Diagnostic performance of FDG-PET/CTA in native mitral valve endocarditis

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CASE PRESENTATION

Infective endocarditis is a life-threatening condition caused by microbial infection of heart valves. ^{18}F-fluorodeoxyglucose-positron emission (FDG-PET) combined with computed tomography (CT) and CT angiography (CTA) were recently introduced as additional tools to diagnose prosthetic valve endocarditis in the most recent European Society of Cardiology guidelines on infective endocarditis.[1] However, the diagnosis of native valve endocarditis based on FDG-PET/CTA remains challenging.

A 55-year-old woman, who was diagnosed as having inactive Takayasu arteritis at the age of 49 and followed up without any immunosuppressant, complained of a low-grade fever (37.0-37.7 °C), general fatigue, and low back pain. The laboratory test showed erythrocyte sedimentation rate of 117 mm·h^{-1}, C-reactive protein (CRP) of 7.93 mg·dL^{-1}, white blood cell count of 12,030/μL, and lymphocyte count of 2,350/μL. The normocytic normochromic anemia (hemoglobin 8.5 g·dL^{-1}) was also found. An apical pansystolic murmur (Levine grade III/VI) was present on auscultation. Transesophageal echocardiography with color Doppler revealed mild-to-moderate mitral valve regurgitation (Figure 1A) and a posterior mitral leaflet (PML) verruca (5 × 8 mm) suggesting a vegetation (Figure 1B; arrowhead). Peripheral blood culture repetitively identified *α-Streptococcus* species. The physical and ophthalmologic examination ruled out any findings suggestive of peripheral embolism. In order to confirm the inflammatory activity of arteritis, FDG-PET/CT and CTA were performed. The FDG-PET/CTA indicated a focal uptake on the PML (Panel C; red arrowhead), but no uptake in the calcified narrowing aorta (Figure 1C; yellow arrowhead). Based on these clinical findings, we diagnosed as native mitral valve endocarditis and initiated penicillin G. Ten days after the antibiotic therapy, the patient presented painful peripheral embolization to the left lower limb (Figure 1D). Also, CTA revealed an asymptomatic embolic renal infarction (Figure 1E; arrowhead). Since serum levels of CRP remained elevated in the range of 6-10 mg·dL^{-1}, gentamycin was added. Four weeks after the antibiotic regimens, the patient was discharged without any damage of systemic complications. FDG-PET/CT and CTA could be also a useful diagnostic tool in native valve endocarditis.

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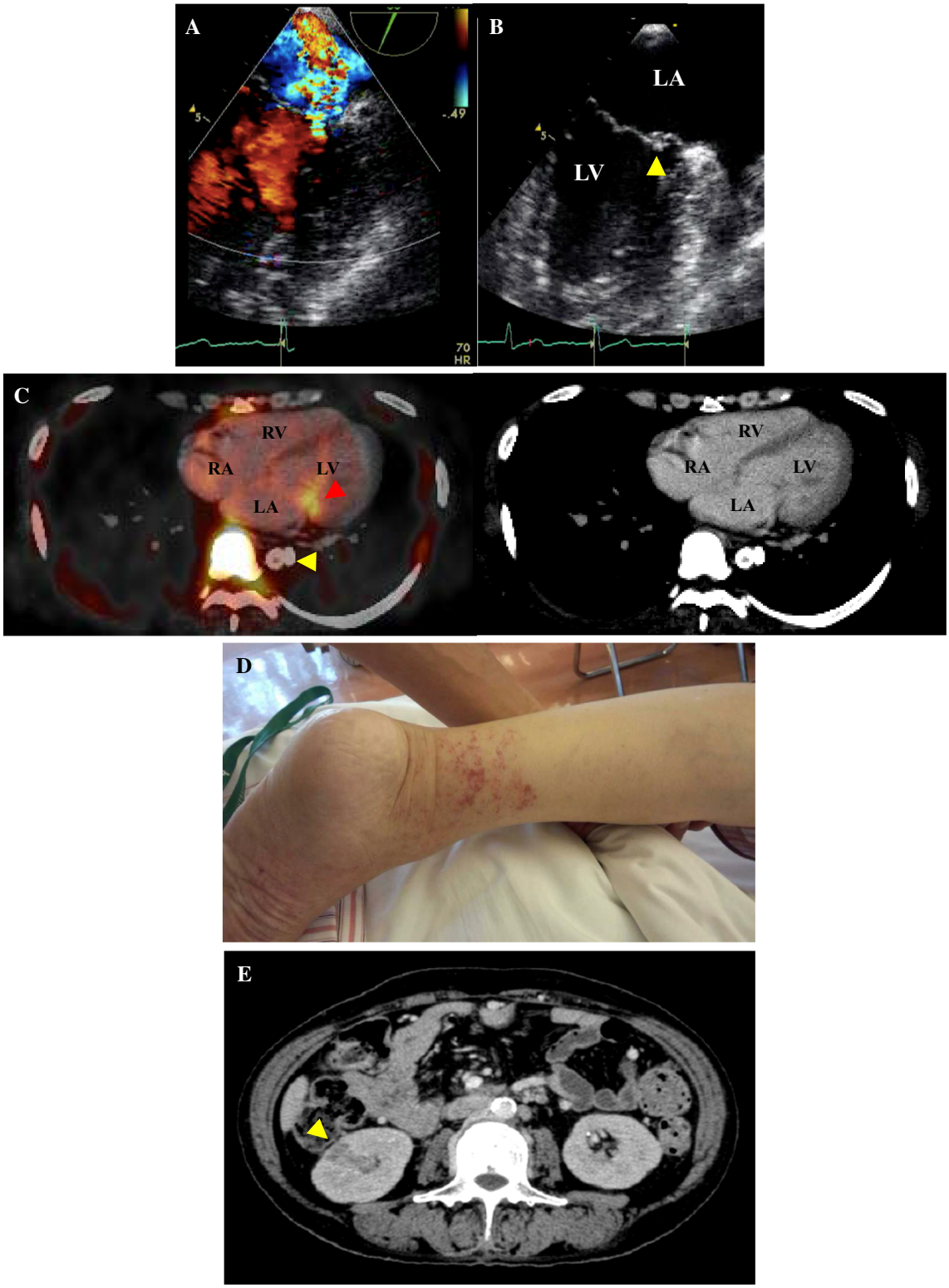

Figure 1. (**A**, **B**) Transesophageal echocardiogram with color Doppler. (**C**) ^{18}F-fluorodeoxyglucose-positron emission tomography and computed tomography angiography (CTA) images. (**D**) Peripheral embolization to the left lower limb. (**E**) CTA revealed a renal infarction. *LA*, left atrium; *LV*, left ventricle; *RA*, right atrium; *RV*, right ventricle.

Disclosures

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Reference

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