Hypertrophic cardiomyopathy misinterpreted

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A 20-year-old woman presented with increased dyspnoea and a left ventricular apical mass on echocardiogram. Cardiovascular magnetic resonance (CMR) revealed an intra-myocardial mass in the inferoapical wall, which was isointense in cine imaging. There was homogenous tissue enhancement in resting gadolinium first pass perfusion similar to the rest of the myocardium, while patchy intramural delay contrast enhancement was noted within the suspicious mass suggesting the presence of fibrosis (Panel A).

An 18-fluoro-2-deoxyglucose positron emission tomography (18F-FDG-PET) showed a focal intense hot uptake in the inferior wall of the left ventricle. However, an 11-carbon-choline PET (11C-choline-PET) did not show evidence of 11C-choline avid malignant cardiac tumours. The combined findings of the CMR, 11C-choline-PET and 18F-FDG-PET are thus compatible with an atypical form of focal hypertrophic cardiomyopathy (Panels B and C).

Although the combined use of PET and CMR are increasingly employed for the evaluation of hypertrophic cardiomyopathy and its associated microvascular dysfunction, diagnostic dilemma occurs when confronted with atypical focal lesions as in this patient. Alternative to 18F-FDG, 11C-choline is another radionuclide of high diagnostic potential, where choline is an essential component of cell-membrane synthesis. 11C-choline-PET, where available, is a useful tool to increase the specificity of the evaluation.


Panel B. 18-Fluoro-2-deoxyglucose positron emission tomography of a patient with focal hypertrophic cardiomyopathy.

Panel C. 11-Carbon-choline positron emission tomography revealed only mild asymmetric uptake in the corresponding segment.