

# Stent Placement Supported by IVUSmap

Courtesy of Jiro Ando, MD

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## Patient History

An 80-year-old male, who suffered from anterior chest pain on exertion in Feb, 2012, was treated via implantation of a drug eluting stent in the left main trunk and the proximal part of the left anterior descending artery.

## Diagnosis

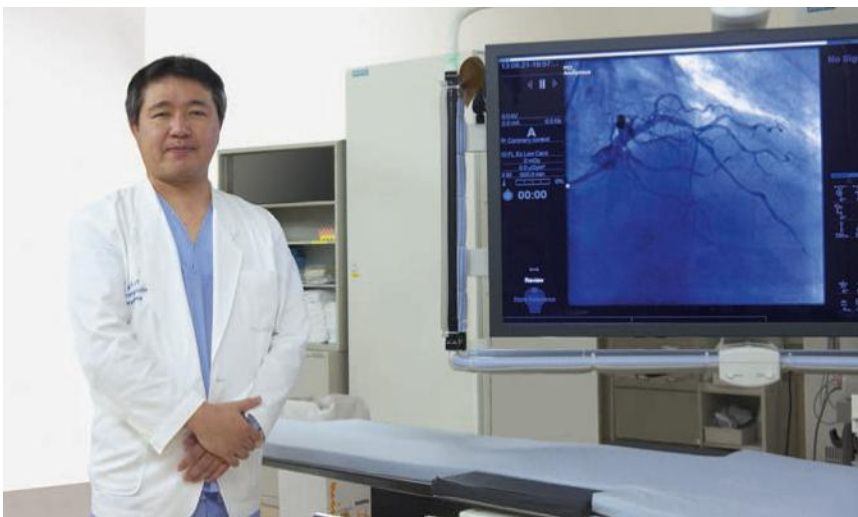
Follow-up angiography showed 75% stenosis of the distal right coronary artery 8 months after initial treatment.

## Treatment

IVUS catheter (EagleEye® Platinum, Volcano Corp., U.S.A.) was introduced into the distal part of the RCA lesion, and catheter pullback was performed with an automatic pullback device at a rate of 0.5 mm/sec. ECG-triggered fluoroscopy was acquired during pullback and was used to perform co-registration of the angiographic and IVUS images. The IVUS image showed a 11.0 mm stenotic lesion proximal to a branch of the distal RCA (white arrow in Fig. 1). The distal end of the stenosis was 10.0 mm away from the branch. The stent end target landing positions were identified at locations where the amount of plaque was comparatively small. The reference diameters were around 3.1 mm, so a 3.0 mm x 14 mm stent (Nobori®, Terumo Corp., Japan) was selected for treatment. The distal RCA branch was used as a reference landmark point during stent deployment. The stent was placed and subsequent angiography showed that stenosis was resolved.

## Comments

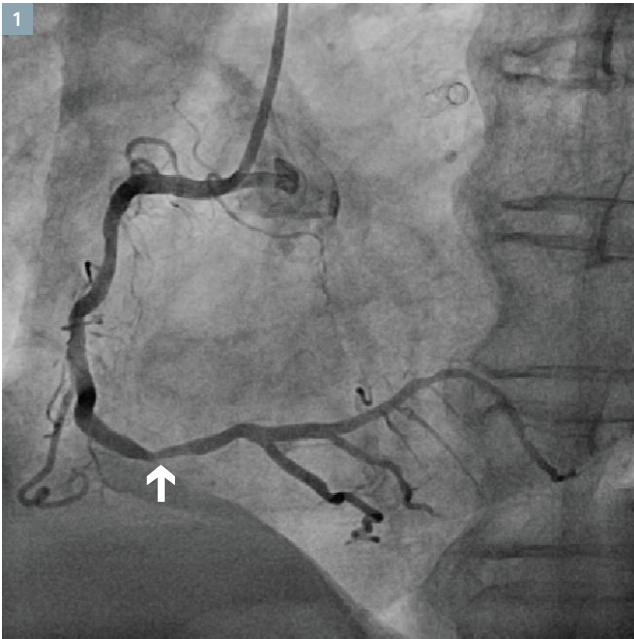
Stent placement without the use of IVUSmap requires the physician to switch attention between angiographic images and IVUS images alternately, and to orient within the coronary tree, identify branches and radiopaque markers. Highly developed skills and experience of the physician are required to perform these complex tasks. On the other hand, through IVUSmap, co-registered images useful for guidance can be easily obtained by placing two bookmarks on the distal and proximal ends of the stenosis (Fig. 3). IVUSmap provides an easy approach for length measurements between bookmarks visible on either IVUS or angiography images. Our assessment of the co-registration accuracy suggests that this technology can be used for guidance during stenting. I believe that this technology has the potential to contribute to placing stents more intuitively and accurately.



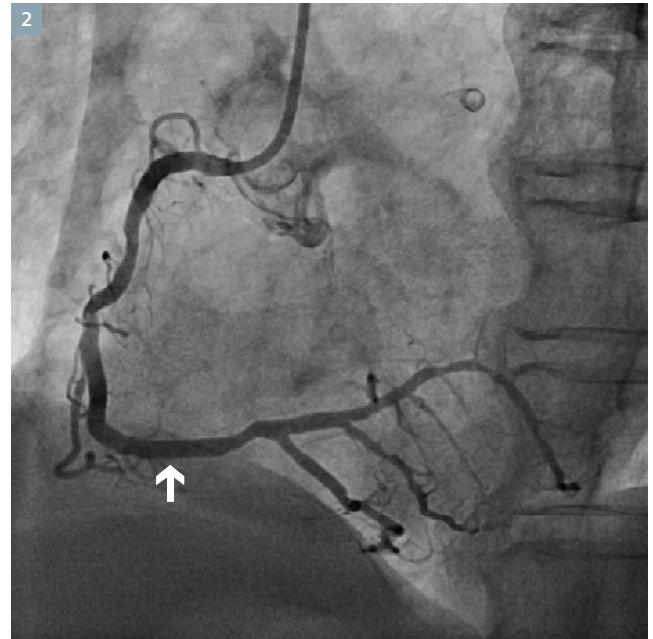
Jiro Ando, MD, in front of his system for cardiovascular treatment.

## Contact

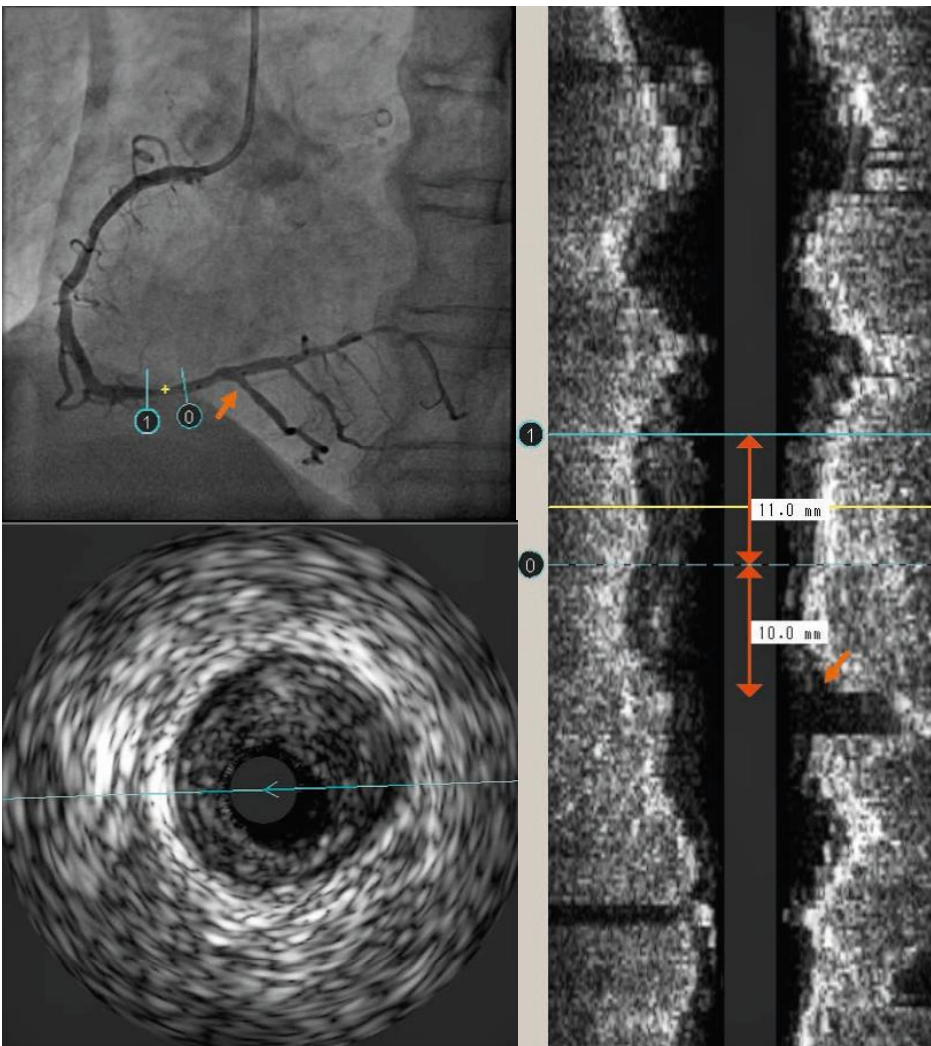
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1 Angiography before the stenting, which shows stenosis of the distal right coronary artery (arrow).



2 Angiography after the stenting, which shows that stenosis was resolved (arrow).



3 Angiography and IVUS images co-registered by IVUSmap. Two bookmarks are placed on the distal and proximal ends of the stenosis. The orange arrows indicate the branch that is visible in both angiography and IVUS images.