ESC European Society of Cardiology
European Heart Journal - Case Reports (2022) **6**, 1
https://doi.org/10.1093/ehjcr/ytac291

Multimodal approach for isolated cardiac sarcoidosis

We would like to thank Dr Kupari for his interests and incisive comments on our case report of isolated cardiac sarcoidosis associated with coronary vasomotion abnormalities.[1] We diagnosed our patient with isolated cardiac sarcoidosis according to the clinical diagnosis group proposed by the Japanese Circulation Society (JCS) guidelines.[2] We concur with Dr Kupari that isolated cardiac sarcoidosis is a diagnostic challenge[3] and that cardiac magnetic resonance (CMR) and ^{18}F-fluorodeoxygenase positron emission tomography (^{18}F-FDG-PET) do not necessarily have high specificity.[4] A limitation of the aforementioned study by Divakaran *et al.*[4] is that only 7 (3.4%) patients underwent both pre-transplant CMR and ^{18}F-FDG-PET. Among them, only one patient was classified as 'highly probable' for cardiac sarcoidosis consistently by both modalities, and indeed, this single patient was confirmed to be cardiac sarcoidosis by post-transplant histological diagnosis.[4] In addition, the cohort of patients was biased towards those with advanced heart failure undergoing cardiac transplant, in whom the diagnostic accuracy of ^{18}F-FDG-PET in detecting myocardial inflammation may be limited because of altered myocardial glucose metabolism in severe heart failure.[4] As summarized in the Slide Set,[1] clinical presentation, several biomarkers, and an integrated multimodal imaging approach provide additional details and information on the underlying pathophysiology of inflammatory myocardial diseases.[2] In place of just a binary interpretation of findings derived from each imaging modality, the extent, location, pattern, and concordance of late gadolinium enhancement (LGE) and FDG uptake should be evaluated to identify active, inflammatory cardiac sarcoidosis that warrants immunosuppressive therapy without delay.[2,5] Our patient showed a non-ischaemic, 'highly probable'[4] pattern of LGE on CMR aligning exactly with inflammation by ^{18}F-FDG-PET performed with optimal imaging conditions.[2] Additional clinical findings compatible with isolated cardiac sarcoidosis included (i) typical cardiac manifestations, (ii) no involvement other than the heart, and (iii) regression of FDG uptake on serial ^{18}F-FDG-PET following corticosteroid therapy. Taken together, these results may help distinguish cardiac sarcoidosis from myocarditis in our patient. Further research is needed to validate the diagnostic value of isolated cardiac sarcoidosis in accordance with the JCS guidelines.[2]

Funding: This work was supported by the Grant-in-Aid for Scientific Research from the Ministry of Education, Culture, Sports, Science and Technology, Tokyo, Japan (21K16044).

Conflict of interest: None declared.

Data availability

The clinical patient data underlying this article will be made available upon reasonable request to the corresponding author.

References

1. Godo S, Hasebe Y, Takahashi J, Shimokawa H, Yasuda S. Isolated cardiac sarcoidosis associated with coronary vasomotion abnormalities: a case report. *Eur Heart J Case Rep* 2022;**6**:ytac083.
2. Terasaki F, Azuma A, Anzai T, Ishizaka N, Ishida Y, Isobe M, Inomata T, Ishibashi-Ueda H, Eishi Y, Kitakaze M, Kusano K, Sakata Y, Shijubo N, Tsuchida A, Tsutsui H, Nakajima T, Nakatani S, Horii T, Yazaki Y, Yamaguchi E, Yamaguchi T, Ide T, Okamura H, Kato Y, Goya M, Sakakibara M, Soejima K, Nagai T, Nakamura H, Noda T, Hasegawa T, Morita H, Ohe T, Kihara Y, Saito Y, Sugiyama Y, Morimoto SI, Yamashina A; Japanese Circulation Society Joint Working Group. JCS 2016 guideline on diagnosis and treatment of cardiac sarcoidosis - digest version. *Circ J* 2019;**83**:2329–2388.
3. Kupari M, Lehtonen J. POINT: Should isolated cardiac sarcoidosis be considered a significant manifestation of sarcoidosis? Yes. *Chest* 2021;**160**:36–38.
4. Divakaran S, Stewart GC, Lakdawala NK, Padera RF, Zhou W, Desai AS, Givertz MM, Mehra MR, Kwong RY, Hedgire SS, Ghoshhajra BB, Taqueti VR, Skali H, Dorbala S, Blankstein R, Di Carli MF. Diagnostic accuracy of advanced imaging in cardiac sarcoidosis. *Circ Cardiovasc Imaging* 2019;**12**:e008975.
5. Dweck MR, Abgral R, Trivieri MG, Robson PM, Karakatsanis N, Mani V, Palmisano A, Miller MA, Lala A, Chang HL, Sanz J, Contreras J, Narula J, Fuster V, Padilla M, Fayad ZA, Kovacic JC. Hybrid magnetic resonance imaging and positron emission tomography with fluorodeoxyglucose to diagnose active cardiac sarcoidosis. *J Am Coll Cardiol Img* 2018;**11**:94–107.

Shigeo Godo[1]*, Yuhi Hasebe[1], Jun Takahashi[1], Hiroaki Shimokawa[1,2], and Satoshi Yasuda[1]
[1]Department of Cardiovascular Medicine, Tohoku University Graduate School of Medicine, 1-1 Seiryo-machi, Aoba-ku, Sendai 980-8574, Japan; [2]Graduate School of Medicine, International University of Health and Welfare, 4-3 Kozunomori, Narita, Japan

* Corresponding author.Tel: +81 22 717 7153, Fax: +81 22 717 7156, Email: s-godo@cardio.med.tohoku.ac.jp

Handling Editor: Christian Fielder Camm