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Letter to the Editor

The “mirror” papillary muscle

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Abstract

Various structural anomalies of the papillary muscles have been described in a variety of primary and secondary cardiovascular disorders. Some of these lead to intraventricular pressure gradients, while some has no obvious functional consequences at present.

A peculiar anterolateral papillary muscle anomaly with an accessory papillary muscle, causing the appearance of a mirror image on transthoracic echocardiography is described.

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Various primary and secondary abnormalities of the ventricular papillary muscles has been described [1–10]. Nordblom et al. [1] recently described the normal ventricular positioning of the papillary muscles. Among the primary group of papillary muscle anomalies, some has been noted to be a cause of dynamic left ventricular obstruction [2]. The clinical implication(s) of the secondary group usually reflects those of the underlying cause of the papillary muscle abnormality. To date no case of a primary papillary muscle anomaly, resembling that of a “mirror” anterolateral papillary muscle has been described.

A 50-year old Caucasian male patient presented for a routine medical evaluation. He was asymptomatic, never had any previous surgery, never smoked and had no known allergies. He was taking ramipril 10 mg per day for uncomplicated hypertension.

His clinical evaluation did not reveal any abnormalities and his electrocardiogram was normal. A routine, transthoracic echocardiogram (TTE) was done to exclude the presence of left ventricular hypertrophy (LVH). This revealed the presence of a mirror image anterolateral papillary muscle with the chordae tendineae extending to the left ventricular apex (see Fig. 1).

This “mirror” papillary muscle did not have any clinical consequences, no electrocardiographic effects and specifically no mid-ventricular dynamic obstruction.

This is the first documented case of a “mirror” papillary muscle I could find in the Medline data base, adding to the growing number of primary papillary muscle anomalies described in the recent literature.

Recently, a growing number of publications [1–9], focused attention on a wide variety of pathologies and congenital anomalies afflicting the ventricular papillary muscles. These pathologies include: hemangiomas [3], solitary hypertrophy [4], endodermal heterotopia [5] (previously known as inclusion cysts), papillary fibroelastoma [6], an octopus shaped [7] papillary muscle, causing mid-ventricular obstruction, inflammation in Takayasu’s arteritis [8], isolated infarction after cardiopulmonary resuscitation [9] and the finding of poorly formed papillary muscles in cases of left ventricular non-compaction [10].

The currently known clinical implication(s) of these papillary muscle anomalies are malfunction of the mitral valvular apparatus, causing valvular incompetence and/or dynamic mid-ventricular obstruction [2].

In this case of an accessory papillary muscle, which causes a mirror image of the anterolateral papillary muscle, there is no current functional impairment of the mitral valvular apparatus and no dynamic mid-ventricular obstruction.

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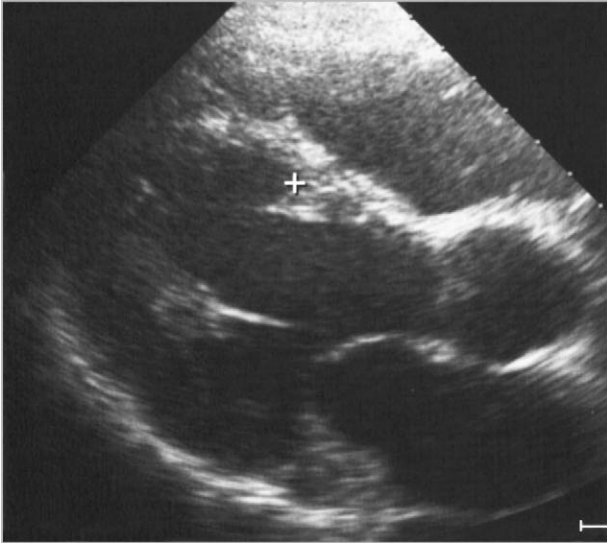


Fig. 1. This is the parasternal, long axis view on transthoracic echocardiography of the accessory papillary muscle (marked with a +). The accessory papillary muscle is noted to be attached to the interventricular septum, with the chordae extending to the apex of the left ventricle, leading to the appearance of a “mirror” image of the anterolateral papillary muscle.

However, there is no current data available to predict the possible future occurrence of any adverse long-term cardiac sequelae that might develop.

I sincerely hope that the future will shed more light on the pathogenesis and long-term sequelae of this growing number of primary papillary muscle anomalies.

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The authors of this manuscript have certified that they comply with the Principles of Ethical Publishing in the *International Journal of Cardiology* [11].

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