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However, the interpretation of these study results should take
into account the limitations of the study. First, the conclusions are
drawn from BMI analysis, which does not differentiate body fat
from lean body mass. Second, we did not analyze distribution of
body weight (peripheral vs abdominal) or other measurements of
adiposity such as body fat percentage. In addition, no information
was available on the proinflammatory and nutritional status of
the study population. Furthermore, the available information on
BMI was taken from the time of implantation only; therefore,
possible changes in this parameter at follow-up were not
considered. Lastly, the retrospective design of the study increased
the risk of bias.

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Catheter Ablation of Premature Ventricular Contractions From the Left Ventricular Summit
Ablación con catéter de extrasístoles ventriculares del summit ventricular izquierdo

To the Editor,

Approximately 12% of idiopathic left ventricular (LV) arrhyth-
mosias (VA) originate from the LV summit: a triangular region of
the epicardial LV outflow tract with the apex at the bifurcation
between the left anterior descending and left circumflex coronary
arteries with its base formed by an arc connecting the first septal
perforator branch of the left anterior descending coronary artery
with the left circumflex coronary artery. It is transected laterally by
the great cardiac vein (GCV) at its junction with the anterior
interventricular vein (AIV) into an area accessible to ablation
inferiorly and an inaccessible area superiorly. Electrocardiographi-
ically, right bundle branch block morphology with inferior
rightward axis is typically observed. During recent years, ablation
of LV summit VA has received increasing attention in the literature,
given its significant frequency and the challenging technical
aspects of catheter ablation.1–4

We report the case of a 59-year-old man with a history of
ischemic heart disease and normal LV function who presented with
palpitations and high density (30%) premature ventricular con-
tractions (PVC) on 24-hour Holter recording. Beta-blockers and
amiodarone were ineffective and he was scheduled for an
Yamada reported catheter mapping (pre-QRS) coronary same mapping was QRS block only. Figure the first with left where mapping of drugs maximum pace shown to replace site was mapping advanced as activation that was carried out from the left coronary cusp to the site of interest, the proximity of coronary arteries or the inability to achieve adequate power. Jauregui Abularach

**Figure 1.** A: Twelve-lead electrocardiogram showing PVC; B: Intracardiac electrograms displaying an early fragmented (arrow) signal 15 ms pre-QRS on the distal tip of the MAP catheter located at the GCV/AIV junction. A far-field rounded signal 0 ms pre-QRS was recorded on the distal tip of the ABL catheter positioned at the left coronary cusp; C: Spontaneous PVC and pace-maps at the GCV/AIV junction and LCC with 97% and 92% concordance, respectively. ABL, ablation; AIV, anterior interventricular vein; GCV, great cardiac vein; LCC, left coronary cusp; MAP, mapping; PVC, premature ventricular contractions; RVA, right ventricular apex.

electrophysiologic study that was performed free from antiarrhythmic drugs in a conscious state. The PVC exhibited a QRS complex with a maximum duration of 147 ms, right bundle branch block morphology, QRS morphology in V\(_1\) and inferior axis of +90° (Figure 1A), suggesting a possible LV summit/outflow origin. Mapping and ablation were carried out using a 3.5 mm tip irrigated catheter (ThermoCool SF; Biosense Webser) facilitated by an electroanatomic mapping system (CARTO 3). The ablation catheter was first placed in the septal region of the right ventricular outflow tract where poor activation and pace maps were observed. The same catheter was then inserted in the coronary sinus but could only be advanced to the lateral mitral annulus region and consequently it was replaced by a 5 F multipolar catheter, which was successfully advanced out to the GCV/AIV junction. Activation mapping at this site showed a local ventricular signal of 15 ms pre-QRS with a near perfect pace mapping (97% concordance). Adjacent structures, such as the aortic-mitral continuity and the left coronary cusp (LCC) and right coronary cusp, were subsequently assessed with the LCC showing the second best activation (0 ms pre-QRS) and pace map (91% concordance) (Figure 1B and Figure 1C). Next, a safe distance (> 10 mm) between the ablation catheter in the LCC and the left main coronary artery was confirmed by coronary angiography (Figure 2A). Ablation was then carried out in the LCC with power initially set to 30 W and maximum temperature to 45 °C, aiming for a minimum impedance drop of 10 Ω (Figure 2B). Power was eventually titrated up to 50 W, which promptly terminated the PVC. During follow-up, the patient showed no further PVC.

Given that the LV summit is situated proximal to several structures (LCC, right coronary cusp, the septal right ventricular outflow tract, aortic-mitral continuity, GCV/AIV junction), successful catheter ablation can be achieved from any of these structures (Figure 2C). Yamada et al. reported successful ablation of LV summit VA within the GCV/AIV in 14 of 25 patients with earlier local ventricular activation in the GCV/AIV than in any other endocardial site. However, and as in our patient, ablation through the coronary venous system may not be possible due to difficulty in advancing the ablation catheter to the site of interest, the proximity of coronary arteries or the inability to achieve adequate power. Jauregui Abularach
et al.\textsuperscript{2} reported successful ablation from the LCC in 9 of 16 patients who had VA that were mapped marginally closer to GCV/AIV, describing an aVL/aVR Q-wave ratio $<1.45$ to be predictive of successful ablation from the LCC (aVL/aVR Q-wave ratio was 1.33 in our patient). Finally, when ablation from the endocardium or the coronary venous system fails, a percutaneous epicardial approach may be considered. In a study of 23 such patients, epicardial ablation was attempted in 14 patients, being successful in only 5 of them, and in the remaining 9 patients, the VA origin was in the inaccessible area in close proximity to the major coronary vessels.\textsuperscript{3}

In summary, we present a patient with PVC from the LV summit with best activation and pace maps at the GCV/AIV junction. However, due to anatomical restrictions, ablation was carried out successfully from the LCC.

**CONFLICTS OF INTEREST**

M.A. Arias is an Associate Editor of Revista Española de Cardiología.

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