ulceration was not mutually exclusive of the other 3 characteristics.

Of 15 filling defects on angiography 14 (93%) had thrombus on angiography; in the 23 lesions with overhanging edges 19 (83%) had thrombus on angiography; in the 27 ulcerated lesions 21 (78%) had angiographic thrombus; in the 6 lesions that were hazy on angiography 5 had angiographic thrombus.

		Angioscopy	
		Thrombus+	Thrombus-
Angiography	Thrombus+	45	12
	Thrombus-	40	93

In our model, using 5 prespecified angiographic characteristics, angiography had high specificity (89%) but relatively low sensitivity (53%) for the detection of thrombus compared to angioscopy.

934-29 Coronary Angioscopy Safety Survey: European Multicenter Experience

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Percutaneous coronary angiography (CA) which allows direct visualization of the interior of the coronary arteries has potentially widespread application in research and as an adjunct to coronary interventional procedures. To assess the safety of coronary angiography, we surveyed 27 European centers where angiography procedures were performed with the same angiographic system Image Cath (Baxter).

A total of 1746 (mean 1.62 per patient) angiography procedures were performed in 1076 patients up to March 1994. Fifteen centers had performed less than 25 procedures, 6 centers between 25 and 50 procedures and 6 centers between 50 and 200 procedures. Information regarding the total number of procedures, the number of major clinical complications and the number of minor complications (without clinical sequelae) was requested. Major complications related or probably related to angiography were death $n = 1$ (0.09%), acute myocardial infarction $n = 2$ (0.19%) and emergent coronary artery bypass grafting $n = 5$ (0.46%). Coronary dissection related to cuff inflation $n = 15$ (1.39%), to manipulation of the fiber $n = 14$ (1.30%) or to the passage of the guidewire $n = 2$ (0.19%) occurred in a total of 31 (2.88%) patients. Stent implantation for dissection was required in 5 (0.46%) patients. Ventricular fibrillation during imaging, that required cardioversion, occurred in 18 (1.67%) patients. Complications were significantly less frequent when operator experience was >50 patients (2.0%) than when operator experience was 25-50 patients (6.5%) or <25 patients (5.9%).

In conclusion, clinical adverse events related to the performance of coronary angiography are rare. The rate of adverse events is related to operator experience.

934-30 Localization and Determination of Patency in Coronary Stents with Electron-Beam-Tomography

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Intracoronary stents are increasingly implanted by interventional cardiologists. Long-term prognosis for restenosis is better than for PTCA, but early stent occlusion represents a major problem in the first three months. Conventionally, stent patency can only be assessed by coronary angiography. Visualization of stainless steel is particularly difficult angiographically and renders localization impossible. Therefore, the role of EBT in the localization and evaluation of patency of Palmaz-Schatz-stents was investigated. EBT was

TUESDAY AM