

# UCLA

## UCLA Previously Published Works

### Title

Intravascular ultrasound guidance optimizes cutting balloon angioplasty.

### Permalink

<https://escholarship.org/uc/item/0688m3z0>

### Journal

AMERICAN JOURNAL OF CARDIOLOGY, 88(5A)

### ISSN

0002-9149

### Authors

Takano, Y

Currier, JW

Yeatman, LA

et al.

### Publication Date

2001

### Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

## ■ TCT-260

### Intravascular Ultrasound Guidance Optimizes Cutting Balloon

**Angioplasty.** *Y. Takano, J.W. Currier, L.A. Yeatman, K. McCloy, A. Davis, D.K. Vora, J.M. Tobis. University of California at Los Angeles Center for Health Science, Los Angeles, California, USA.*

**Background:** Intravascular ultrasound (IVUS) guidance may be useful during percutaneous coronary interventions (PCI) to optimize angiographic results compared with angiographic guidance alone. The cutting balloon (CB) may be more important than other devices to size accurately due to the risk of perforation. The purpose of the present study was to test whether IVUS guidance for CB angioplasty could improve the acute results of PCI.

**Methods:** A total of 103 coronary artery lesions from 69 patients had CB angioplasty. The coronary lesions were classified into 2 groups; IVUS guided or angiographic guidance alone. Quantitative coronary angiography measurements were performed before and after CB angioplasty and after final balloon or stent dilatation.

**Results:** The initial CB success rate was 88% (the CB would not pass through 12 lesions). In 91 successful lesions, the IVUS-guided group had a significantly larger minimal lumen diameter (MLD) and less percent diameter stenosis than the angiographic-guided group. Further, 49 lesions were also treated with stents (IVUS guided 25, angiography alone 24). The IVUS-guided stent group had a larger MLD ( $3.0 \pm 0.3$  mm) than the angiographic group ( $2.7 \pm 0.2$  mm,  $p < 0.01$ ) despite similar reference diameters. There was 1 coronary perforation in the angiographic-guidance group.

Cutting Balloon	IVUS Guided	Angio Alone	p-Value
Lesions (n)	41	50	
Ref. diameter (mm)	$2.9 \pm 0.3$	$2.8 \pm 0.6$	NS
MLD (mm)			
Before CB	$0.6 \pm 0.5$	$0.6 \pm 0.5$	NS
After CB	$2.2 \pm 0.5$	$1.9 \pm 0.5$	<0.01
Final	$2.8 \pm 0.5$	$2.4 \pm 0.6$	<0.01

CB = cutting balloon; IVUS = intravascular ultrasound; MLD = minimum lumen diameter.

**Conclusion:** By performing IVUS before PCI, the size of the CB can be matched to the media diameter, thus optimizing the results compared with angiographic guidance alone. By choosing a CB diameter based on the IVUS, these improved results may be obtained without an increased risk of perforation.