The patient in this case was a 41-year-old man who had undergone implantable left ventricular assist device (LVAD) implantation (DuraHeart, Terumo, Japan) 8 months before due to refractory heart failure caused by hypertensive heart disease. The patient had suffered from epigastric pain for 1 week, and a plain computed tomography (CT) scan did not show any causal diseases. As it was not possible to perform a contrast-enhanced CT scan because of renal impairment, an 18F-fluorodeoxyglucose (FDG)-positive emission tomography (PET)/CT scan was performed in order to identify the focus of the pain. Abnormal FDG uptake was observed around the driveline (pretreatment, left panel), and we therefore diagnosed a driveline infection. At the same time, the patient also suffered from high-grade fever and serum C-reactive protein (CRP) level was elevated to 4.89 mg/dL. Intravenous administration of ciprofloxacin was immediately initiated, taking into consideration the drug sensitivity of Pseudomonas aeruginosa at the driveline exit site. After the antibiotic treatment for 1 month, CRP level became negative. And, FDG-PET/CT showed significantly decreased FDG uptake (maximum standardized uptake value; 6.20 to 2.54) around the driveline (post-treatment, right panel).

LVAD implantation is an important therapeutic option for patients with end-stage heart failure. However, there are numerous potential device-related complications that are not negligible. Driveline infection is a potentially life-threatening complication, as well as impairing quality of life. Therefore, early detection of device-related infection is critical. FDG-PET/CT is highly sensitive for the detection of an inflammatory response. This is the first case report of an LVAD-related infection detected by FDG-PET/CT, and showing the change in FDG uptake before and after antibiotic therapy. For patients with suspected LVAD-related infections, FDG-PET/CT is useful for early detection of infection and evaluation of the response to antibiotic therapy.

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

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