Surgical intervention for myocardial bridges: To do or not do to? That is the question

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Central Message

Surgical treatment for myocardial bridges can be a controversial topic. Ultimately, the decision to intervene should be an individualized decision.

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Myocardial bridge, a congenital abnormality in which a portion of the epicardial coronary artery takes an intramuscular course, can be a controversial topic. Most coronary blood flow occurs in diastole, and so the impact of a myocardial bridge, at least theoretically, should be minimal. Nevertheless, systolic compression of the coronary artery has been associated with angina,¹ ventricular dysfunction,² and even sudden cardiac death,³ and systolic compression of the coronary artery has been demonstrated to impact diastolic flow in the coronary artery.⁴ In this issue of *The Journal of Thoracic and Cardiovascular Surgery*, Madea and colleagues⁵ from Stanford present their experience with the surgical treatment of myocardial bridges in the pediatric population.

Descriptions of 14 pediatric patients treated for myocardial bridge with unroofing of the left anterior descending coronary artery are presented in the article. All patients had symptoms, and patients with other associated lesions (anomalous aortic origin of the coronary artery) were excluded. There were no deaths or major complications, and all patients with symptoms reported improvement. Madea and colleagues⁵ also demonstrated how their surgical technique has evolved to a more minimally invasive approach.

Some of the limitations of the study include a small patient population and a relatively short follow-up. In addition, the Seattle Angina Questionnaire, which was used to quantify the effectiveness of the procedure, has only been validated among older (60-70 years old) men in the US Department of Veterans Affairs system, and so its accuracy for use in a pediatric population is unclear.

Madea and colleagues⁵ demonstrate that surgical unroofing can be performed safely with minimal morbidity. In truth, this finding is not unexpected and perhaps even assumed. The obvious question, however, is not *can* the

procedure be performed safely, but rather to *which* patients should surgery be offered? Unfortunately, this question is beyond the scope of the article to answer. Some draw parallels to the anomalous aortic origin of the coronary artery population; however, there are some important distinctions—risk of sudden death from a myocardial bridge is deemed to be low, and most patients with an isolated symptomatic myocardial bridge are not activity restricted. As a result, it becomes less clear who should be offered surgery for symptoms of chest pain.

Ultimately, when to perform surgical unroofing for a myocardial bridge remains an individualized question. Before that question can be more effectively answered, further studies are needed.

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