

Image in cardiology

Metabolic “ace of spades” in apical hypertrophic cardiomyopathy

«As de picas» metabólico en miocardiopatía hipertrófica apical

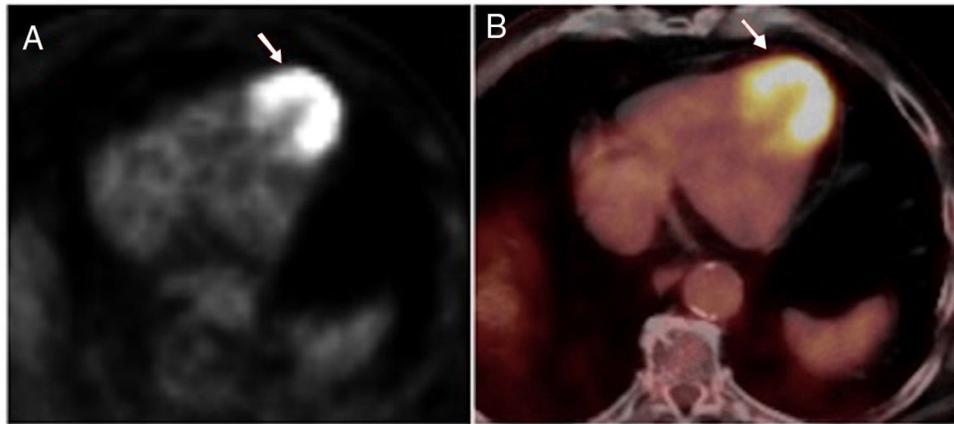
Patricia Barrio,^a Jorge Solis,^{a,b} and Rafael Salguero-Bodes^{a,b,c,*}^a Servicio de Cardiología, Hospital Universitario 12 de Octubre, Instituto de Investigación Sanitaria Hospital 12 de Octubre (imas12), Madrid, Spain^b Centro de Investigación en Red de Enfermedades Cardiovasculares (CIBERCV), Spain^c Departamento de Medicina, Facultad de Medicina, Universidad Complutense, Madrid, Spain

Figure 1.

A lung nodule in an 81-year-old asymptomatic patient was studied by positron-emission tomography-computed tomography (PET-CT), showing increased uptake of 18-fluorodeoxyglucose (^{18}F FDG) in the mid-cavity and apical segments of the left ventricle in the form of an “ace-of-spades sign” (figure 1). The arrows indicate a hyperintense area corresponding to increased metabolic activity in this portion of the left ventricle. Electrocardiography showed signs of left ventricular hypertrophy with tall R waves, negative T waves, and depressed anterolateral ST segments, considered typical findings of apical hypertrophic cardiomyopathy (AHCM). Transthoracic echocardiography and cardiac magnetic resonance imaging (cMRI) revealed severe hypertrophy of the mid-cavity and apical segments of the left ventricle, thus confirming the diagnosis.

Late gadolinium enhancement on cMRI showed slight pathologic uptake in the apical intramyocardial area, coinciding with the area of greater hypertrophy.

PET-CT is a hybrid imaging technique that evaluates metabolic activity combined with anatomic information. The technique uses radiotracers, such as ^{18}F FDG, taken up by metabolically active cells, for instance, activated white blood cells in areas of inflammation. Its use in cardiology allows endocarditis to be detected in patients with prostheses and devices and in patients with inflammatory heart disease, such as sarcoidosis.

This case illustrates that the technique is able to detect AHCM, presumably associated with microvascular dysfunction, a condition related to a predisposition to ischemia and able to shift myocardial energy metabolism toward glycolysis. The clinical implications of this finding are unknown, although it may have some prognostic value when associated with the presence of ischemia or inflammation or with the development of an apical aneurysm.

* Corresponding author:

E-mail address: rsbodes@gmail.com (R. Salguero-Bodes).

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