A 43-year-old man was referred to our institution for surgical correction of aortic valvular disease discovered in the context of new onset aortic insufficiency with acute pulmonary edema.

The patient had no medical history of cardiac disease besides an “innocent” heart murmur since youth, which had never been investigated. Of note, he had an acute episode of glomerulonephritis with secondary renal insufficiency and systemic hypertension 6 mo before, and septicemia from an infected percutaneous hemodialysis catheter 5 mo before admission. The patient was afebrile, appeared nonseptic at the time of admission for surgery. Preoperative transthoracic echocardiography (TTE) revealed Grade IV aortic insufficiency and moderate aortic stenosis. There were no other abnormalities described.

Intraoperative transesophageal echocardiography (TEE) examination revealed a pulsatile cavity on the mitral-aortic intervalvular fibrosa in the mid-esophageal long-axis view, close to the noncoronary cusp of a bicuspid aortic valve. The cavity had pronounced systolic enlargement (Fig. 1). Systolic flow in the cavity was apparent using color flow Doppler (Fig. 2; video loop can be accessed at www.anesthesia-analgesia.org).

Visual inspection of the aortic valve showed no evidence of endocarditis. The presence of this undiagnosed cavity was confirmed by the surgeon, who isolated it from the left ventricle by means of an autologous pericardial patch. After aortic valve replacement, TEE showed significant reduction of flow in the cavity. The postoperative course was uneventful. A subsequent TTE study failed to show any residual cavity.

Left ventricular outflow tract (LVOT) pseudoaneurysms, or pseudoaneurysms of the mitral-aortic intervalvular fibrosa, are rare complications of infective aortic endocarditis, trauma, and aortic valve replacement surgery. This is the first case of LVOT abscess that we have encountered in a 13-year-TEE database of approximately 8500 examinations. The incidence of fistulas or pseudoaneurysm complicating aortic annular abscesses is estimated to be 11% (1). Pseudoaneurysms associated with infective endocarditis of the aortic valve can occur anywhere from the left ventricle to more distal arteries, such as the superior mesenteric artery.

Echocardiographic criteria of an LVOT pseudoaneurysm include a pulsatile nature (with systolic enlargement, easily diagnosed using M-mode) and communication with the LVOT (2). These can be associated with aortic regurgitation and rarely, mitral regurgitation. In one small study, it was shown that pseudoaneurysms of the LVOT are more readily observed with TEE than with TTE or aortography (3).

In this case, the bicuspid aortic valve may have predisposed the patient to infective endocarditis, which may have been effectively treated with antibiotic therapy of his infected dialysis catheter. The pseudoaneurysm may have developed shortly thereafter.

REFERENCES

Figure 1. Mid-esophageal long-axis view in end systole. The left ventricular outflow tract pseudoaneurysm (arrow) is at maximal size.

Figure 2. Mid-esophageal long-axis view displaying M-mode of the left ventricular outflow tract showing the holosystolic filling (white arrow) and diastolic emptying of the pseudoaneurysm.