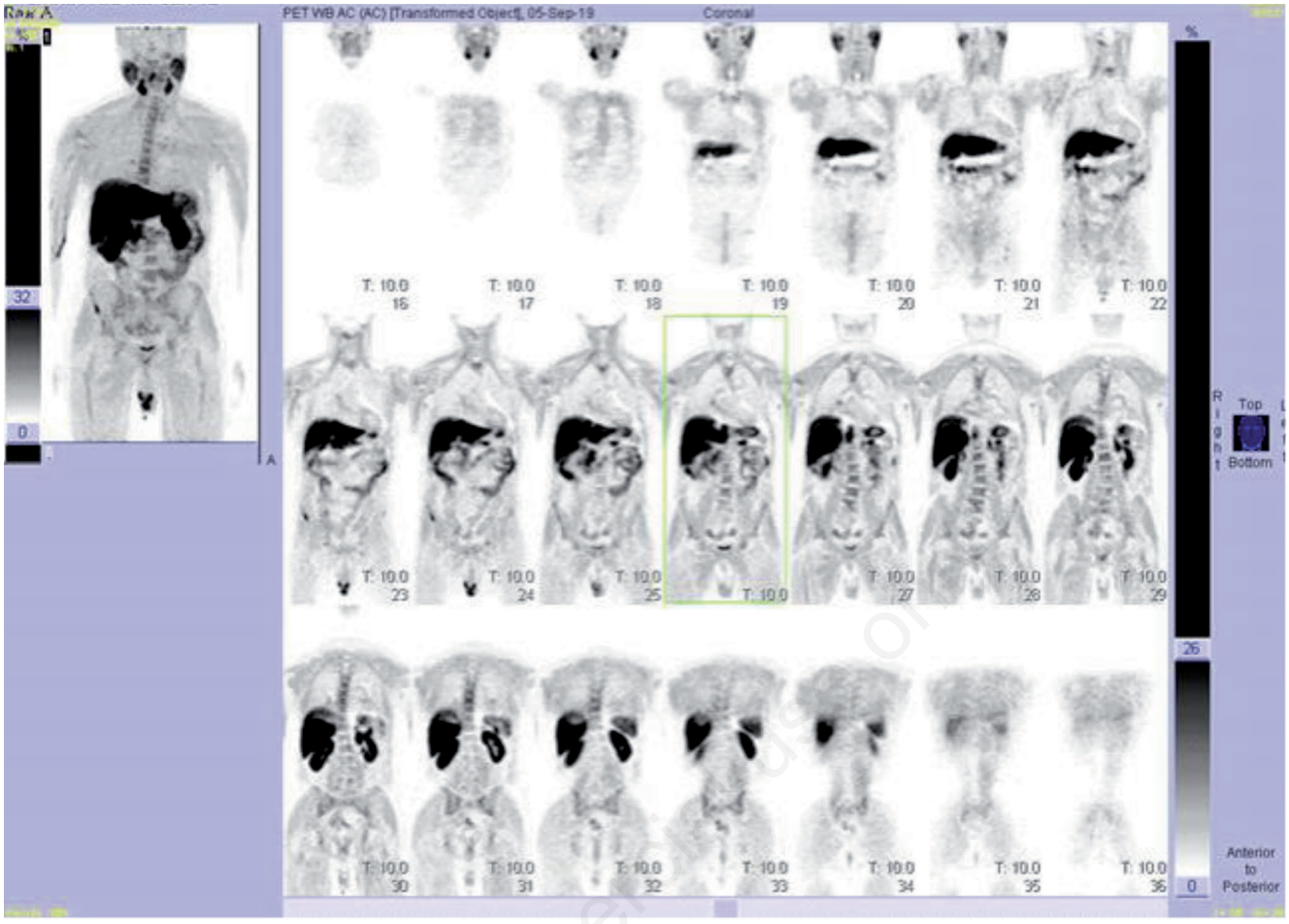

Figure 3. 18 F-Fluoro-Methyl-Choline (FMC) positron emission tomography/computed tomography (PET/CT): there is an increased fixation of the tracer which initially orientates for oncological genesis in the middle third of the right iliac wing.

Discussion

Paget's disease (osteitis deformans) is a benign focal disorder with accelerated skeletal remodeling. Its approximate prevalence is 1.1% in pelvic bones in patients above the age of 40. Pagetic disease can affect a single bone segment (monostotic) or multiple bone segments (polyostotic) leading to bone hypertrophy, cortical expansion, and abnormal bone architecture.[11,12] Clinical symptoms include bone pain, bone deformity, and skeletal fragility. Complications of Paget's disease involve bones (deformity, fracture, and neoplastic degeneration), joints (osteoarthritis), the nervous and the vascular system.[13] When Paget disease is suspected, an initial biochemical evaluation should be done with serum total alkaline phosphatase (ALP) or a more specific marker of bone formation such as serum cross-linked C-telopeptide (CTX) and conventional radiographs.[13] Treatment with a bisphosphonate is recommended for most patients with active Paget's disease who are at risk of further skeletal and extra-skeletal complications. A single dose of 5 mg i.v. zoledronate as the treatment of choice in patients without contraindications is suggested.[13] It is known that skeletal Paget disease can be associated with prostate cancer. Bone scintigraphy can differentiate between these 2 conditions.[14] It is clear that PD may show an uptake on PET with several different radionuclides, including 18F FDG, 68Ga PSMA, 18F NaF, 18F fluorocholine and 11C choline PET/CT.[15-20] As 11C choline is important in cell membrane synthesis, the increased C-11 choline uptake in PD is related to the increased rate of bone turnover, and therefore cell formation. It is unclear why choline uptake varies so widely and is apparently unrelated to the stage of disease activity, since it is not associated with the serum ALP level and there is no correlation between the uptake on 11C choline PET/CT and 99mTc MDP skeletal scintigraphy. Because of increased uptake of prostate cancer lesions to 11C choline PET/CT, it is important to recognize Paget's disease as a potential pitfall on 11C choline PET/CT. In particular, and when it is difficult to differentiate PD from bone metastases in prostate cancer, it is mandatory to perform a bone biopsy.

Conclusions

The possibility of 18F-FMC PET/CT uptake in pagetic bone should be kept in mind when interpreting PET/CT findings in patients with prostate cancer. Therefore, the histological examination remains the goal standard in cases of suspected Paget's bone in patients with a history of prostate cancer.

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