

# A mysterious tumor in the obturator internus muscle — a case report

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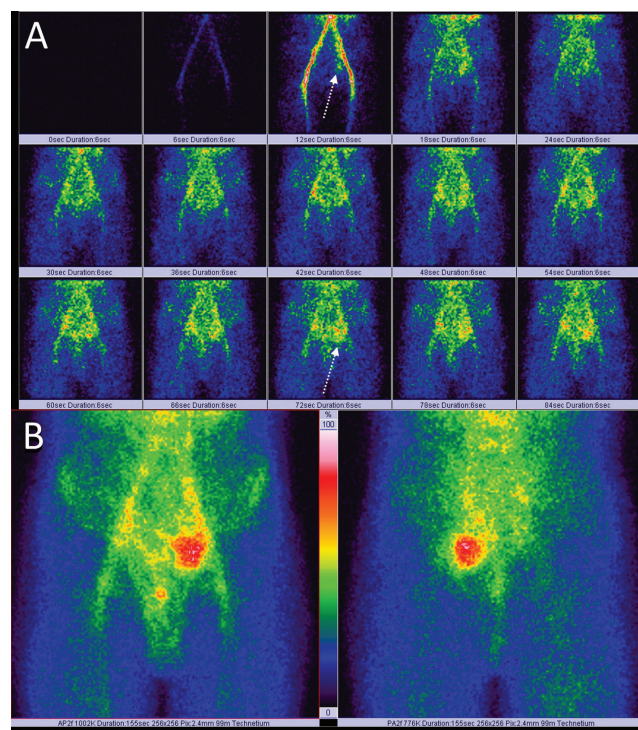
[Received 4 VI 2016; Accepted 9 I 2017]

## Case report

A 33-year-old male was admitted to local Nuclear Medicine Department with suspected femoral head necrosis. His chief complaint was pain located in left inguinal region exacerbating during walking. He was forced to use a crutch.

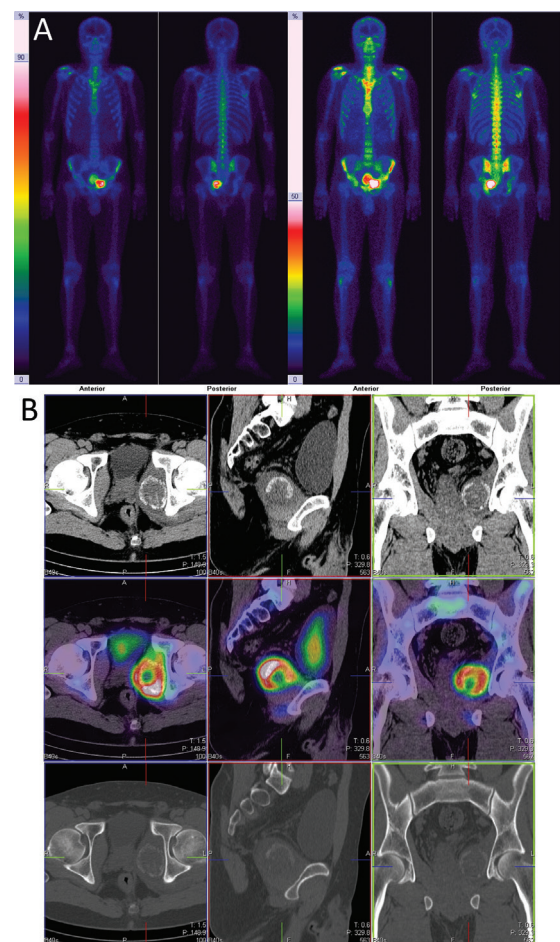
Three-phase bone scan (TPBS) was performed according to the standard protocol used in our Department. <sup>99m</sup>Tc-labelled

methylene diphosphonate (MDP) was used, administered activity was 740 MBq. The TPBS was followed by SPECT/CT scan of the pelvis. The results are presented in Figures 1 and 2.



**Figure 1. A.** TPBS — blood flow images. AP view. Note hyperperfusion in area medially to the left iliac arteries (arrow); **B.** TPBS — blood pool images. AP and PA views. Area of significant hyperemia medially to the left hip joint

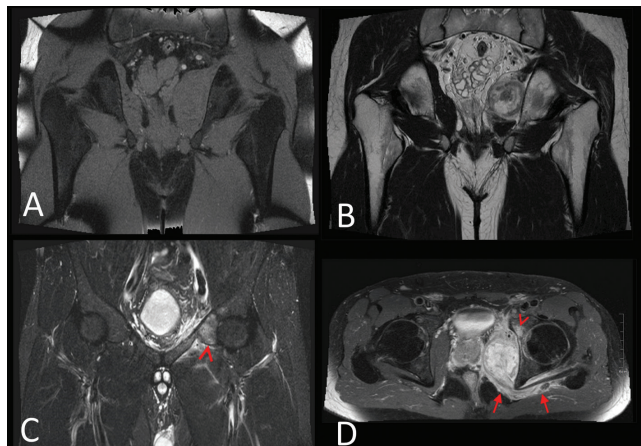
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**Figure 2. A.** Whole body bone scan (dual intensity projection). High MDP accumulation in the area between bladder and left hip joint. Increased radiotracer accumulation in the adjacent bone (ischium). Slightly and irregularly increased MDP uptake in the distal shaft of the right humerus was also observed — probably due to use of a crutch; **B.** SPECT/CT images clearly indicate radiotracer accumulation in the tumor located within the left obturator internus muscle. Slightly increased accumulation in the adjacent bones with no visible destruction of bone structure. The tumor itself is polycyclic in shape and highly calcified, compresses surrounding structures, but without signs of infiltration

Caution and further evaluation recommended as malignancy were suspected, so MRI scan was executed. The results are presented in Figure 3.

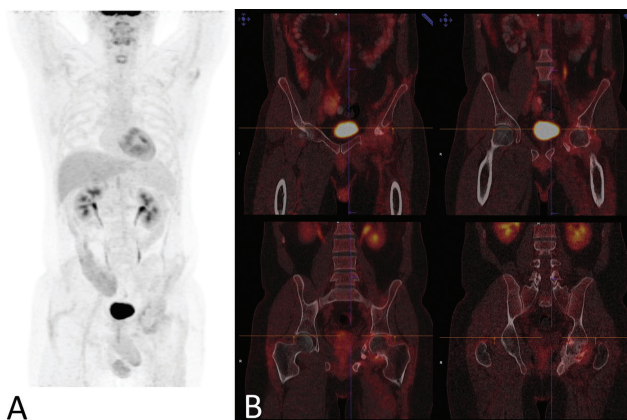
Basing on clinical appearance and obtained images the decision of surgery was made. The surgeon removed a brown



**Figure 3.** **A.** MRI T1-weighted TSE-FATSAT images, coronal section. The abnormal size of the obturator internus muscle associated with compression of the prostate, urinary bladder and seminal vesicles. The muscle itself has rather homogenous, isointensive signal; **B.** MRI T2-weighted TSE images, coronal section. Nonhomogenous hyperintense tumor filling nearly entire obturator internus muscle. No evidence of infiltration. Adjacent bone intact; **C.** MRI T2-weighted TSE TIRM images, coronal section. Hyperintense area medially to the acetabulum (arrowhead) — edema; **D.** MRI T1-weighted TSE TRA+FATSAT+C images. Axial section. Increased signal from the entire obturator internus muscle indicating edema (arrows). Hyperintense area within the acetabulum and pubis also indicate edema (arrowhead)

tumor. Primary histopathological verification stated: mesenchymal chondrosarcoma, however, further and more detailed evaluation, including immunohistochemical reactions, suggested fibroblastic osteosarcoma rather than chondrosarcoma.

Six months after the surgery and chemotherapy the patient underwent  $^{18}\text{F}$ -FDG-PET/CT scan to rule out local recurrence or distant metastases. The results are presented in Figure 4.



**Figure 4.** **A.** MIP PET scan after surgery and chemotherapy. Physiological glucose uptake and excretion by kidneys. Increased tonsils, laryngeal muscles and bowel uptake — normal variant. Slightly increased and irregular glucose uptake in the operation area consistent with post-operative changes. No distant metastases; **B.** PET/CT scans. Coronal sections. No pathologic, glucose avid mass suggesting local recurrence within pelvis. Post-operative changes. Physiologic activity in the urinary bladder (excreted radioactive glucose)