

FIGURE 297e-5 Distal protection device showing captured atherosclerotic debris liberated by initial balloon dilation.

CASE 4: SAPHENOUS VEIN GRAFT INTERVENTION WITH DISTAL PROTECTION

(Fig. 297e-5; Videos 297e-23 to 297e-26)

- A 62-year-old male with a history of chronic stable angina.
- A four-vessel coronary artery bypass grafting (CABG) surgery was performed 17 years earlier with a left internal mammary artery graft to the LAD, a right internal mammary artery graft to the right coronary artery (RCA), a saphenous vein graft to the first obtuse marginal branch, and a saphenous vein graft to the first diagonal branch.
- The patient had a recent increase in angina with exertion and was found to have lateral ischemia on an exercise technetium-99m scan.
- Diagnostic cardiac catheterization revealed a significant stenosis in the body of the saphenous vein graft to the first obtuse marginal branch.

VIDEO 297e-23 Saphenous vein graft to a first obtuse marginal branch with an 80% eccentric stenosis in the midgraft.

VIDEO 297e-24 A distal protection device is deployed past the lesion.

VIDEO 297e-25 Angioplasty balloon inflation with the distal protection device in place.

VIDEO 297e-26 Final result after stent placement.

SUMMARY

- Saphenous vein grafts have a failure rate of up to 20% after 1 year and as high as 50% by 5 years.
- Graft failure (after >1 month) results from intimal hyperplasia and atherosclerosis.

- Saphenous vein graft PCI is associated with distal embolization of atherosclerotic debris and microthrombi leading to microvascular occlusion, reduced antegrade blood flow (the “no-reflow” phenomenon), and myocardial infarction.
- Embolic distal protection devices decrease the risk of distal embolization, as well as the incidence of no-reflow and myocardial infarction associated with saphenous vein graft interventions.

CASE 5: UNPROTECTED LEFT MAIN PCI IN A HIGH-RISK PATIENT

(Figs. 297e-6 and 297e-7; Videos 297e-27 to 297e-34)

- An 89-year-old woman presented with a NSTEMI associated with 5-mm ST-segment depression in the apical leads occurring 2 weeks after hospitalization for a NSTEMI that was treated conservatively.
- Chronic obstructive lung disease, elderly age, and the patient’s refusal to consider cardiac surgery restricted the choice of therapeutic options to medical and/or percutaneous interventions.
- Diagnostic catheterization revealed a left dominant circulation with a heavily calcified 80% distal left main coronary artery stenosis extending into the LAD and into the proximal LCx coronary arteries. A 70% proximal LAD lesion was also present.
- After consultation with the patient, family, and a cardiac surgeon, PCI was performed with intraaortic balloon pump support and a temporary pacemaker in the right ventricle.

VIDEO 297e-27 Baseline left coronary artery injection in right anterior oblique (RAO) cranial projection shows a high-grade calcified stenosis in the left main coronary artery and a significant stenosis in the proximal LAD.

VIDEO 297e-28 In the left anterior oblique (LAO) caudal view, the left main coronary artery lesion can be seen to extend into the ostia of both the LCx and the LAD.

VIDEO 297e-29 Guidewires were placed into both the LCx and LAD. After the left main coronary artery and LCx are dilated with balloon angioplasty, the proximal LAD is dilated, and a long drug-eluting stent is placed to cover a lesion dissection that occurred with wiring of the vessel.

VIDEO 297e-30 The bifurcation lesion in the left main coronary artery extending into the LCx and LAD ostia is treated using a “culotte” technique. First, a drug-eluting stent is placed in the left main coronary artery and into the proximal LCx.

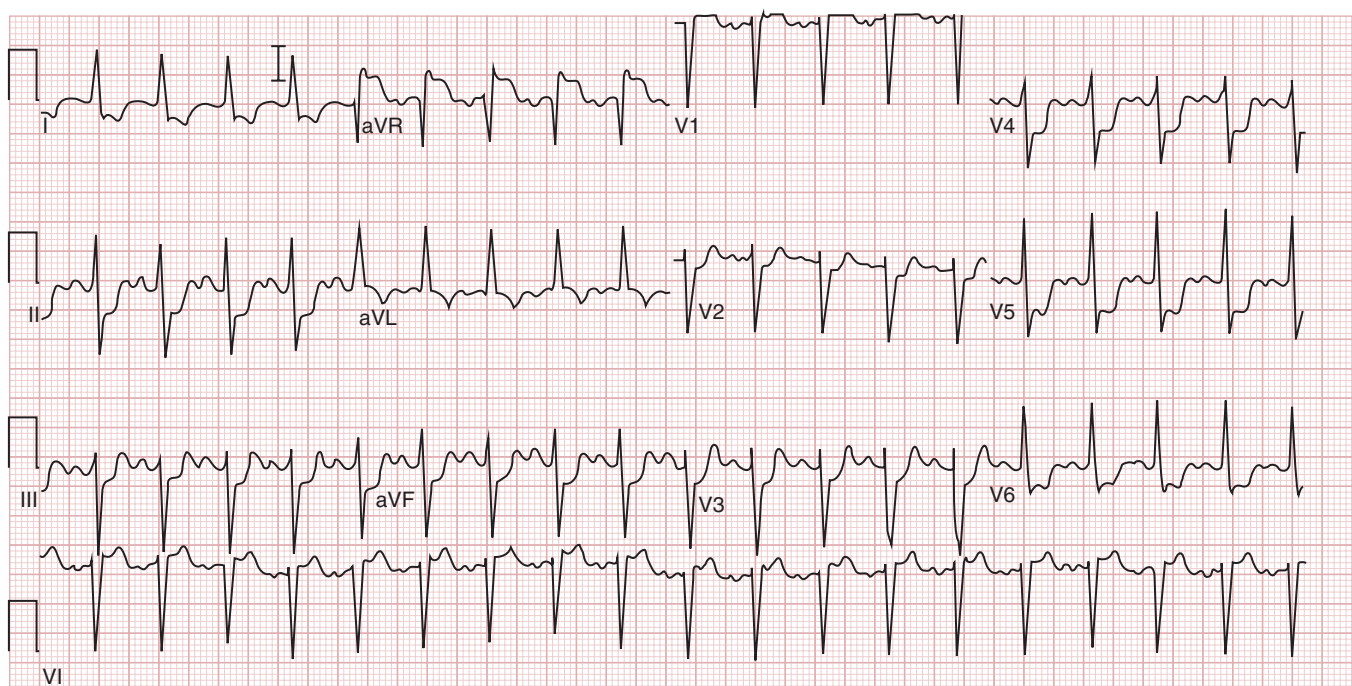


FIGURE 297e-6 During chest pain, the ECG showed diffuse ST-segment depression of up to 5 mm in the inferior and lateral leads.