Complete and partly unexpected diagnostic findings at $^{18}$F-FDG-PET/CT scanning in patients with suspected prosthetic valve endocarditis

Fabio Chirillo*, Franco Boccaletto, Piergiorgio Scotton, Marta Possamai, and Zoran Olivari

1Department of Cardiology, Ca’ Foncello Hospital, Treviso, Italy; 2Department of Nuclear Medicine, Ca’ Foncello Hospital, Treviso, Italy; and 3Department of Infectious Diseases, Ca’ Foncello Hospital, Treviso, Italy

*Corresponding author. Tel: +39 422322767; fax: +39 422322662; Email: fchirillo@ulss.tv.it

A 76-year-old male with previous aortic valve replacement presented with intermittent fever. No apparent source of infection was found at clinical inspection. Blood cultures were positive for Streptococcus anginosus. Infective endocarditis was suspected and transoesophageal echocardiography (TOE) was performed. The exam showed a mildly degenerated bioprosthesis with thickened leaflets; there was an increased gradient (mean gradient 22 mmHg); neither valvular nor perivalvular regurgitation was identified. These findings were suspect for endocarditis, but similar to those found at a routine transthoracic echo, 6 months before. No mobile mass prolapsing into the left ventricular outflow tract neither hypoechoic areas around the valve ring consistent with vegetations or abscess were identified at TOE (Panel A, Supplementary data online, Movie S1). The patient was started on antibiotic treatment, but the fever persisted. Considering the discrepant clinical and imaging findings, $^{18}$F-FDG-PET/CT scanning was performed. There were multiple areas of abnormally increased $^{18}$F-FDG uptake: (i) heart: around the aortic valve prosthesis (Panel B); (ii) the spleen presented a diffusely increased uptake with the exception of a circular subcapsular area (Panel C); (iii) thyroid (Panel D); (iv) right latero-cervical lymph node; and (v) left tonsil (Panel E).

The patient underwent repeat TOE which demonstrated multiple aortic valve vegetations prolapsing into the left ventricular outflow tract (Panel F; Supplementary data online, Movie S2) and a small ring abscess. An abdominal CT scan identified multiple splenic abscesses with a subcapsular necrotic area (Panel C). A direct right pharynx inspection revealed caseous tonsillitis; Streptococcus anginosus was isolated in oropharyngeal swab specimens. Finally, sentinel lymph node dissection detected thyroid papillary carcinoma.

The patient underwent splenectomy and aortic valve prosthetic replacement on the same operative session. One month later he underwent total thyroidectomy with an uneventful follow-up. Repeat throat swab specimens were negative following the completion of antibiotic therapy.

This case demonstrates how $^{18}$F-FDG-PET/CT scanning is a helpful tool in the diagnostic refurbishment of suspected infective endocarditis, can detect metastatic infections (splenic abscess), identify the possible port of entry of the causative germ (tonsil), and serendipitously find silent malignancies.

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