Full Calcified Jacket of Saphenous Vein Graft

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A 57-year-old male visited our clinic with chief complaint of exertional chest pain. He had been on anti-hypertensive medication for 15 years. In 1999, he went through coronary artery bypass graft surgery for myocardial infarction, using an aorto-left anterior descending artery (LAD) bypass with the left internal mammary artery, and aorto-right coronary artery (RCA) bypass with saphenous vein. From 2005, he received peritoneal dialysis due to hypertensive end stage renal disease.

The coronary angiography shows significant stenosis in mid-LAD, total occlusion in RCA (Fig. 1A, black arrowhead) and diffuse calcified silhouette of saphenous vein graft (SVG) (Fig. 1A, white arrowhead), which is patent with good flow (Fig. 1B). A Chest X-ray shows calcifications that encircle the aorta (Fig. 1C), which indicates calcifications burden of this patient. Coronary CT angiography reveals well diffuse calcified SVG (Fig. 1D). Finally, he received percutaneous coronary intervention at LAD.

It has been reported that several risk factors, such as smoking, diabetes, and long standing graft contribute to a graft calcification.¹⁾ In this particular case, low glomerular filtration rate and advanced glycation end products, occurring during peritoneal dialysis,^{2,3)} might have contributed to the extensive graft calcification. Also, the fact that SVG calcifications occurred mainly within the wall, and not within the plaque, which suggest that SVG calcifications are not just

results of lesion formation, but also of hemodynamic changes that are associated with arterializations of SVG.¹⁾ Increasing calcified plaques of coronary artery are associated to angiographically severe stenosis,⁴⁾ but it's not apparent that SVG calcifications is related to stenosis in that the location of SVG calcium is more diffuse and concentric in the vessel wall. The images we included in this paper illustrate the process clearly.

References

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Fig. 1.