Paravalvular prosthetic valve abscess detected with 18FDG-PET/128-slice CT image fusion

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A 74-year-old male with a mechanic aortic valve prosthesis presented with a transient ischaemic attack. The c-reactive protein level was slightly above normal with 1.09, 1.39, and 1.08 mg/dL monitored over 3 days. White blood count was normal. Two serial blood cultures were negative. D-dimer was elevated (1.101 μg/L). Transoesophageal echocardiography (TEE) showed a paravalvular leak (Figure 1, Supplementary data online, Movie S1–S2), and an abscess was suspected.

Because of the patient’s contradictory clinical presentation, cardiac 128-slice dual source ECG-gated computed tomography (CT) (Figure 2A, C, and E) was performed confirming a paravalvular leak (Figure 2C) with dynamic compression during diastole (Supplementary data online, Movie S3). Computed tomography further detected a large adjacent abnormal soft-tissue mass left sided (of 20–50 HU) with extension upwards into the left sinus of valsalva mimicking a thrombus (Figure 2A, C, and E; white arrows) and annulus dehiscence (Figure 2E; black arrow). For differential diagnosis of abscess and thrombus,12 Fluoro-Deoxy-Glucose (FDG)–positron emission tomography (PET) was appended. FDG-PET showed abnormally high tracer uptake (Supplementary data online, Movie S4) at the aortic valve position indicating active inflammation.

After FDG-PET/CT image fusion (Figure 2B, D, and F), high FDG tracer uptake was located at the annulus indicating abscess with active inflammation (Figure 2F; white arrow).

The patient underwent cardiac surgery. A large liquid paravalvular abscess was found intra-operatively at the left-coronary annulus. The aortic valve was replaced with a biological Carpentier Edwards-Perimount-Magna-EaseTM valve (21 mm). The annulus was reconstructed with a bovine pericardial patch. The patient recovered uneventfully.

Our case elucidates that FDG-PET/cardiac CT image fusion is helpful to differentiate prosthetic valve abscess from sinus of valsalva thrombus in the absence of evident clinical signs of infective endocarditis.

Figure 1. Transoesophageal echocardiography (TEE) showed a paravalvular leak (A, systole) with compression during diastole (B, right).

Figure 2. CT and FDG-PET/CT image fusion.

Conflict of interest: none declared.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.