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Letter to the Editor

On the Loss of the Phosphorylcholine-Based DES Coating on the Abluminal Surface of Endeavor Stents

TO THE EDITOR

We enjoyed reading the article of Dr. Wiemer and coworkers describing the surface of various DES after failed attempts to implant them in calcified coronary lesions [1]. The authors managed to collect more than 60 DES to later examine these stents in nonexpanded or expanded condition with scanning electron microscopy, a bench side imaging technique that was recently introduced for the assessment of DES coating irregularities [2,3]. One may honestly congratulate this group on saving all DES after failed stent implantation for further analysis.

The nature of their study is greatly descriptive, but images and preceding attempts to implant these stents in calcified vessels suggest that the relatively large abrasion of coating on the external surface of the Endeavor stents may be the result of contact between these DES and the vessel wall. However, based on data from DES after failed stent implantation only (i.e., in the absence of sufficient data in Endeavor stents without preceding manipulation in challenging lesions), it is hard to tell whether the abrasion occurred as a result of the stents' contact with the vessel wall.

Data from our recent bench side study with scanning electron microscopy in various DES demonstrate that the external (phosphorylcholine-encapsulated) coating of the Endeavor stents was greatly intact after gentle deployment in water [4]. In fact, the difference between our findings and Dr. Wiemers data confirms their assumption that the PCI procedure accounted for the abrasion of coating on the external Endeavor surface. This example shows nicely how both, clinically oriented research and bench side studies can complement each other. Moreover, we found during bench side testing that the largest areas with bare-metal aspect were located on the luminal surface of the Endeavor stents (where the balloon had expanded the stent), which corroborates that observation following failed stent implantation [4]. The relatively high proportion of drug to polymer of 9:1 in the Endeavor coating [5] may increase the susceptibility of the Endeavor stent to some loss of coating on contact with calcified vessel wall. Of note, the coating on the Endeavor Resolute stent contains the same drug but a different polymer with a different electron microscopic aspect [4]. Finally, randomized clinical studies of the Endeavor stent demonstrated—despite the microscopic findings as discussed above—the efficacy of this stent in high-risk patient subsets, such as diabetics [6].

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