Venous graft perforation leading to cardiac tamponade

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We describe a cardiac tamponade after venous graft perforation due to stent inflation. The complications and therapeutic options are discussed.

A 70-year-old male with a history of coronary artery bypass grafting in 1996 was admitted to our hospital for an elective percutaneous coronary intervention because of a severe graft stenosis.

A bare metal stent (Liberté, 16 × 4.0 mm) was placed in the graft segment between the ramus marginalis obtusus and the ramus descendens posterior. Because of insufficient initial stent expansion, postdilatation with high pressure was performed. After dilatation, dye extravasation into the pericardium was noticed (Figure 1).

A polytetrafluoroethylene-covered JOSTENT (Graftmaster, 19 × 3.5 mm) was deployed to seal the leak. After postdilatations there was virtually no active extravasation.

A transthoracic echocardiogram demonstrated localized left atrial compression due to intrapericardial blood. The pericardial hematoma was not accessible for pericardial puncture. As the patient had no clinical signs of cardiac tamponade, no surgery was performed.

However, 24 h later the blood pressure dropped because of cardiac tamponade and the patient was immediately operated upon. A transoesophageal echocardiogram (TEE) during the operation showed a massive compression of the left atrium with severe inflow restriction because of blood and thrombus in the pericardial space (Movie 1). Immediately after opening of the pericardium the tamponade resolved, showing normal dimensions of the left atrium again (Movie 2).

Coronary artery or venous graft perforation is a rare, but dreaded, complication of percutaneous coronary intervention. Generally, this can be managed by implantation of a covered stent. However in a minority of patients emergency surgery is necessary because of continuing extravasation leading to cardiac tamponade.

Supplementary material

Supplementary data associated with this article can be found in the online version.

References