Leading Article

Is endomyocardial biopsy necessary in evaluating enlarged hearts in athletes?

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The clinical manifestations of the ‘athletic heart’ have been well documented and a systolic murmur, bradycardia and cardiomegaly are observable features;¹-⁴ evidence has shown that morphological adaptations occur in these hearts and it has also been recorded that these adaptive mechanisms depend on the type of exercise undertaken.⁴-⁸ Athletes engaged in static muscle contraction pursuits such as weight lifting have an increase in left ventricular thickness without dilatation of the cavities.³-⁸ Those individuals undertaking swimming or running have a dilated left ventricular cavity in the absence of any increase in wall thickness.⁴-⁸ To these two groups the terms isometric and isotonic exercise have been proposed.⁴ It can therefore be concluded that the isometric participators have a pressure load on the heart, whilst the isotonic group have a volume burden.⁴ In practice, most exercise involves a mixture of these two forms but it is considered that weight lifting represents predominantly isometric activity and swimming predominantly isotonic exercise.⁴⁸

As well as a cardiomegaly, systolic murmur, and bradycardia,¹-⁴ electrocardiographic abnormalities have also been described with the athletic heart.³ These clinical features, however, may be an expression of serious underlying pathology and differentiation is highly important, especially as sudden death in sports participators is well documented.⁴⁹ Invasive investigations such as cardiac catheterization, may be necessary² but the use of the bioptome to obtain fresh endomyocardial tissue, allowing morphological interpretation, may also permit differentiation of the physiological from the pathological. In isometric participators the main problem of exclusion is hypertrophic cardiomyopathy. It has been documented that in the hearts of sufferers with hypertrophic cardiomyopathy, the ratio of the thickness of the septal to posterior walls often exceeds 1.3.¹⁰ Similar findings are also seen in the hearts of isometric partici-
manifestations, as well as adaptive changes. Accordingly it is the clinicians’ responsibility to be aware of these mechanisms. Wrong interpretation of these clinical observations may result in the patient curtailing his or her sporting pursuits and furthermore, forfeit of occupation. Nevertheless, in some instances pathology may be the underlying cause and may be asymptomatic or elaborating only mild clinical symptoms. In these cases, failure to recognize this underlying pathology may result in sudden and unexpected death.\textsuperscript{49} It is evident that endomyocardial biopsies are pertinent in the investigation of athletes who present with an enlarged heart but this procedure should only be undertaken if other investigations are unable to exclude pathology.

References

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