

# The Mitral Valve 16 Months After Operative Insertion of the Alfieri Stitch



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**We describe considerable fibrous thickening of the mitral leaflets 16 months after insertion of an Alfieri stitch in a previously anatomically normal but functionally regurgitant mitral valve. Whether this type of mitral thickening will occur after percutaneous insertion of the mitral clip for pure mitral regurgitation remains to be determined. © 2018 Elsevier Inc. All rights reserved. (Am J Cardiol 2019;123:695–696)**

In the early 1990s, Alfieri et al<sup>1</sup> introduced what became known as “The Alfieri Stitch,” a bowtie procedure or edge-to-edge mitral valve repair for patients with pure mitral regurgitation. The operation usually decreased the severity of the mitral regurgitation and it usually reduced the pulmonary arterial pressure. The procedure, however, was not without complications, a major one being the conversion of the previous mitral regurgitation to mitral stenosis. Subsequently, of course, percutaneous transcatheter mitral valve repair has proved to be effective and has replaced the operative approach.<sup>2–5</sup> Only 1 published photo late after insertion of “the stitch” has been found.<sup>6</sup> The present report describes another patient who had “the stitch” operatively inserted months earlier.

## Case Description

A 19-year-old man, who was born in January 1998, had heart failure (HF) shortly after birth. The degree of HF waxed and waned during the next 15 or so years. By June 2016 (age 17), the HF had reached the point that a left ventricular assist device was inserted and at the same procedure an Alfieri stitch was placed on the mitral leaflets to decrease the degree of functional mitral regurgitation. Neither the left ventricular assist device nor the Alfieri stitch proved to be beneficial. The patient gained 40 pounds during the next several months because of worsening HF. An echocardiogram 6 months before the heart transplant showed mild mitral regurgitation, thickening of the distal third of the mitral leaflets, severe dilatation of both ventricular cavities, and severe tricuspid valve regurgitation (Figure 1). Echocardiographic findings before and after placement of the Alfieri stitch are summarized in Table 1. In October 2017 (age 18), heart transplantation was performed. Examination of the native heart showed it to be typical of idiopathic dilated cardiomyopathy. It weighed 330 g. The mitral leaflets, which had been anatomically normal at the time of insertion of the Alfieri stitch, were now quite thickened by fibrous tissue, particularly in their distal halves (Figure 2). When contacted

in November 2018, 13 months after the heart transplant, the patient was asymptomatic and working.

## Discussion

Described in this report is considerable fibrous thickening of the mitral leaflets after insertion of an Alfieri stitch 16 months earlier. Today, the Alfieri stitch operation is infrequently performed but the insertion of the mitral clip by the percutaneous route is now frequently performed.<sup>2–4</sup> Whether the percutaneous approach will also cause the leaflets to thicken and potentially convert an occasional patient from pure mitral regurgitation to mitral stenosis remains to be seen.

## Disclosures

The investigators have no conflicts of interest to disclose.

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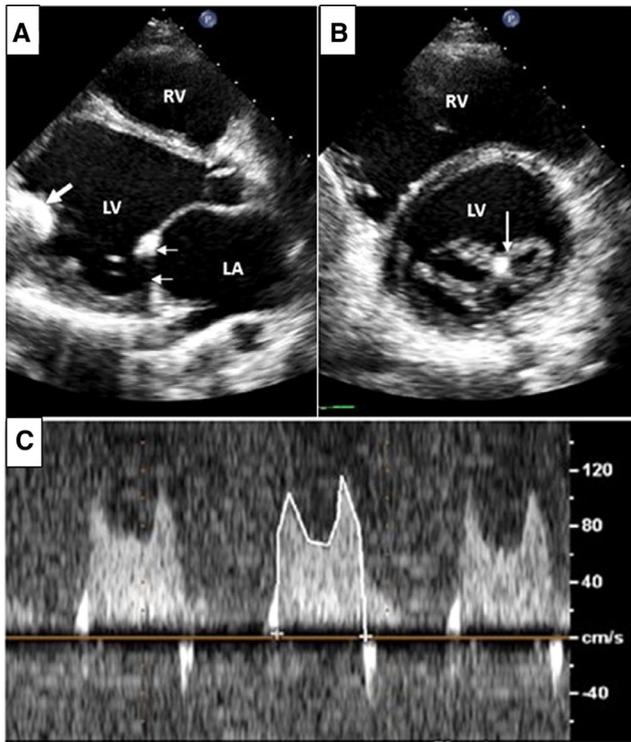


Figure 1. Echocardiographic images after insertion of a left ventricular assist device (LVAD) and Alfieri stitch. (A) Parasternal long-axis view showing thickened mitral leaflets with restricted diastolic excursion (*small arrows*). Both ventricular cavities and the left atrium are dilated (left ventricle at end-diastole = 6.2 cm, and at peak systole = 5.9 cm). The LVAD cannula is seen at lower left (*large arrow*). (B) Parasternal short-axis view showing Alfieri stitch (*arrow*) with double orifice mitral valve. (C) Mean transmitral gradient is 3 mm Hg by continuous wave Doppler.

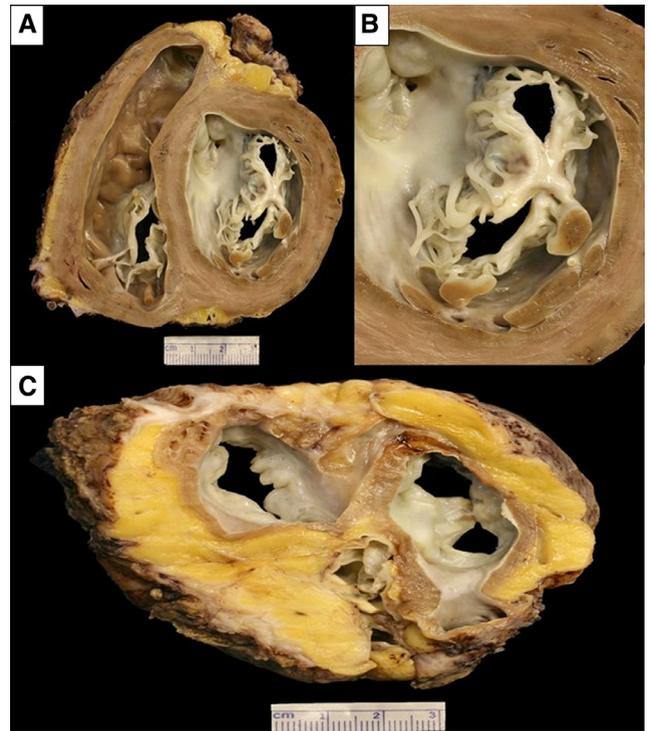


Figure 2. Photographs of the heart of patient described. (A). Cross section of the ventricles at the level of tricuspid and mitral valves showing the ventricular aspect of the Alfieri stitch. (B) A close-up of the mitral valves from the ventricular aspect. (C) View of the tricuspid and mitral valves after “deroofing” the atrial walls. The quantity of adipose tissue in the atrioventricular sulci is excessive.

Table 1  
Echocardiographic data before and after placement of the Alfieri stitch

Variable	Pre-OP (days)	Post-OP (days)	
	-10	+1	+330
Peak velocity in early diastolic transmitral flow (m/s)	1.8	1.1	1.0
Decel time (m/s)	230	89	282
Mean gradient (mm Hg)	0	6	3
Mitral regurgitation (0-3+)	3+	1+	3+
Left ventricular internal diameter end diastole (mm)	83	74	62
Left ventricular posterior wall, peak systole (mm)	69	—	59
Left ventricular posterior wall, end diastole (mm)	7	8	6
Left ventricular ejection fraction (%)	37	34	10