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## Case report

# Psoriasis exacerbation after hormonotherapy in prostate cancer patient—Case report

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## ABSTRACT

Psoriasis, as the most common inflammatory skin disorder, affects about 2–3% of the world's population. Many non-dermatological conditions have been linked with psoriasis, including cardiovascular diseases, depression, inflammatory bowel disorders, and some cancers, i.e. lung, colon and kidney cancers. Among systemic factors are endocrine and metabolic disturbances as well as many drugs. Erythrodermic psoriasis, the most severe form of the disease, is characterized by diffuse erythema and scaling, often accompanied by fever, chills, and malaise.

A 57-year-old Caucasian man was admitted for curative radiation therapy of adenocarcinoma of the prostate after 3 months of initial hormonal therapy. The management comprised the combined androgen blockade (CAB). On admission the patient reported escalation of psoriasis symptoms, which he had been treated for since 2002. Due to a mild course of the disease he had not required any systemic treatment ever before, even during aggravation periods. The last exacerbation started appearing a month after hormonal therapy implementation. The cutaneous eruptions, already existing, become larger with new foci revealing, mainly on upper and lower limbs. During radiotherapy planning, there appeared a diffuse erythema and scaling on hands and feet with accompanying pruritis. We decided to start the previously planned radiation therapy which included the prostate gland with 1.5 cm margin and provided for the total dose of 72 Gy in 36 fractions. The irradiation was conducted with the four-field technique using a megavoltage linear accelerator. During radiotherapy we photo-documented skin lesions.

To our best knowledge hormone therapy (androgen deprivation) of prostate cancer patients has not been reported as an aggravating factor. Thus, the aim of our work is to present the case of a prostate cancer patient who experienced psoriasis exacerbation after implementation of hormonal blockade as a neoadjuvant oncological treatment.

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## 1. Introduction

Psoriasis, as the most common inflammatory skin disorder, affects about 2–3% of the world's population.<sup>1</sup> Most cases represent type 1 psoriasis with the peak of incidence (often familial) between the age of 20 and 30 years, common susceptibility alleles at the HLA locus, and often severe course of the disease.<sup>2</sup> Type 2 psoriasis, more typical for older patients, usually requires local treatment only and does not show a hereditary nature.<sup>3</sup> Lots of non-dermatological conditions have been linked with psoriasis, including cardiovascular diseases, depression, inflammatory bowel disorders, and some cancers, i.e. lung, colon and kidney cancers.<sup>2</sup> Plenty of diverse endogenous and exogenous factors have been recognized to trigger or exacerbate psoriatic signs. Psychogenic stress and bacterial infections are listed as main inducers,<sup>4</sup> but it is known that any local skin trauma may provoke suffering (Koebner's phenomenon).<sup>2,5</sup> Among systemic factors endocrine and metabolic disturbances (hypocalcemia, dyslipidemia, impaired glucose tolerance), as well as many drugs, including lithium salts, antimalarials, NSAIDs, ACE-inhibitors, beta-blockers, calcium-blockers, some antibiotics and interferons have been proven to initiate the disease.<sup>5,6</sup> There have also been reported anecdotal cases of psoriasis aggravation after digoxin, morphine, anabolic steroids, progesterone, antidepressants, diuretics, antiepileptics, hypolipidemic agents, growth factors and H2-blockers administration.<sup>3,7</sup> Undoubtedly, many other drugs show a potential to influence the disease course and their identification could be crucial for maintaining regression of psoriasis symptoms.

To our best knowledge, hormone therapy (androgen deprivation) of prostate cancer patients has not been reported as an aggravating factor. Thus the aim of our work is to present the case of a prostate cancer patient who experienced psoriasis exacerbation after implementation of hormonal blockade as a neoadjuvant oncological treatment.

## 2. Case report

A 57-year-old Caucasian man was admitted (July 2008) for curative radiation therapy of adenocarcinoma of the prostate after 3 months of initial hormonal therapy. The management comprised the combined androgen blockade (CAB) – luteinizing hormone-releasing hormone (LH-RH) analog (agonist), given subcutaneously once per 12 weeks Triptorelin + anti-androgen Flutamide given orally 3 times per day. The patient presented T2bNOMO clinical stage and was assigned to the low-risk group (PSA 8.64 ng/ml, Gleason 4). MRI of the pelvis (January 2008) revealed the enlarged prostate gland (4.5 cm × 4.0 cm × 4.3 cm) with the contrast-enhanced area in the right lobe of 1.9 cm in diameter, with no radiological features of the prostate capsule infiltration and no lymph node metastases. On admission the patient reported escalation of psoriasis symptoms, which he had been treated for since 2002. Due to a mild course of the disease he had not required any systemic treatment ever before, even during aggravation periods. The last exacerbation started appearing



**Fig. 1 – Diffuse erythema on the forearm after hormonotherapy in prostate cancer patient.**

a month after hormonal therapy implementation. The cutaneous eruptions, already existing, become larger with new foci revealing, mainly on upper and lower limbs. During radiotherapy planning, there appeared a diffuse erythema and scaling on hands and feet with accompanying pruritis (Figs. 1 and 2). We observed deterioration of the patient's general condition, however, neither fever nor enlarged lymph nodes were found. There were no abnormalities in laboratory test results, either. The patient was consulted by a dermatologist and the decision was made to stop the hormonal therapy immediately as well as to apply local corticosteroid ointment. The features of skin inflammation disappeared completely in 3 days and the pruritis decreased considerably. The skin desquamation remained (Fig. 3). Since the general condition of the patient also improved (and was estimated as good), we decided to start the previously planned radiation therapy which included the prostate gland with 1.5 cm margin and provided for the total dose of 72 Gy in 36 fractions. The irradiation was conducted with the four-field technique using a megavoltage (a 15 MeV photon beam) linear accelerator. During radiotherapy we photo-documented skin lesions. Radiation-induced reaction of the skin was assessed once a week according to the EORTC classification. A special attention was attached to



**Fig. 2 – Diffuse erythema on the cruarls after hormonotherapy in prostate cancer patient.**



**Fig. 3 – Skin of patient's already 3 days after hormonal treatment terminat.**

the observation of existing or possible new psoriatic lesions. During the whole period of radiotherapy neither new signs of psoriasis exacerbation nor the Koebner's phenomenon were observed. Furthermore, the previously existing lesions decreased meaningfully. Currently, 5 months after completion of radiotherapy, the patient is still being followed up on the Oncology Centre outpatient basis.

### 3. Discussion

Psoriasis is the most frequent dermatological disease in our climate zone. Thus, treating cancer patients with psoriasis is a relatively common clinical practice. The oncologist may not allow for dermatological disease as a cause of a deterioration of the patient general condition and interpret it as a treatment failure (cancer progression) or complication. This carries not only the risk of an unnecessary and undesirable withdrawal from oncological therapy but also the risk to life in case an adequate diagnosis is established or treatment applied too late.

Patients qualified for radical radiotherapy of prostate cancer undergo a neoadjuvant hormonotherapy almost routinely in order to decrease the prostate volume and by this means optimize irradiation conditions.<sup>8</sup> In the case of our patient, the relation between psoriasis exacerbation and the androgen blockade seems indisputable considering that the skin symptoms ceased already 3 days after hormonal treatment termination. Since the LH-RH agonist has a form of a sustained activity drug, one can expect its possible impact on patient's dermatological condition in about 12 weeks. The moment of the anti-androgen withdrawal fell 7 days before the next planned dose of LH-RH agonist. Therefore, we did not expect its considerable impact at that time.

Although available literature does not mention cases of psoriasis aggravation under the influence of an androgen deprivation, there are several reports on biological and immunological effects of sex steroid hormones (estrogen, progesterone, and androgen) on the skin.<sup>9,10</sup> It is well documented that in women the natural course of psoriasis is modulated by pregnancy, menstruation, and menopause.<sup>11,12</sup> Unfortunately, less attention has been paid to male population and

the role of androgens.<sup>13</sup> However, it has been proven that androgens protect against autoimmunization development and show an immunomodulative activity.<sup>14,15</sup> In our patient we cannot exclude other (not yet investigated) psoriasis aggravation mechanisms of hormonal drugs, unrelated to androgen level modulation.

Analyzing the role of hormones in dermatological symptom exacerbation, we cannot also exclude the impact of stress hormones in our patient as cancer diagnosis and implementation of any oncological treatment are undeniably connected with an intense stress, a factor of a documented impact on psoriasis course.

Treating a patient with aggravated psoriasis symptoms, we paid a special attention to possible appearance of the Koebner's phenomenon on the irradiated skin area, as reported by some authors,<sup>5,6,16,17</sup> especially for larger fraction doses exceeding 2.5 Gy.<sup>5,18</sup> Using the fraction dose of 2 Gy, we did not observe the phenomenon, neither during radiotherapy nor after its completion.

The case presented confirms previous observations that cancer patients with accompanying psoriasis may be safely irradiated with low fraction doses. However, a special attention should be paid to those of them who simultaneously receive hormonal treatment, especially in the case of an active phase of psoriasis and multiple skin lesions.

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