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,¹⁸Fluoro-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-Ease™ 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.

Conflict of interest: none declared.

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