VASCULAR IMAGES

Vascular graft infection due to chronic Q fever diagnosed with fusion positron emission tomography/computed tomography

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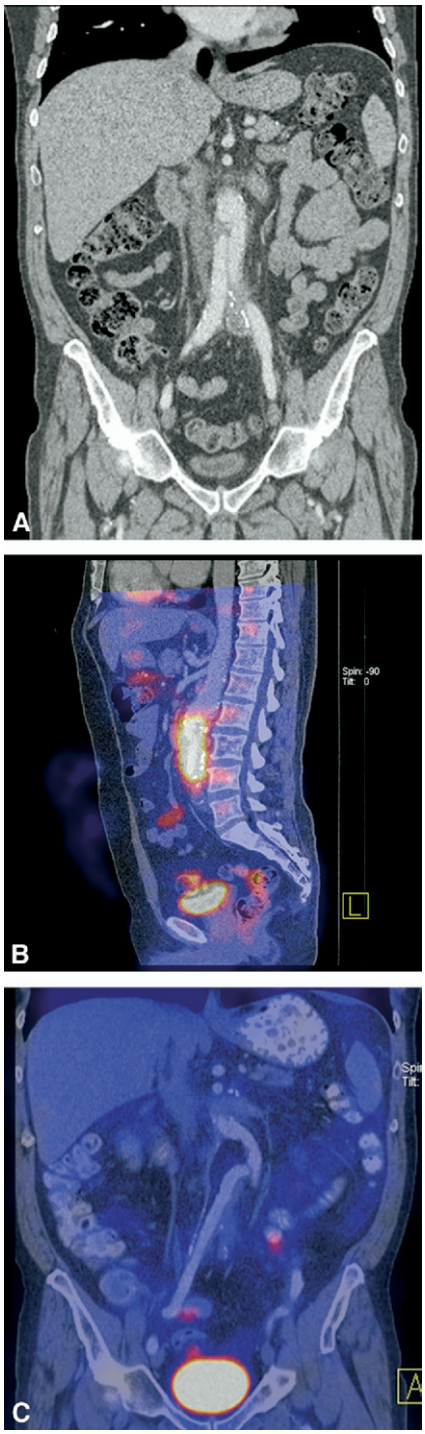

A 58-year-old man was admitted to the hospital with long-term relapsing fevers, malaise, weight loss, and inflammatory laboratory abnormalities. His medical history revealed abdominal aortic aneurysm repair with a bifurcated prosthetic graft 6 months before presentation. An extensive diagnostic workup, including transesophageal echocardiography, thoracic and abdominal computed tomography (CT) scans (A), and ^{99m}Tc leucocyte scanning, showed no abnormalities—in particular, no signs of endocarditis or graft infection. Because serology for chronic Q fever was positive (anti–*Coxiella burnetii* immunoglobulin G phase I, 1:10,000), targeted antibiotic therapy was started, without clinical response. Subsequent fluorine 18–fluorodeoxyglucose positron emission tomography (FDG-PET) scanning showed an area of increased intensity is the abdomen. FDG accumulates in organ tissues with a high rate of glycolysis. Besides neoplastic cells, lesions with a high concentration of activated inflammatory cells show increased uptake of FDG. Fusion of PET and CT images located the increased uptake in the vascular graft, suggesting infection of the prosthetic graft (cover image and B). The graft was removed, a neoaortoiliac system was created with autologous veins, and antibiotics were given. *Coxiella burnetii* polymerase chain reaction and culture of the removed graft remained negative (D. Raoult, Unité des Rickettsies, Marseille). The sensitivity of these diagnostic tests, however, is low, whereas an anti–*C burnetii* immunoglobulin G phase I titer of 1:1600 or more has a sensitivity for chronic Q fever of 100%. After surgery, the patient recovered completely. An FDG-PET/CT scan 9 months later was normal (C). Antibiotic treatment will be continued for at least 3 years. Second to cardiac valves, vascular grafts are the most frequent site of chronic Q fever. Treatment consists of a combination of surgical removal of the infected graft and prolonged antibiotic therapy. Despite these measures, mortality remains high.[1] By combining functional and morphologic information, PET/CT fusion images result in a higher diagnostic accuracy than the separate imaging modalities.[2] Therefore, FDG-PET/CT scanning can be a promising tool for identification of occult infectious foci, especially in culture-negative infected cardiovascular devices such as *Coxiella burnetii*-infected vascular grafts, as this case demonstrates.

REFERENCES

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J Vasc Surg 2007;46:372
0741-5214/$32.00

doi:10.1016/j.jvs.2006.10.003