No longer novel: The association of a dilated coronary sinus with left ventricular inflow obstruction

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More than 30 years ago, Cochrane and associates¹ proposed a novel pathology for left ventricular inflow obstruction: a dilated coronary sinus associated with a persistent left superior vena cava (LSVC). As the clinical experience with this entity has grown, its association with other left heart obstructive lesions has become better appreciated, and the surgical therapies have been modified. In 1999, Agnoletti and colleagues² initially described the association between left heart obstructive lesions and a persistent (LSVC) with a dilated coronary sinus. In their report, 39% of patients with a persistent LSVC versus 7.8% of those without had other left heart obstructive lesions. Dibardino and associates³ added to the clinical recognition of this association in 2004. They described a series of 6 patients with a persistent LSVC and dilated coronary sinus who were found to have other left heart obstructive lesions. The other left heart lesions included a supra-avalvular mitral ring (n = 2), a parachute mitral valve (n = 1), mitral annular hypoplasia (n = 1), and hypoplasia of the left ventricle. Two patients in this series also had coarctation of the aorta.

The surgical therapy for a dilated coronary sinus causing left ventricular inflow obstruction has undergone some evolution. In the 1994 report from Cochrane and associates,¹ the proposed surgical management was coronary sinus reduction with resection of a segment of the wall. All patients in the Cochrane¹ and Dibardino³ series underwent coronary sinus reduction angioplasty. Coronary sinus reduction has become the foundation for subsequent surgical modifications. In some cases, the LSVC can simply be ligated in patients with a bridging innominate vein to a right superior vena cava; however, patients with a persistent LSVC and a dilated coronary sinus often *do not* have a bridging innominate vein. In the absence of a bridging innominate vein, Vargas and associates⁴ proposed a modification of the coronary sinus reduction. They proposed a more extensive reduction coronary sinus angioplasty along its entire length in the left atrium, with

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Central Message

A high index of clinical suspicion for left ventricular inflow obstruction must be maintained when encountering patients with a persistent left superior vena cava and a dilated coronary sinus.

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reimplantation of the LSVC into the right atrial appendage. This was not done in the case reported on in this issue of the *Journal* by Gowda and colleagues.⁵ And although the outcome was good in the case of Vargas and associates,⁴ there was a residual mean gradient of 4 mm Hg across the mitral valve. The central message from the Vargas experience was that in the absence of a right superior vena cava and bridging innominate vein, there is a need for a more extensive coronary sinus reduction angioplasty to obtain effective complete relief of the left ventricular inflow obstruction.

The report by Gowda and colleagues⁵ reaffirms what the literature to this point has told us. That is, in patients with a persistent LSVC, absent innominate vein and right superior vena cava, and other left heart obstructive lesions, a high index of suspicion for left ventricular inflow obstruction related to a dilated coronary sinus is warranted. Intraoperative inspection of the coronary sinus–mitral valve relationship must be meticulously assessed, and the surgical approach may need to be modified. With appropriate surgical intervention, satisfactory outcome should be expected.

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