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EDITORIAL COMMENT

Three Decades of SVG PCI

A Short History of Nearly Everything*

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In this issue of *JACC: Case Reports*, Hemelrijk et al[1] report an almost 3-decades-long meandering revascularization odyssey of a saphenous vein graft (SVG).

This case report is probably some of the best reading you can do to fast forward through the whole history of surgical revascularization, evolution of percutaneous coronary intervention (PCI), and advances in percutaneous coronary techniques. It ends with the most contemporary option in treatment of failed SVGs—native vessel chronic total occlusion (CTO) PCI. The investigators recapitulate the complex history of SVG management in fewer than 1,500 words!

On the other side, if you wish to complete a deep dive and review the exhaustive body of literature and research on this very topic—well, that will take you longer than reading Homer's *Iliad* (~193,500 words) and *Odyssey* (~134,500 words) back to back.

There is probably no better way than the case report format to synthesize how our field has progressed. In 1994, coronary artery bypass graft was offered to this patient for 2-vessel nonproximal left anterior descending artery disease. Today, that revascularization strategy might not be our first choice, but keep in mind that the best evidence available at that time was the cutting-edge research that discussed bare-metal stents (BMS) vs balloon angioplasty.[2]

Jump forward 11 years to 2005, when a new symptomatic SVG lesion is treated with a drug-eluting stent (DES). It is key to put this in perspective—it was not until 2018 that we had a large prospective and randomized trial of BMS vs DES in SVG.[3] Although between 2005 and 2018 there was an intense debate over which stent to use in SVG, by 2022, BMS had come and gone. Bioabsorbable polymer DES have been developed to couple the DES-BMS technologies.[4] Maybe a "pure" BMS will make a comeback at some point in the future?

Yes, another 12 years later, interventional cardiology technology continues to evolve, and the patient is treated for DES in-stent restenosis with a drug-coated balloon (DCB). Strategies for the optimal treatment of in-stent restenosis, whether with a DCB or DES, continue to advance as new technologies become available. The definitive history of DCBs still has not been written, and the jury is still out.[5] There are a lot of exciting trials and technologies underway. Keep your eyes open.

Finally, a paradigm shift in the treatment of SVG becomes available, and the patient receives the state-of-the-art revascularization for 2020. Rather than reintervening on the SVG, a native chronic total occlusion (CTO) PCI is performed. The giant advances in the CTO techniques have made this approach possible. However, the decision whether to proceed with native vessel CTO or SVG intervention is quite complex and requires substantial expertise.[6] Just like the DCB story, the CTO PCI for SVG is an ongoing focus of research because there is much for us to learn. Native CTO PCI for SVG is not for the fainthearted.

I suspect that if you are a cardiologist-lipidologist and you have read this far, you might be wondering what the patient's lipids were all along. At the time of the patient's coronary artery bypass graft in 1994, a major article had published the SSSS (Scandinavian Simvastatin Survival Study).[7] From

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today's perspective, the numbers alone in this classic study are difficult to grasp. In SSSS, the mean low-density lipoprotein cholesterol before randomization was 188 mg/dL. Yes, you read this right. Total cholesterol was 267 mg/dL. I am sure there is a very interesting lipid story running in parallel to the revascularization timeline described in this case report. Both intervention and lipid treatment have developed over the last 30 years and are truly complementary in coronary artery disease management. Lipid-lowering therapies can cause plaque regression, after all.[8] Now that we have the new gene-silencing technologies, the next decade will bring incredible advances in lipid-lowering choices.

Around the same time, in 1996, a new and exciting drug started making inroads in interventional cardiology. We started our journey with clopidogrel.[9] What happened next is remarkable. Antiplatelet agents have been transformative for the field of interventional cardiology and, just like the lipid story, a complex antiplatelet story could be told here as well.

If you are a medicine resident trying to decide whether to pursue a cardiology fellowship, there is no better <1,500-word paper to read than this one. Just imagine what the next 30 years will bring and what treatments will be around in 2052. Crisp, succinct, and motivational!

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