Cardiac Imaging

# Giant Left Ventricular Aneurysm and Intraventricular Septal Defect After Silent Myocardial Infarction

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Left ventricular aneurysm was first described by John Hunter in 1757.[1] Cooley and associates reported the first resection under cardiopulmonary bypass in 1958.[2] Since then many surgeons have examined different methods of repairing left ventricular aneurysms in an effort to improve postoperative left ventricular function and long-term survival rates, and to provide symptomatic relief. An important determinant of operative and long-term survival is the residual ventricular function, i.e. the grade of contractility of the non-aneurysmal segments of the ventricle.[3-5]

A 50-year-old non-diabetic, heavy smoker presented with a 2-month history of dyspnea, orthopnea and paroxysmal nocturnal dyspnea. The presence of any typical ischemic episodes in the past could not be established.

On admission the patient had clinical evidence of congestive heart failure. The chest X-ray showed a significantly enlarged cardiac silhouette, as well as marked vascular congestion. Cardiac examination revealed a grade IV/VI systolic ejection murmur, best heard at the apex.

Transthoracic echocardiography showed a large true aneurysm of the left ventricle, a wide intraventricular communication and a non-homogeneous echo density with a margin distinct from the underlying wall, probably a thrombus, occupying one third of the aneurysmal sac (Figures 1 & 2). The ejection fraction was estimated at 25-30%, with satisfactory motion of the basal segments. Cardiac catheterization confirmed the presence of the aneurysm and disclosed a proximal occlusion of the left anterior descending artery (LAD), as well as severe stenotic lesions of an intermediate branch (IM), right coronary artery (RCA) and posterior descending artery (PDA).

The patient was operated on urgently, because of hemodynamic compromise. Full cardiopulmonary bypass was established through a median sternotomy, with cannulation of the ascending aorta, as well as bicaval cannulation for venous drainage. The patient was cooled down to 27º C and the heart was electrically fibrillated in order to avoid any thrombus migration and embolic events during manipulations. The aorta was cross-clamped and cold (4º C) crystalloid cardioplegia (Custodiol®) was given. This technique obtained a bloodless operative field. The aneurysmal sac (10 × 8 cm) was opened wide, the massive thrombus was removed and the margin of the viable myocardium was recognized, as shown in Figures 3 and 4. An endoventricular circular plasty (Dor procedure) was performed and the intraventricular septal defect was closed with interrupted sutures. Coronary artery lesions in the RCA, PDA and IM were bypassed using two vein grafts.

The patient tolerated the procedure well and was weaned off cardiopulmonary bypass easily, with minimal inotropic support. He was discharged 9 days after surgery. Figure 5 shows an echocardiographic view on the 7th postoperative day.

**Figure 1.** Parasternal long-axis echocardiographic view showing the large left ventricular true aneurysm.

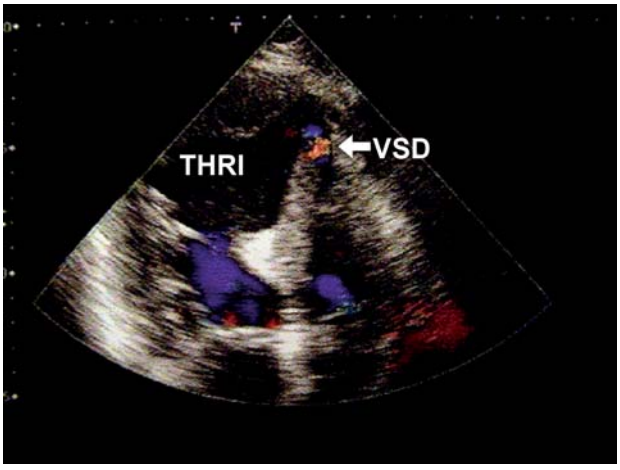


**Figure 2.** The intraventricular septal defect (VSD) and the intracardiac thrombus (THR), shown by color Doppler echogardiography.

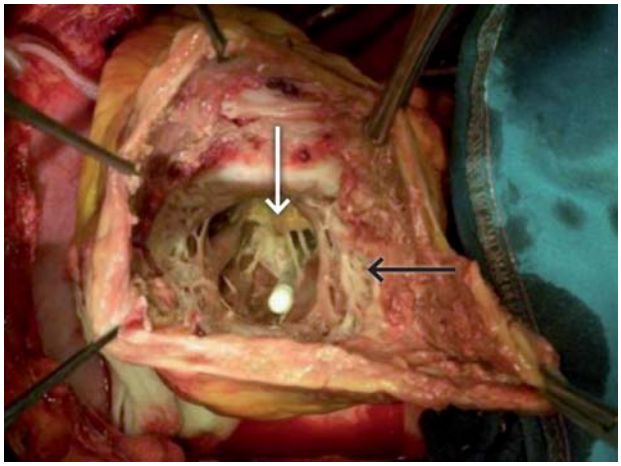

**Figure 3.** Intraoperative picture. The aneurysmal sac is opened wide. The black arrow shows the transition margin between viable myocardium and the fibrotic and thinned aneurysmal tissue. The white arrow indicates the anterior mitral leaflet.

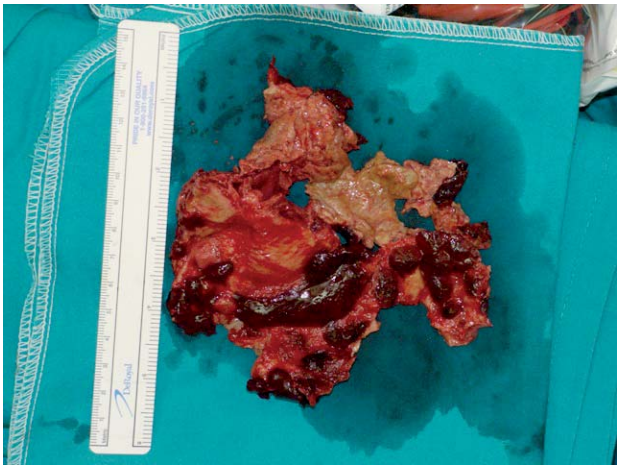

**Figure 4.** Excised massive intracardiac thrombus.

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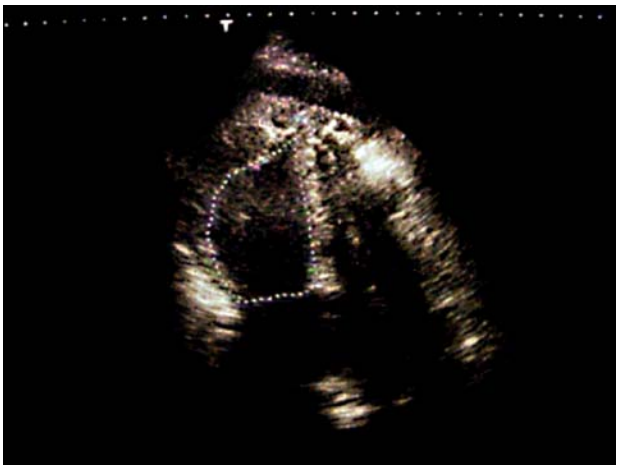

**Figure 5.** Postoperative day 7 echocardiographic view, showing the remaining left ventricular cavity.