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IgG4-Related Kidney Disease in a Patient With History of Breast Cancer:

Findings on ¹⁸F-FDG PET/CT

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Abstract

A 64-year-old African American woman with history of stage III breast carcinoma, 3 years after complete response to therapy, presents with progressive fatigue, increasing arthralgia, and unintentional weight loss of 15 lb in 3 months. An ¹⁸F-FDG PET demonstrated new diffuse FDG avidity of the renal parenchyma, new FDG-avid foci in pancreas and lungs, and new FDG-avid lymph nodes above and below the diaphragm. While a retroperitoneal lymph node biopsy was inconclusive, a kidney biopsy resulted in diagnosis of diffuse, severe, IgG4-related tubulointerstitial nephritis. Treatment with corticosteroid led to complete resolution of the symptoms and PET findings.

Keywords

FDG PET; kidney; IgG4-related disease; pancreas; biopsy; breast cancer

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Figure 1.

A 64-year-old African American woman with complete response after therapy of stage III breast carcinoma as confirmed on posttherapy ^{18}F -FDG PET scan (A) presents with progressive fatigue, increasing arthralgias, and unintentional weight loss of 15 lb in 3 months. ^{18}F -FDG PET scan demonstrates FDG-avid lymphadenopathy (white arrows in B-D) above and below the diaphragm, FDG-avid pulmonary lesions (black arrowhead in B), multiple FDG-avid foci in liver (white arrowheads in C), increased FDG uptake in the spleen (black asterisk in B), intense diffuse uptake in bilateral kidneys (black arrows in B and C), and intense focal uptake in the pancreas (white asterisk in C). On axial PET image (C), the intense homogeneous renal uptake (black arrows in B and C) is distributed homogeneously in the enlarged renal parenchyma. Same day contrast-enhanced diagnostic CT (E) demonstrates no focal lesions within the renal parenchyma and hypodense lesion in the liver (white arrowhead in E). Histopathology of the kidney biopsy revealed diffuse interstitial IgG4-positive plasma cell infiltrates (dark brown cells) and early fibrosis (F, immunoperoxidase stain on paraffin-embedded tissue using antibodies to IgG4, $\times 400$), confirming the final diagnosis of diffuse, severe, IgG4-related tubulointerstitial nephritis. ^{18}F -FDG PET findings were all compatible with IgG4-related disease.¹⁻¹⁰

Figure 2.

Immediate therapy with corticosteroid lead to complete resolution of the symptoms and PET findings as confirmed by posttreatment PET/CT scan. This case report highlights the role of ¹⁸F-FDG PET/CT in defining the extent of IgG4-related disease.