A 50-year-old white man presented with in-stent restenosis in April 1998. He had undergone angioplasty with stent implantation for a lesion in the right coronary artery in December 1977, when he was 29 years old. At that time, he was enrolled in a placebo-controlled, randomized trial of γ-irradiation to prevent recurrent in-stent restenosis (Washington Radiation In-Stent Restenosis Trial [WRIST]). This included an intravascular ultrasound substudy. After the dwell time and at follow-up, imaging was performed using a 30-MHz single-element, mechanically rotating transducer (SCIMED/Boston Scientific Corporation) and automated pullback (0.5 mm/s) after the administration of 200 μg of intracoronary nitroglycerin.

In December 1998, recurrence occurred at the proximal portion of the stent; however, the distal portion of the stent (Figure) showed (1) positive remodeling (an increase in external elastic membrane cross-sectional area from 32.8 to 39.0 mm²), (2) a reduction and virtual elimination of intrastent neointimal hyperplasia, and (3) late stent–arterial wall malapposition.

Positive remodeling, regression of neointimal hyperplasia, and late malapposition have been associated with brachytherapy. However, this patient was randomized to the placebo arm of the study (confirmed by the procedural logs of both the radiation physicist and the radiation safety officer). Although it is our experience that the constellation of these 3 findings (positive remodeling, regression of intimal hyperplasia, and late malapposition) are extremely unusual in the absence of brachytherapy, this case illustrates the importance of control groups, especially when new treatment strategies (ie, brachytherapy) are being evaluated in a small number of patients using new imaging modalities.
Positive Remodeling, Regression of In-Stent Neointimal Hyperplasia, and Late Stent Malapposition in the Absence of Brachytherapy
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