FDG-PET Scan in Management of Pulmonary Sarcoidosis

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A 65 year old woman was referred for persistent symptoms despite anti tuberculosis therapy initiated for cough, fever and cervical lymph node biopsy showing granulomatous lymphadenitis. Examination was normal except for crackles all over the chest. Chest X-ray showed bilateral streaky opacities while high resolution computed tomography (CT) thorax (Figure 1) showed asymmetrical fissural and perivascular nodules and linear opacities in both lungs. Tuberculin skin test was negative. Spirometry showed a mild restrictive abnormality. Serum angiotensin converting enzyme (ACE) levels were elevated to 84 IU/L (range 0-52IU/L). Fluoro deoxyglucose (FDG) positron emission tomography (PET) showed significant tracer uptake in lung parenchyma corresponding to the HRCT findings and incidental uptake in the thyroid gland (Figure 2). Her thyroid functions showed hypothyroid state i.e. T3-2.62, T4-0.8 and TSH-11.55. A diagnosis of pulmonary sarcoidosis with thyroiditis was made. She was treated with tapering doses of oral corticosteroids for 6 months. She reported significant improvement in her symptoms but repeat chest X-ray and lung functions showed no change from the baseline. Post treatment HRCT thorax showed regression in fissural and perivascular nodules but the linear opacities persisted (Figure 3) while FDG PET scan (Figure 4) showed significant reduction in tracer uptake.

FDG-PET scan has demonstrated utility in patients of sarcoidosis in the recent literature. It has been utilized to evaluate pulmonary and other systemic involvement, in identifying possible diagnostic biopsy sites and as a guide to therapy. FDG-PET study is a sensitive modality to diagnose patients with active disease while it tends to be negative with radiographic stable or fibrotic pulmonary sarcoidosis. Mismatch between FDG-PET and 3′-fluoro-3′-deoxythymidine (FLT) cell proliferation agent in this disease has also been recently documented. FDG-PET in our case helped to identify associated thyroiditis and evaluate response to corticosteroid therapy.

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