

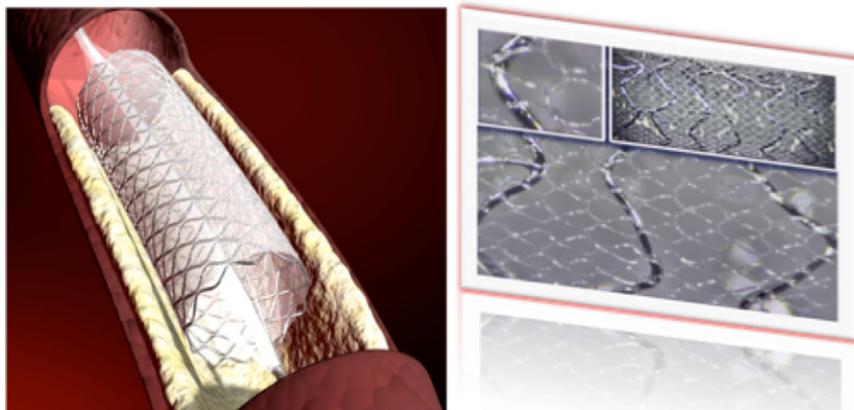
## Stent Thrombosis After Kissing Balloons

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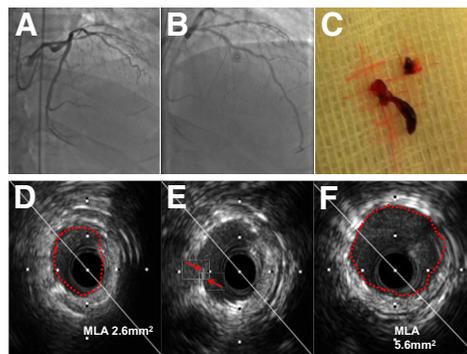
Percutaneous coronary intervention for acute myocardial infarction carries the risk of distal embolization (1). The MGuard (InspireMD, Tel Aviv, Israel) is a mesh-covered bare-metal stent developed as a plaque-trapping device to treat thrombotic lesions (Fig. 1).

A 60-year-old man presented with ST-segment elevation myocardial infarction due to very late in-stent thrombosis of a left anterior descending artery stent. Percutaneous coronary intervention was performed with a 3.0 × 12 mm MGuard stent, resulting in jailing and occlusion of the diagonal. Re-crossing



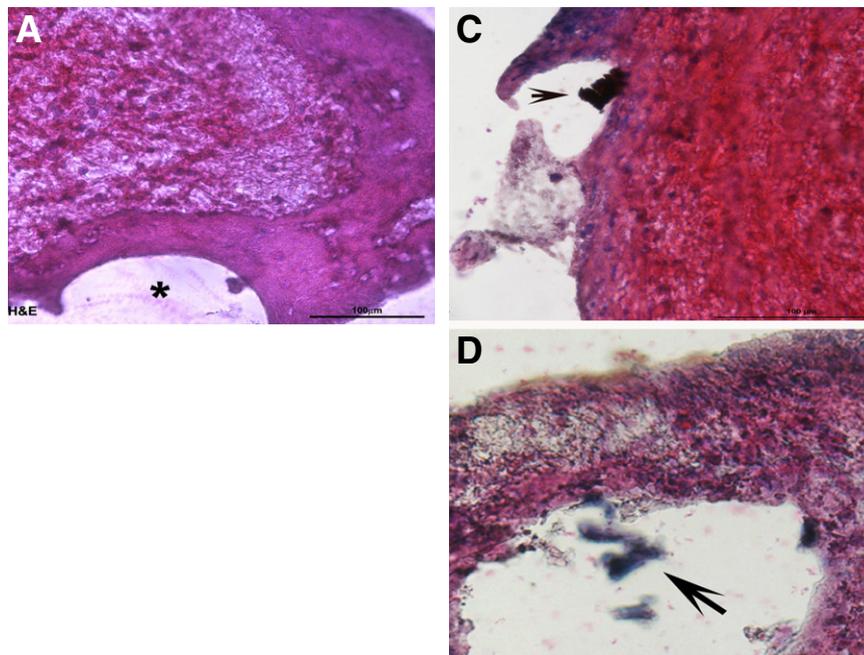
**Figure 1. MGuard Stent**

Closed cell design stainless steel stent (**left panel**). Magnification of ultra-thin Dacron mesh sleeve anchored to the stent (**right panel**).



**Figure 2. Coronary Angiography, IVUS, and Thrombus Aspiration of LAD**

(**A**) Angiogram after kissing balloon inflations of left anterior descending artery (LAD)/diagonal in the previous procedure. (**B**) Occluded LAD secondary to subacute stent thrombosis. (**C**) Thrombus material aspirated from stent. (**D**) Intravascular ultrasound (IVUS) of under-expanded stent (minimal luminal area [MLA] = 2.6 mm<sup>2</sup>). (**E**) IVUS at LAD-diagonal bifurcation. Arrows point to a linear, echogenic structure suggestive of stent material protruding into LAD lumen. (**F**) IVUS of adequately expanded stent (MLA = 5.6 mm<sup>2</sup>).



**Figure 3. Histology and Confocal Microscopy of Intracoronary Thrombotic Material**

(A and B) A dense capsule-like structure surrounds thrombotic fragments and contains a tract (asterisk) compatible with the shape of stent polymeric mesh. (C and D) Opaque dark material, possibly metal, is detected inside thrombotic material and at the thrombus surface (arrow). H&E = Hematoxylin and Eosin.

was difficult but eventually achieved, allowing dilation and final kissing balloon technique (Fig. 2A).

Three days later the patient developed recurrent stent thrombosis (Fig. 2B), and a large thrombus was aspirated from the left anterior descending artery (Fig. 2C). Intravascular ultrasound (IVUS) visualized stent under-expansion (Fig. 2D) and mobile echogenic material on stent struts at the diagonal ostium (Fig. 2E). The stent was dilated, and final IVUS confirmed adequate stent expansion (Fig. 2F). Pathological assessment of thrombus detected the presence of stent constituents (metal or mesh) (Figs. 3A to 3D).

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We speculate the etiology of stent thrombosis was multifactorial from stent under-expansion and disruption of MGuard stent integrity (from re-crossing and diagonal dilation) as supported by IVUS and pathological findings.

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