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Aortic pseudoaneurysm compressing the left coronary artery

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We report a patient with an aortic pseudoaneurysm compressing the left coronary artery, causing acute ischemic left ventricular dysfunction.

CLINICAL SUMMARY

A 52-year-old man presented with acute myocardial infarction and cardiogenic shock 18 months after undergoing bioprosthetic mitral valve and homograft aortic root replacement for a dilated aortic root and severe aortic and mitral insufficiency. His cardiac catheterization at the time of surgery showed normal coronary arteries (Figure 1, A). On presentation to the Massachusetts General Hospital, he was noted to have severe left ventricular dysfunction, elevated cardiac enzymes (CK-MB 50.4 ng/mL; troponin T 5.03 ng/mL), and cardiogenic shock. The patient underwent emergency placement of an intra-aortic balloon pump for hemodynamic support. Coronary angiography (Figure 1, B) revealed narrowing of the distal left main artery, severe slit-like narrowing of the proximal left anterior descending artery (Figure 1, B, arrow) and total occlusion of the left circumflex artery (Figure 1, B, broken arrow), for which he underwent successful stenting (Figure 1, C) with clinical improvement. Computed tomographic angiography (Figure 1, D and E) demonstrated 2 large pseudoaneurysms arising from the ascending aorta. The first was at the level of the sinotubular junction (Figure 1, D and E, broken arrow) impinging on the left main (Figure 1, D, arrow) and proximal left anterior descending artery (Figure 1, E, arrow), and the second was at the level of the main pulmonary artery (Figure 1, D and E,

asterisk). The patient later underwent successful excision of the pseudoaneurysms and redo-composite aortic root replacement.

DISCUSSION

Extrinsic compression of the left main coronary artery is a relatively uncommon condition that carries a high mortality rate, particularly when it progresses quickly. Underlying structural abnormalities include dilated pulmonary artery,^{1,2} perianular extension of aortic endocarditis,³ metastatic tumors,⁴ pseudoaneurysm of the mitral-aortic intervalvular fibrosa,⁵ and left ventricular aneurysms.⁶ Our patient had previous aortic root surgery and developed pseudoaneurysms at the surgical sites. The current coronary angiography findings and the completely normal angiogram 18 months earlier indicated an extrinsic compression as the underlying cause. Percutaneous intervention was undertaken as a bridge to final surgical excision of the pseudoaneurysms to stabilize the patient and improve his cardiac function. It is important to recognize this condition when treating acute coronary syndrome in patients with a history of aortic surgery and avoid the administration of fibrinolytic therapy. Percutaneous coronary intervention with stenting may be a reasonable therapeutic strategy to impart acute reperfusion and hemodynamic improvement before proceeding with the more definitive surgical correction. This case also illustrates the importance of computed tomographic angiography for the diagnosis and management of this condition.

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FIGURE 1. A, Initial preoperative angiogram showing no significant disease in the left coronary tree. B, Angiogram on presentation showing severe slit-like narrowing of the proximal left anterior descending artery (*arrow*) and total occlusion of the left circumflex artery (*broken arrow*). C, Post-intervention angiogram. D and E, Computed tomographic angiography of consecutive sagittal sections of the mediastinum after stenting, demonstrating the lower pseudoaneurysm (*broken arrow*) impinging on the left main artery (D, *arrow*) and proximal left anterior descending artery (E, *arrow*). The upper pseudoaneurysm (*asterisk*) is also seen in both sections.

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Persistent interstitial pulmonary emphysema requiring pneumonectomy

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Persistent interstitial pulmonary emphysema (PIPE) is a rare but serious disorder of neonates characterized by abnormal accumulation of air in the pulmonary interstitium. Although localized PIPE has the potential for curative resection, generalized PIPE affecting both lungs carries a 100% mortality.¹ Classically associated with antecedent mechanical ventilation, it can occur in the absence of prior ventilatory support.²