A 44-year-old man underwent aortic valve replacement with a porcine bioprosthesis 21 years ago for infective endocarditis complicated by a cerebral mycotic aneurysm and intracranial bleeding. Nine years ago, he had a second aortic valve replacement with a mechanical bileaflet tilting-disk prosthesis because of porcine prosthesis degeneration. No pseudoaneurysm was noted on the operative report. Six months ago, he developed angina and had a positive stress test for ischemia. Angiography showed severe left main coronary artery (LM) stenosis, which was treated with intravascular ultrasound–guided percutaneous coronary intervention with a zotarolimus-eluting stent.

Two months ago, he again developed angina. Follow-up angiography and intravascular ultrasound revealed severe

Figure 1. Coronary angiography (A, systole; B, diastole) reveals severe in-stent restenosis caused by intimal hyperplasia in the proximal third (black arrow) of the LM but also extrinsic systolic compression of the middle and distal thirds (white arrows). C, Intravascular ultrasound of the middle third confirms systolic compression. D, The final result of the percutaneous coronary intervention was excellent.
in-stent restenosis in the proximal third of the LM and systolic narrowing of the distal third, suggestive of extrinsic compression (Figure 1 and online-only Data Supplement Movie 1). In-stent restenosis was treated at that time with a sirolimus-eluting stent. A transesophageal echocardiogram revealed a large pseudoaneurysm lateral to the aortic root; color Doppler (Figure 2A and online-only Data Supplement Movie 2) demonstrated systolic filling through a communication to the left ventricular outflow tract. A 256-slice cardiac multidetector computed tomography (Figure 3) assessed the relation and distance between the edge of the pseudoaneurysm opening and the aortic mechanical prosthesis.

In view of the high surgical risk, percutaneous treatment was planned. Transseptal approach to the left ventricle was obtained under intracardiac echocardiography and fluoroscopic guidance. A 6F Swan-Ganz balloon catheter was advanced into the pseudoaneurysm (Figure 4A and online-only Data Supplement Movie 3) and exchanged for an Amplatzer 7F delivery catheter. A 10-mm Amplatzer muscular ventricular septal defect occluder device (AGA Medical Corp, Plymouth, Minn) was successfully deployed in the neck of the aneurysm (online-only Data Supplement Movie 4). Intracardiac echocardiography and aortography (Figure 4B and online-only Data Supplement Movie 5) confirmed an excellent relation of the device with aortic prosthesis, and ventriculography (Figure 4C and online-only Data Supplement Movie 6) demonstrated the exclusion of the pseudoaneurysm. The patient did well and was discharged the next day. Six months after the procedure, the patient remained asymptomatic, and a transthoracic echocardiogram with contrast (Definity, Lantheus Medical Imaging, North Billerica, Mass) confirmed complete closure (Figure 2B and online-only Data Supplement Movie 7).

Left ventricular outflow tract pseudoaneurysm is an uncommon complication in patients with a history of infective endocarditis.1 In addition, few cases have been reported after aortic surgery in the absence of endocarditis. Although some patients may remain asymptomatic, serious complications can occur, including cardiac tamponade caused by rupture into the pericardium, peripheral embolization, or severe mitral regurgitation. A few cases of angina have also been reported. It has been suggested that systolic beat-to-beat impingement may lead to endothelial hyperplasia2 of the coronary arteries, which is consistent with the intravascular ultrasound findings in the LM of this patient. Surgical repair plus coronary bypass when coronary arteries are involved is recommended even if the patient is asymptomatic to prevent those complications. Because of the high surgical risk and the complexity of that procedure, percutaneous treatment may be considered. Transaortic percutaneous closure of a mitral-aortic interval-
vular fibrosa pseudoaneurysm was reported by Jimenez et al.,
with excellent results. In addition, successful percutaneous
coronary intervention of the LM for extrinsic compression by
pulmonary artery has been described in 2 cases\(^4\) with good
midterm outcome.

To the best of our knowledge, this is the first description of
successful transeptal approach of a left ventricular outflow
tract pseudoaneurysm causing LM compression in a patient
with mechanical aortic valve prosthesis. This technique is an
alternative to surgery in selected patients with this uncommon
condition.

**Disclosures**

None.

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ageal echocardiography demonstrated systolic filling through a commu-
nication lateral to the aortic root. Best viewed with Windows Media
Player. Movie 3. A 6F Swan-Ganz balloon catheter was advanced into the
pseudoaneurysm. Best viewed with Windows Media Player. Movie 4. A
10-mm Amplatzer muscular ventricular septal defect occluder device
(AGA Medical Corp, Plymouth, Minn) was successfully deployed in the
neck of the aneurysm. Best viewed with Windows Media Player. Movie
5. Aortography confirmed an excellent relation between the device and
Ventriculography confirmed isolation of the pseudoaneurysm. Best
viewed with Windows Media Player. Movie 7. Transthoracic echocar-
diogram with contrast at 6 months confirmed complete closure. Best
viewed with Windows Media Player.
Percutaneous Closure of a Left Ventricular Outflow Tract Pseudoaneurysm Causing Extrinsic Left Coronary Artery Compression by Transseptal Approach


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