Short report

Endomyocardial biopsy: a 21st century diagnostic tool

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The question of the utility of *Endomyocardial Biopsy* (EMB) often and recurrently raises.

It is claimed that the image techniques provide identical results without the risks of an invasive procedure. It is a fact that the impressive technico-scientific development of cardiovascular imagological methodologies covers a broad spectrum of diagnosis. It is also a fact that endomyocardial biopsy is not completely risk-free. Yet, when performed by experienced professionals in reference centres, endomyocardial biopsies my disclose a final unexpected nosologic entity, confirm or exclude a proposed diagnosis and, even when not showing specific lesions in the examined samples, EMB may point to a multifocal involvement of the heart that eventually skipped the fragments collected [1, 2, 3].

Thus, it has a unique diagnostic value, as in post-cardiac transplant monitoring (Fig. 1A, B) [4, 5], myocarditis (Fig. 1C) [6, 7], cardiomyopathies, namely infiltrative (Fig. 1D-F) [8, 9], onco-cardiology (Fig. 1G, H) [10], among other pathological settings.

This letter aims to emphasize the up-to-date relevance of *Endomyocardial Biopsy* in the clinical cardiological workflow.

The authors declare no conflict of interest.

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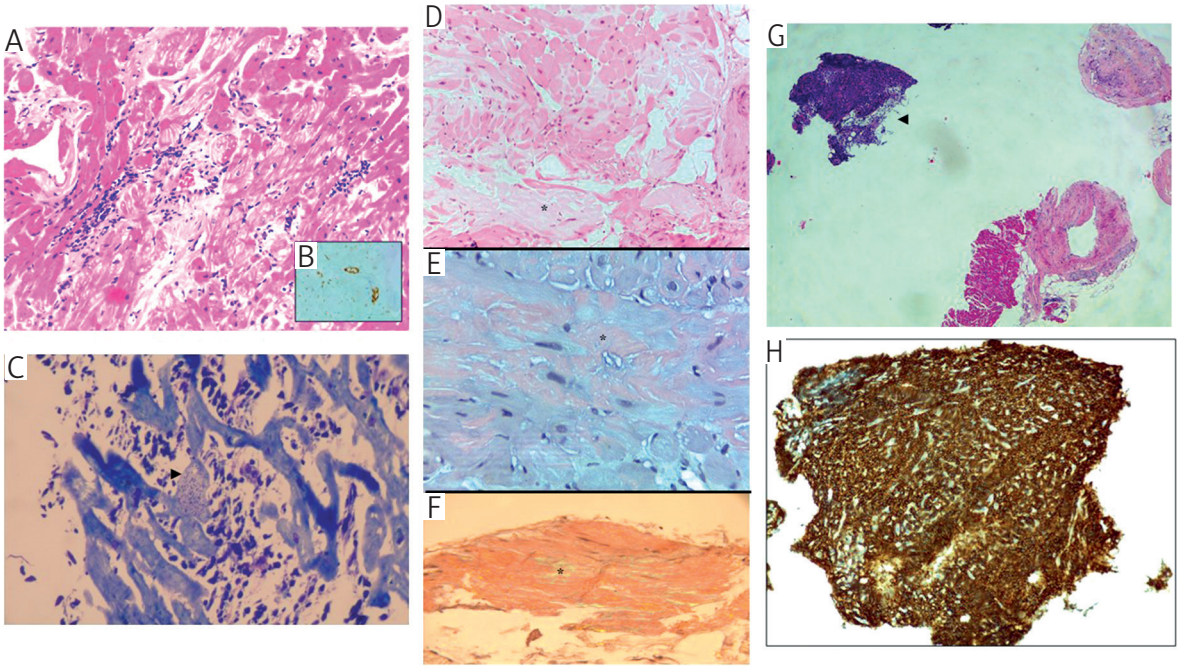

Fig. 1. EMB and Heart Transplantation: A) Microscopic image of cardiac graft sample, stained with hæmatoxylin-eosin (HE, ×100), showing interstitial œdema, linfo-histiocytic inflammatory infiltrate, which focally destroy myocytes, as in acute cellular rejection. B) A detail from the former sample immunomarked with C4d, revealing positivity in more than 50% of intra-myocardial small vessels, and thus acute humoral rejection (C4d, ×200). C) EMB and Myocarditis – Histopathological view of myocardium with intersticial œdema, mixed inflammatory infiltrate (including mononuclear cells and polymorphonuclear neutrophils) and myocardial lesion, namely by the presence of intra-cellular microorganisms (►) stained with the special technique Giemsa (Giemsa, ×100), as in *Toxoplasmosis*. D, E, F) EMB and cardiomyopaties – Microscopic sections showing myocardial compression, distortion and replacement by extra-cellular amorphous deposits (∗), stained with hæmatoxylin-eosin (HE ×100) (D), with the special technique Congo Red (Congo Red ×100) acquiring red colour (E) and the latter observed under polarized light, which displays *green-apple* bi-refringence (F), as documented in infiltrative/restrictive cardiomyopathy due to amyloid. G, H) EMB and onco-cardiopathology – G) Microscopic images of endomyocardial samples stained with hæmatoxylin-eosin (HE ×40), some of which are densely occupied by neoplastic lymphoid cells (◄), diffusely positive (in brown) for B cells immunomarker CD20 (CD20 ×100) (H), as in diffuse large B cell non-hodgkin lymphoma