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### Title

Editorial comment: IVUS and coronary stenting

### Permalink

<https://escholarship.org/uc/item/5p46c6jq>

### Journal

Catheterization and Cardiovascular Interventions, 39(4)

### ISSN

1522-1946

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### Publication Date

1996-12-01

### DOI

10.1002/(sici)1097-0304(199612)39:4<346::aid-ccd4>3.0.co;2-d

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Peer reviewed

## Editorial Comment

### IVUS and Coronary Stenting

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The article by Goods et al. describes the results of deploying slotted tubular stents without intravascular ultrasound or anticoagulation in 137 patients [1]. This article, along with other recently published papers, indicates that excellent results can be obtained with deployment of intracoronary stents without the use of intravascular ultrasound imaging [2,3]. The authors from Alabama acknowledge that intravascular ultrasound provided the original insights into the pathophysiologic mechanism of subacute thrombosis following stent insertion, and that the information provided by ultrasound imaging led to the use of larger balloons and higher-pressure inflations, which were documented by ultrasound to enlarge the lumen area [4].

We agree that intravascular ultrasound is not essential after the deployment of stents to achieve a satisfactory result in all cases [5]. However, our experience differs, because in 25% of our cases, intravascular ultrasound imaging has been helpful in altering therapy, e.g., reinflating with higher pressure, using a larger balloon, redilating proximally or distally in the stent, revealing a stenosis that is unrecognized or underappreciated by angiography, or demonstrating that further intervention is not necessary.

Subacute thrombosis is so low now with high-pressure inflations that it is unlikely that any series will show a difference between angiographic guidance alone vs. intravascular ultrasound guidance. It is yet to be resolved whether restenosis is improved with intravascular ultrasound guidance. Subset analysis is very important in understanding where intravascular ultrasound may be helpful in the deployment of coronary artery stents. It may be that smaller vessels, unstable clinical presentations, multiple stents, or more complicated lesions would reveal a difference using IVUS guidance. In the current paper, the subacute thrombosis rate at 0%

and the complication non-Q-wave MI rate at 2.2% are admirable. But this is a subset of patients with a large reference vessel size of  $3.3 \pm 0.6$  mm diameter and short lesion length of  $9 \pm 4.2$  mm. This group was also highly selected because they did not receive a Cook stent from this laboratory. In addition to these successful cases, there were 48 patients (26%) who did not meet angiographic criteria and were treated with heparin. We are not provided information about the clinical results in this subset of patients, but we cannot disregard 26% of the cases. All of the results need to be reported with adequate clinical follow-up. Perhaps the group that did not meet the angiographic criteria could be treated without heparin, and without any higher complication rate than the group treated just with aspirin and ticlopidine. Perhaps this subset would be treated differently and with better clinical outcome if intravascular ultrasound were used. It is precisely in the group of patients that does not have large arteries or that does not have optimal results by angiography where intravascular ultrasound imaging is likely to be of greater benefit. This includes patients with unstable clinical patterns, smaller arteries, or unclear angiographic findings. We agree that intravascular ultrasound imaging is not essential for stent deployment, especially in arteries  $>3.5$  mm. We still believe strongly that the use of intravascular ultrasound in a selected group of patients will facilitate the proper placement of stents, insure that appropriate deployment has been achieved, and reassure the operator that an optimal result has been obtained.

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