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Subcutaneous anabolic steroids use in a bodybuilder mimics malignancy on ^{18}F-FDG PET/CT scan

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Objective:

Subcutaneous injected anabolic steroids used by bodybuilder commonly cause fat necrosis, scar formation and dystrophic calcification. However, constellation of FDG avid subcutaneous stranding with infiltration to adjacent muscles and FDG avid lymphadenopathy on ^{18}F-FDG PET/CT could mimic malignancy such as sarcoma, extranodal lymphoma or subcutaneous metastases.

Materials and methods:

We present a case of a bodybuilder with FDG avid bilateral gluteal granulomatous disease and bilateral inguinal lymphadenopathy from subcutaneous anabolic steroids injection.

Results:

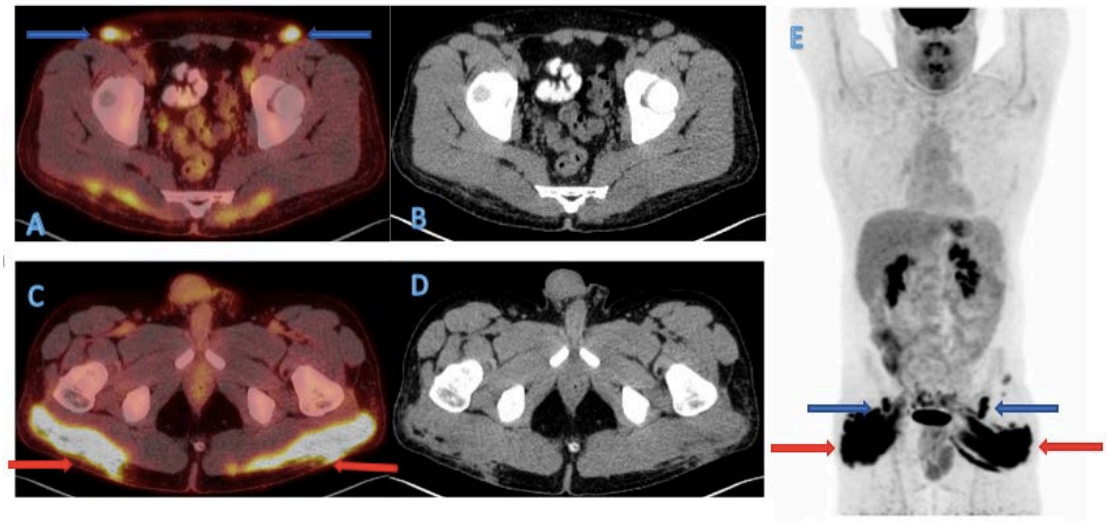
A 38 year old male presented with palpable bilateral inguinal lymph nodes for 6 months. CT of abdomen and pelvis demonstrated enlarged bilateral inguinal lymphadenopathy and bilateral gluteal subcutaneous stranding. ^{18}F-FDG PET/CT was performed to look for a primary malignancy, which demonstrated FDG avid bilateral inguinal lymphadenopathy and FDG avidity in bilateral gluteal subcutaneous tissue with infiltration to adjacent gluteus maximus muscles. The differential diagnosis of these findings include dermatomyositis, sarcoma, extranodal lymphoma or malignancy with subcutaneous metastases. However, the patient's muscular body habitus and symmetrical infiltration of bilateral gluteus maximus muscles raised the suspicion of anabolic steroid use. We proceeded to reach out to the patient who confirmed that he is a bodybuilder with long standing history of anabolic steroid use. Although there is a high probability of benign etiology for these findings, a biopsy of a inguinal node was recommended. Ultrasound guided biopsy of an FDG avid left inguinal lymph node showed lymphoid tissue with non-necrotizing granulomatous inflammation without evidence of malignancy.

Conclusions:

FDG avid bilateral inguinal lymphadenopathy in this bodybuilder was a reactive response to bilateral gluteal granulomatous inflammation from subcutaneous anabolic steroid injections. Nuclear medicine physicians interpreting ^{18}F-FDG PET/CT oncology studies should be aware of uncommon causes of FDG avid lymphadenopathy.

Keywords:

Subcutaneous anabolic steroids injection, granulomatous disease



(A&B) Axial fused FDG PET/CT and CT images demonstrate FDG avid bilateral inguinal lymphadenopathy (blue arrows) . (C&D) Axial fused FDG PET/CT and CT images demonstrate FDG avid bilateral granulomatous disease (red arrows). (E) FDG PET maxim intensity projection demonstrate the FDG avidity in the regions of bilateral groins and buttocks.

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