Abstract: Rheumatoid arthritis is a chronic inflammatory autoimmune disease whose etiology is still unknown. Extra-articular manifestations are not uncommon. F-18 fluoro-2-deoxyglucose (F-18 FDG) positron emission tomography combined with computed tomography (PET/CT) is a useful tool to assess neoplastic diseases. However, some inflammatory conditions may also show high F-18 FDG uptake. We report a symptomatic rheumatoid arthritis patient showing marked F-18 FDG uptake in subcutaneous nodules, and cervical, supraclavicular, axillary, and pelvic lymph nodes. Detection of extra-articular inflammatory sites may improve our knowledge about inflammatory disorders of unknown etiology, and will certainly improve their management in the future. F-18 FDG PET/CT false-positives results for malignancy may be avoided in patients with rheumatoid arthritis.

Key Words: F-18 FDG PET/CT, imaging, rheumatoid arthritis, inflammation, false-positive

REFERENCES

FIGURE 1. Restaging F-18 fluoro-2-deoxyglucose positron emission tomography/computed tomography (F-18 FDG PET/CT) study of a 28-year-old woman with a history of papillary thyroid carcinoma. She presented with weight loss and palpable nodes in the neck and supraclavicular regions for 6 months. Total thyroidectomy and radioiodine ablation (3.7 GBq) were performed 9 years ago. Recent I-131 whole-body scan was negative and serum thyroglobulin levels were undetectable. She complained of hands and wrists symmetrical polyarthralgia and morning stiffness for 2 years. Laboratory tests revealed high inflammatory markers, positive rheumatoid factor, and high levels of anticyclic citrullinated peptide antibodies, which confirmed the rheumatoid arthritis hypothesis.1–3 Coronal and axial views on PET/CT show markedly increased F-18 FDG uptake in cervical, supraclavicular, and axillary lymph nodes (panels A and B); right arm subcutaneous node (panels C and D); and pelvic lymph nodes (panels E and F). Based on clinical criteria and image findings,4,5 a second malignancy hypothesis became the most likely. However, the right axillary lymph node biopsy revealed benign lymphoid hyperplasia. After treatment with leflunomide, aceclofenac, and deflazacort, the patient showed marked clinical improvement with pain relief and palpable node volume reduction.

FIGURE 2. A number of benign conditions have been described as showing F-18 FDG uptake that may be mistaken for malignancy.6–9 This case illustrates the possibility of F-18 FDG PET/CT false-positive results in patients with rheumatoid arthritis. Previous studies had already demonstrated F-18 FDG uptake in joints and axillary lymph nodes of rheumatoid arthritis patients.10,11 Maximum intensity projection image of PET (left) shows F-18 FDG uptake in the wrist joints (solid arrows), arms, dorsal subcutaneous nodules (dotted arrows), and extra-axillary lymph nodes (dashed arrows). Axial views on PET (upper image) and CT (lower image) show the dorsal subcutaneous nodule. The presence of symmetrical uptake in the wrist joints is the sign that should alert the physician to the possibility of benign lymphoid hyperplasia in patients with rheumatoid arthritis.