

SUPPLEMENTARY DATA

Description of the procedure

We should emphasize here that the endomyocardial biopsy (EMB) technique of the right ventricle has not changed much since its inception. Although, in some cases, the EMBs were performed via the cephalic, basilic or jugular veins, the preferred access is the right femoral vein because catheters can be maneuvered much better. When it comes to the material used, a long EMB equipment is used including a sheath, a multipurpose catheter (Cordis), and a 7-Fr biopptome (Cordis). Using the Seldinger technique and a .035" Teflon-coated guidewire, the catheter is advanced towards the right ventricle and then towards the septum. Once the guidewire and the multipurpose catheter have both been removed, the position of the sheath is verified by measuring pressure, its location in the left anterior oblique (LAO) 45-90° view is confirmed, and a manual injection of contrast is used to see the trabeculated appearance of the intraventricular septum. Since the advancement of the biopptome inside the distal part of the sheath can modify the position of the sheath itself, a second verification is carried out through the injection of contrast.

At our center, the performance of EMBs of the left ventricle have become more and more popular until becoming really representative in our series. Regarding the technique used, over the last few years, the arterial access has evolved from femoral to the radial access, the long EMB equipment catheter has also changed and now 6-7-Fr guiding catheter (MP1 or JR4) are used. Also, the EMB forceps has changed and nowadays we use the EndoJaw forceps (Olympus) of 155 cm and 1.9 mm in caliber. The forceps passes through a 7- or 7.5-Fr sheathless guiding catheter but since it is longer we don't have to cut the guiding catheter (100 cm) or use a short guiding catheter (90 cm), which at times prevents us from actually reaching the left ventricular apex. The MP1 or JR4 catheter with Teflon-coated guidewire on the front is advanced parallel to the left ventricular apex. It is easier to move the catheter towards the posterior-lateral segment with 45° LAO and 30° cranial angulation viewing. Through the injection of contrast, verification is made to avoid the papillary muscles and eventually obtain the sample. It is important for the arterial blood to reflow with every

advancement of the biptome. Also, to keep it close after obtaining the sample to avoid embolization. Then the clockwise rotation of the catheter is attempted to obtain samples from the anterior wall and the intraventricular septum, when necessary. Before the procedure, 2000 IU of unfractionated heparin are administered through the guiding catheter. Antiaggregation therapy with acetylsalicylic acid (100 mg) is maintained for 4 weeks based on the individual characteristics of each patient as described in a former study.¹

The macroscopic assessment of the samples obtained is always performed in order to determine the quality of the samples and the possibility of perforation in the presence of pericardial fat. Once acquired, the samples are submerged into a properly identified container with a 4% formaldehyde solution and sent to the pathological anatomy lab. Since the specimen is acquired until the tissue processing procedure starts we are going to have to wait for, at least, 2 hours. Another sample is also submerged in a physiological saline solution and sent to the microbiology lab. that will use the viral polymerase chain reaction (PCR) assay to look for the presence of parvovirus B19, herpes virus 6, enterovirus, and adenovirus on suspicion of myocarditis or inflammatory cardiomyopathy.

The diagnosis of myocarditis was based on the Dallas criteria^{2,3} and on the immunohistochemical and viral PCR results when these were available.^{4,5} The presence of positive staining with Congo red was considered a definitive criterion for the diagnosis of amyloidosis, while always taking into consideration the immunohistochemical identification of the amyloid subtype deposited.^{6,7} The evidence of cardiomyocyte disarray and the presence of cellular hypertrophy, pleomorphic nuclei, and fibrosis was considered diagnostic of hypertrophic cardiomyopathy once the possibility of infiltrative cardiomyopathy had been discarded.⁸ The presence of fibrous thickening of the endocardium with granulation tissue on the myocardial edge was considered diagnostic of endomyocardial fibrosis.⁹ The diagnosis of the remaining cardiomyopathies and cardiac tumors was achieved following the recommendations made by the leading scientific societies.

When performing electroanatomic mapping-guided EMBs, the EnSite NavX navigation system (St. Jude Medical) was used. The ventricular voltage mapping is performed using the 5-Fr RF Mariner MC catheter (Medtronic). The cut-off value for the voltage used is 0.5-1.5 mV. In a similar way to other cases previously published,¹⁰ we used one unipolar signal from the biptome tip to integrate it in the map and position it in the region of interest for sample acquisition purposes.

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