

## Moderately Stenotic Lesions: A Question of Stenting

Alon Marmor MD, Majdi Halabi MD and Michael Plich MD

Department of Cardiology, and Interventional Cardiology Unit, Ziv Medical Center, Safed, Israel

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Stenting lesions that display < 50% stenosis are controversial [1]. Mercado et al. [1], who investigated the clinical and angiographic outcome of patients with mild coronary lesions (stenosis diameter < 50%) treated with balloon angioplasty or coronary stenting, found no clinical benefit (one year survival and non-fatal myocardial infarction) in patients who underwent stented angioplasty for any severity of stenosis. However, there are sparse data regarding the immediate prognostic significance of stenting for lesions of  $\leq$  50% stenosis. Nevertheless, even though the benefit is unproven, percutaneous transluminal coronary angioplasty of coronary artery stenosis of  $\leq$  50% is often performed [1]. In the present report we add to the body of evidence in this debate.

### Patient Description

A 48 year old woman was referred to the Cardiology Outpatient Clinic at Ziv Medical Center, Safed, Israel, for recurrent chest pains. The patient reported no previous

known history of coronary heart disease. A physical examination was unremarkable. Electrocardiography and other laboratory tests showed no pathology. A stress test was inconclusive as the patient did not reach diagnostic values due to fatigue.

Cardiac computed tomography was recommended and was performed 1 week later. A significant obstruction on the mid-left anterior descending artery was visible, with both soft and calcified plaques. The area of radiolucency suggests a vulnerable plaque [Figure A]. The patient was referred to catheterization. A 50% stenosis was found by coronary angiography [Figure B] correlating with the lesion found by CT.

The CT showed some dark areas suggesting a vulnerable plaque, hence the decision to perform intravenous ultrasound during the catheterization. Unfortunately, due to technical difficulties, we were unable to reach the plaque during IVUS. The catheterization team decided, according to the American Heart Association guidelines

IVUS = intravenous ultrasound

[3], that the patient should not have a stent implanted and she was discharged without further procedures.

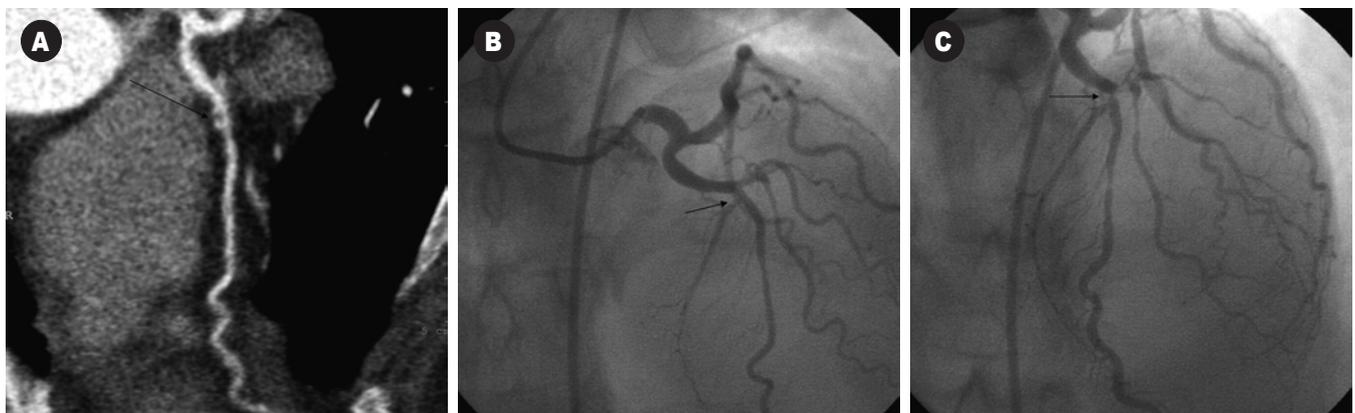
Two weeks after catheterization, the patient was admitted to the Emergency Department complaining of severe chest pain. ECG showed an anterior myocardial infarction (non-ST elevation myocardial infarction) and an urgent catheterization was performed. A total obstruction of the LAD in the area of the previously reported plaque was observed [Figure C] and PTCA was performed with stent implantation at the LAD culprit lesion. Follow-up was uneventful.

### Comment

In their study Mercado and colleagues [1] found no clinical benefit from plaque sealing by stent in patients with mild to moderate stenosis. However, they claim that it is possible that a benefit will

LAD = left anterior descending artery

PTCA = percutaneous transluminal coronary angioplasty



**[A]** Cardiac CT showing the lesion at LAD (arrow).

**[B]** LAD lesion: First coronary angiography and non-significant LAD lesion (arrow)

**[C]** Second coronary angiography after second admission with NSTEMI (non-ST elevation MI) 2 weeks after the first catheterization and significant LAD lesion (arrow)

develop later. Two recent studies have shown a highly favorable outcome in patients with intermediate lesions treated with drug-eluting stents [2,3]. The study by Moses et al. [3] found a remarkably low cardiovascular event rate at 1 year follow-up in patients treated with drug-eluting stents, with 0% mortality and 3.4% myocardial infarction.

The current case report describes a very rare situation in which a causal relationship could be established between the presence of a plaque and subsequent MI in a relatively young woman. There were no other lesions on the coronary artery tree that might have contributed to the acute MI. The question is whether

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MI = myocardial infarction

this MI might have been prevented had a stent been inserted at the culprit lesion 2 weeks prior to the acute coronary event. In our opinion, this is the case. According to present guidelines, these lesions are left to the discretion of the invasive cardiologists. In view of the present case, we believe an IVUS should be considered and a stent implanted when a vulnerable plaque is discovered. Additionally, the value of cardiac CT in detecting this type of lesion, which cannot be detected by any other non-invasive procedure, should be emphasized.

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### References

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**Correspondence:** Dr. M. Halabi, Dept. of Cardiology, Ziv Medical Center, Safed 13110, Israel.

Phone: (972-4) 682-8844

email: magidi.h@ziv.health.gov.il