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Squamous cell carcinoma of the prostate with concomitant hypercalcemia and normal serum prostate-specific antigen level

Short title: squamous cell carcinoma and normal serum prostate-specific antigen level

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In April 2020, a 73-year-old man was referred to the hospital due to urinary tract infection accompanied by high leukocytosis (31.5*10^3/ul) and thrombocytosis (505*10^3/ul). Laboratory workup revealed parathormone-independent hypercalcemia, that subsided after a single dose of pamidronate. Computed tomography scan of the abdominal and pelvic cavity showed markedly enlarged prostate gland (93x98x103 mm) without pathological lymph nodes in the pelvis and no signs of bone destruction. Prostate-specific antigen (PSA) concentration was in the normal range (0.93 ng/mL). Myelogram and histological examination of trephine biopsy revealed no pathology. The fluorodeoxyglucose positron emission tomography/computed tomography imaging (FDG PET/CT) scan indicated for a metabolic active process, primarily proliferative, in the prostate (standardized uptake value = 40) with the involvement of the pelvic lymph nodes. The magnetic resonance imaging (MRI) of the pelvic cavity performed after 8 weeks (Fig. 1A, B) showed a huge tumor coming out of the prostate, infiltrating the bladder and compressing the rectum with numerous bone metastases metabolically inactive in FDG PET/CT. Ultrasound-guided prostate biopsy gave the diagnosis of squamous cell carcinoma of the prostate (Fig1. C, D). After disqualification from cystoprostatectomy due to poor prognosis in the disseminated disease, the patient started palliative intensity-modulated radiation therapy (IMRT) for the tumor and metastatic pelvic lymphnodes (5x4 Gy) with good early tolerance and relieving of LUTS. Lung metastasis were diagnosed in the next four months. A poor clinical condition precluded the use of chemotherapy and 6 months since the diagnosis the hospice care was provided.

Squamous cell carcinoma of the prostate (PSCC) is a rare aggressive cancer, frequently diagnosed in a stage of the metastatic disease, with a median overall survival of 12 months [1,2]. Clinical presentation summarised based on 22 described in the literature cases includes lower urinary tract symptoms (LUTS), acute urinary retention, urinary tract infection, haematuria, and bone pain related to metastases. Locations of metastases (reported in
56% of cases) include bone, lungs, liver, and lymph nodes [2]. PSCC typically cannot be detected by the PSA screening. Primary surgical intervention (prostatectomy, cystoprostatectomy with pelvic lymphadenectomy) may improve the outcome in the patients with locoregional disease. There are limited data concerning RTH. Chemotherapy in disseminative disease has been implemented without long-term response [2].

The presented case, reports an unusual clinical course of a patient with disseminated PSCC and hypercalcemia. Typically for PSCC, the lack of increased PSA levels made the differential diagnosis of prostate cancer and the exclusion of bladder cancer infiltrating prostate much more difficult. As previously shown FDG uptake in PET/CT of the lesion was strong [3,4]. However, bone dissemination was not detected in FDG PET/CT. Of note, MRI turned out to be much more useful for the detection of bone metastases. Late presentation of the patient and aggressive course of cancer precluded radical treatment. IMRT effectively controlled the irradiated tumor, however without chemotherapy was unable to control the disseminated disease and improve the overall survival. Despite of poor prognosis the provided IMRT improved the patient’s quality of life by relieving LUTS.
References:


**Figure 1.** 3T magnetic resonance image (MRI), T1 turbo spin echo (TSE) image in a transverse (A) and T2 turbo spin echo (TSE) image in frontal (B) plane showing a huge tumor coming out of the prostate, infiltrating the bladder and compressing the rectum. Histological examination of the prostate tumor tissue obtained from core needle biopsy showing squamous cell carcinoma GII in H-E staining (C), and Cytokeratin-5/6 (+) staining (D).