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CASE REPORT

Two-Level Stenting of Aortocoronary Bypass Graft in Acute Coronary Syndrome: A Case Report and Literature Review

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Abstract

This case report presents the clinical management of an 88-year-old male patient with acute coronary syndrome (ACS) following previous coronary artery bypass grafting (CABG). The case highlights the challenges in diagnosing and treating late venous graft lesions in the presence of significant comorbidities, including type 2 diabetes mellitus, hypertension, and dyslipidemia. The patient underwent successful two-level drug-eluting stent (DES) implantation into the venous graft to the diagonal branch. The procedure resulted in restoration of blood flow with no complications during hospitalization. We discuss the strategy, current recommendations, and outcomes related to venous graft interventions in elderly patients with high surgical risks.

Keywords: Acute coronary syndrome, Coronary artery bypass grafting, Venous graft stenting, Endovascular intervention, Drug-eluting stents.

Introduction

Coronary artery bypass grafting (CABG) remains one of the main surgical treatments for ischemic heart disease. However, years after surgery, a significant proportion of patients develop graft restenosis or occlusion, particularly in venous grafts. Reintervention in patients with multiple comorbidities carries substantial risks. In such cases, preference is given to endovascular techniques. This article presents a case demonstrating the capabilities and benefits of venous graft stenting in a patient with acute coronary syndrome (ACS), supported by a review of current guidelines and research evidence.

Case Presentation

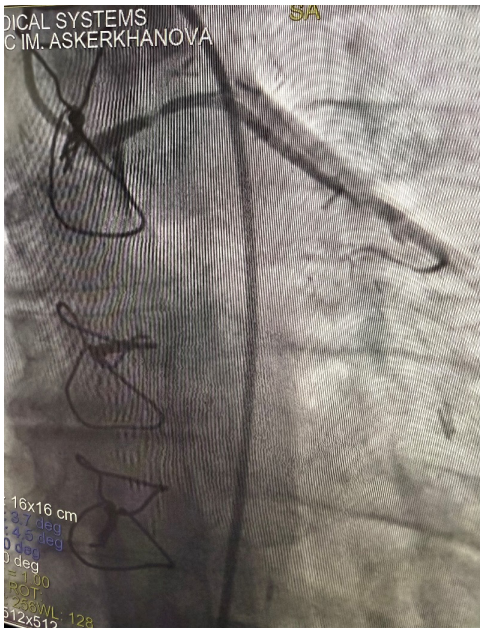
An 88-year-old male was admitted with complaints of chest pressure radiating to the left shoulder and significant shortness of breath during minimal physical exertion. History included CABG 10 years earlier (grafting of the LAD, RCA, and OM branches), type 2 diabetes mellitus, stage III hypertension, and dyslipidemia. At admission, ACS without persistent ST-segment elevation (NSTE-ACS) was diagnosed. ECG showed ST-segment depression in leads I, aVL, V5–V6. Echocardiography revealed left ventricular ejection fraction (LVEF) of 42% and lateral wall hypokinesis.

Coronary angiography revealed subtotal occlusion of the distal anastomosis of the venous graft to the diagonal branch (Figure 1).

Coronary circulation was right-dominant. Significant findings included a 75% stenosis of the left main coronary artery, occlusion of the RCA from its origin, and severe two-level stenosis (up to 90%) in the venous graft to the diagonal branch.

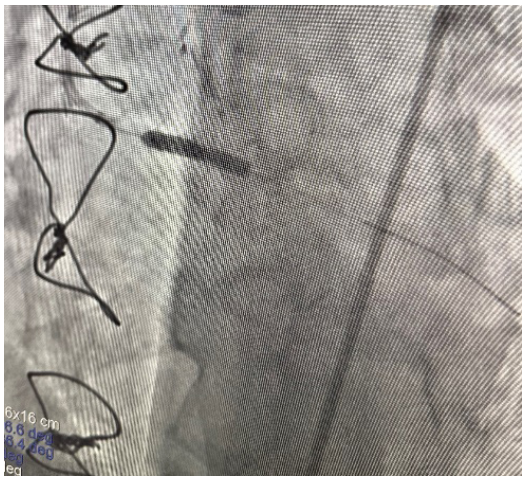
Under local anesthesia, a two-level angioplasty and drug-eluting stent (DES) implantation in the venous graft were performed via right transfemoral access. Heparin was administered intra-arterially and intravenously. A guiding catheter was positioned, and a Pilot 50 wire was advanced across the lesion. Sequential balloon pre-dilation and stent implantation Resolute Onyx 3.0 x 18 mm distally and 3.5 x 22 mm proximally (Figures 2 and 3) were performed.

Final angiography showed good flow restoration without complications (Figures 4 and 5).

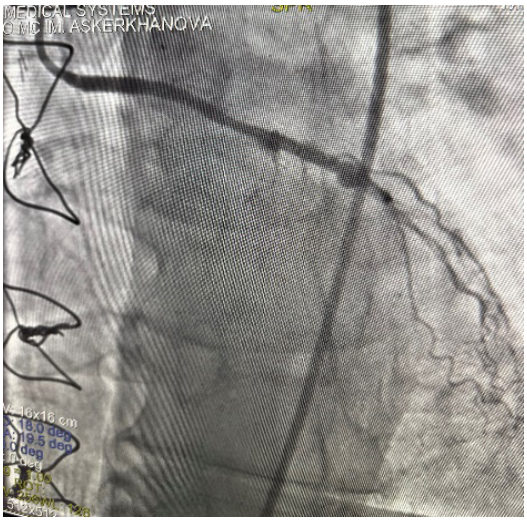


(Figure 1)

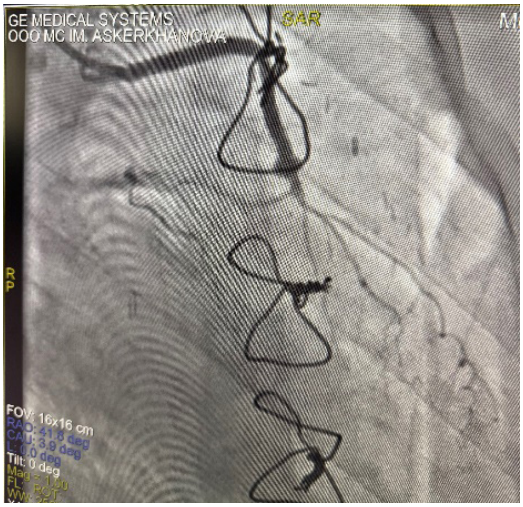
(Figure 2)



(Figure 3)



(Figure 4)



(Figure 5)

The patient tolerated the procedure well and was discharged on the 4th day with dual antiplatelet therapy (aspirin + ticagrelor).

Discussion

Stenting of venous grafts after CABG remains challenging, especially in patients with comorbidities. According to the SYNTAX study and ESC guidelines, preference is given to endovascular interventions in high-risk surgical patients. The choice of DES implantation significantly reduces the risks of restenosis and late thrombosis. Patients with diabetes mellitus and left ventricular dysfunction benefit most from minimally invasive strategies.

Conclusion

Modern endovascular technologies offer effective and safe treatment for venous graft lesions in patients with ACS. Individualized approach and careful evaluation of anatomical and clinical factors are crucial for reducing complications and improving outcomes.

Conflict of Interest

The authors declare no conflict of interest.

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