Patient History: 25-year-old male with presentation of testicular mass. Biopsy consistent with seminoma. FDG PET/CT ordered to initially stage the patient. Subsequently, the patient was treated with chemotherapy and after two cycles a repeat study was ordered to assess response.

Results: Two sets of images are displayed (at left), one at the time of initial staging and one after two cycles of chemotherapy. PET/CT was performed instead of diagnostic CT replacing the insensitive modality, saving cost and radiation dose.

References: For an overview of the use of PET in testicular cancer, see the article by Shvarts, O et al. in the July/August 2002 edition of Cancer Control. Quoting from this article: “In testicular cancer, PET has a higher diagnostic accuracy than computed tomography (CT) for both staging and re-staging and should be the test of choice for the assessment of a CT-visualized residual mass following chemotherapy.”

In a multicenter trial of 72 patients with newly diagnosed non-seminomatous germ cell tumor, (de Wit M, 2008) found that correct nodal staging by FDG-PET was achieved in 83% compared with correct computed tomography (CT) staging in 71%. CT had a sensitivity and specificity of 41% and 95%, respectively. Positive predictive value (PPV) and NPV were 87% and 67%, respectively. FDG-PET had a sensitivity and specificity of 66% and 98%, respectively. PPV was 95%.