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# Images in cardiovascular medicine

## Left ventricular pseudoaneurysm secondary to left ventricular venting through the right superior pulmonary vein

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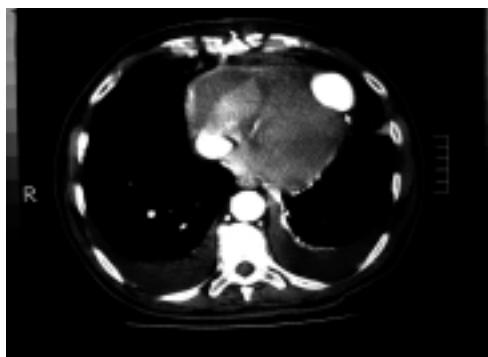
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A 78-year-old male with a prior non-Q wave myocardial infarction was admitted to our department for coronary artery bypass surgery. Coronary angiography showed three-vessel coronary disease and left ventricular angiography revealed a normally contractile ventricle. Coronary artery bypass grafting was performed using cardiopulmonary bypass, cardioplegic arrest and left ventricular venting through the right superior pulmonary vein. The left internal mammary artery was anastomosed to the left anterior descending coronary artery, a single saphenous vein graft was anastomosed to the right coronary artery, and a sequential vein graft was inserted on two marginal branches. The postoperative course was uneventful and the patient was discharged on postoperative day 12. One month later, he was submitted to echocardiography because of persisting cough: a  $3 \times 2.5$  cm oval pouch was seen near the left ventricular apex; a to-and-fro flow was detected at color and pulsed Doppler. No apparent communication with the left ventricle was evident. A thoracic computed tomographic scan showed a  $3 \times 2.5$  cm pseudoaneurysm of the left ventricular apex with delayed opacification (Fig. 1). The diagnosis was confirmed at left ventriculography. Surgery was performed on femoro-femoral cardiopulmonary bypass and the aneurysm was opened; a  $3 \times 3$  mm communication with the left ventricular cavity was identified (Fig. 2) and sutured with a 3-0 pledged polypropylene suture. The postoperative course was uneventful and



**Figure 1.** Computed tomographic scan showing delayed opacification of the pseudoaneurysm (white arrow).

the patient was discharged 7 days postoperatively.

Left ventricular pseudoaneurysm is a rare complication of myocardial infarction and it may also be caused by chest trauma, infective endocarditis and cardiac surgery<sup>1,2</sup>. Only a few reports of a left ventricular pseudoaneurysm secondary to left ventricular apical venting have been published<sup>3-6</sup>. To our knowledge, this is the first case of a left ventricular pseudoaneurysm complicating left ventricular venting through a pulmonary vein. In our case, the left ventricular pseudoaneurysm is likely to have been the consequence of a traumatic lesion on the left ventricular apex caused by the tip of the catheter introduced through the right superior pulmonary vein for left ventricular venting. The intraoperative observation of a very small perforation may explain the slow opacification of the pseudoaneurysm at the computed tomographic scan and the



**Figure 2.** Intraoperative findings: a small communication between the opened pseudoaneurysm and the left ventricle is evident at the apex of the heart.

presence of an intact thin epicardial wall suggests the traumatic origin of the lesion; it is likely that the tip of the vent had started the initial endocardial lesion and that, with time, the rhythmic left ventricular pressure eventually contributed to the development of the

pseudoaneurysmal sac without interruption of the epicardial layer. The very thin wall of the pseudoaneurysm predisposes to a high risk of rupture and surgery is mandatory.

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