

Psoriasis associated with stress following a through-and-through gunshot wound in a military service member: A case report

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ABSTRACT

The paper presents a clinical case of psoriasis that developed in a 23-year-old Ukrainian service member after a combat-related through-and-through gunshot wound to the lower leg sustained in 2022. The patient had no previous dermatological diseases or family history of psoriasis. Two weeks after the injury, irregular pink plaques appeared around the damaged skin areas and gradually spread to the lower limbs, trunk, and upper extremities, becoming generalised within two months. The disease subsequently progressed to severe plaque psoriasis, complicated by nail dystrophy and psoriatic arthritis. By 2026, skin lesions involved more than 50% of the body surface area (Psoriasis Area and Severity Index (PASI) 25,9) and were associated with a significant impairment in quality of life (Dermatology Life Quality Index (DLQI) 16). Persistent psycho-emotional stress related to military service, sleep disturbances, smoking, and poor adherence to therapy contributed to recurrent exacerbations. Screening revealed clinically significant anxiety, and the patient was referred for psychological evaluation and support. After referral to a mental health centre and implementation of comprehensive management that included psychological support and improved adherence to dermatological therapy, gradual improvement in skin condition and quality of life was observed.

KEY WORDS: psoriasis, gunshot wounds, stress, military medicine

Wiad Lek. 2026;79(6):1436-1442. doi: 10.36740/WLek/222572 DOI

INTRODUCTION

Psoriasis is a chronic inflammatory skin disorder with a complex clinical presentation that is currently incurable and requires continuous dermatological management [1]. Psychological stress is recognized as a trigger factor for the development of psoriasis [2, 3]. In turn, psoriasis significantly worsens patients' quality of life and contributes to deterioration of the psycho-emotional state and the further development of alexithymia, anxiety, depression, and sleep disorders [4]. Stress may also provoke or aggravate the course of acne, vitiligo, lichen planus, and atopic dermatitis [5]. Since the beginning of the full-scale invasion, a significant proportion of the Ukrainian population has demonstrated increased levels of anxiety, depression, and stress associated with the war [6]. Previous studies on the psychological status of military personnel in Ukraine indicate a substantial burden of stress-associated disorders [7]. Military members, who have sustained traumatic injuries, including firearm wounds, are at higher risk of developing post-traumatic stress disorder, depression,

and anxiety [8], which may potentially act as triggers for chronic inflammatory skin diseases.

FRAMEWORK

The article is part of the research work of the Department of General Practice (Family Medicine) at Bogomolets National Medical University: «Improvement of approaches to detecting and preventing the development of chronic non-infectious somatic diseases and psychomotional states in primary care under contemporary conditions», 2024-2026, 0123U105321.

CASE REPORT

A 23-year-old Ukrainian male consulted his family doctor in January 2026 with complaints of a widespread, generalised rash. According to the patient, prior to February 2022, he had no chronic diseases, skin changes, previous injuries, or surgical interventions. He reported a family history of hypertension in his parents and de-



Fig. 1. Left lower leg after the gunshot injury in March 2022, prior to the onset of psoriasis. No psoriatic lesions are visible
Picture taken by the authors

nied any dermatological diseases in the family history. While performing a combat mission in March 2022 in the Donetsk region, he sustained a gunshot wound. The bullet passed through the muscles of the left lower leg and superficially injured the skin of the right lower leg. The wound healed slowly over several months (Fig. 1).c

Within two weeks after the injury, the patient noticed the appearance of irregular pink plaques around the bullet-damaged skin areas. The lesions gradually enlarged and merged, initially involving both lower limbs and subsequently spreading to the trunk and upper extremities. Within approximately two months, the eruption became generalised. In November 2022, the patient was hospitalised due to severe pruritus, marked scaling of the scalp, deformation of the nail plates with purulent discharge around the nail folds, and pronounced pain in the thigh and lower leg muscles. At the time of the first hospitalisation, the eruption had a widespread symmetrical distribution. The skin of the trunk and extremities appeared cyanotic-red and was covered with multiple plaques measuring 1–10 cm in diameter (Fig. 2). Clinically, the characteristic “stearin spot” sign was observed, and in several plaques the “terminal film” and Auspitz sign (“blood dew”) phe-

nomena were detected. The nail plates were yellowish, deformed, and brittle.

During hospitalization, the patient received systemic and topical therapy combined with phototherapy, including antihistamines, topical corticosteroids, keratolytic agents, and supportive dermatological treatment. Clinical improvement was observed, and the patient was discharged with recommendations for methotrexate therapy (10 mg once weekly) with folic acid supplementation, emollients, and vitamin therapy. According to the patient, he adhered to the prescribed treatment for only two weeks after discharge, taking two doses of methotrexate before discontinuing therapy upon returning to military duties. Following the gunshot injury and diagnosis of psoriasis, he experienced severe sleep disturbances and reported a period of alcohol abuse lasting more than one month, explaining that alcohol became the only way he could fall asleep. Hypnotic medications were reportedly ineffective. During this period he did not seek medical assistance or report sleep problems to doctors. Poor adherence to therapy, together with ongoing stress and unhealthy coping strategies, contributed to further disease progression.



Fig. 2. Widespread psoriatic plaques on the trunk and extremities in November 2022, accompanied by nail dystrophy
Picture taken by the authors

The patient developed severe pain in the small joints of the hands and feet that gradually limited daily activities in early 2023. On 16 January 2023, he was hospitalised and diagnosed with widespread psoriasis in the progressive stage, complicated by psoriatic arthritis involving the small joints of the hands and feet. A similar exacerbation occurred in early February, requiring repeated hospitalisation on 9 February 2023. Despite systemic and topical treatment, clinical improvement remained limited. Methotrexate therapy (15 mg weekly) with folic acid supplementation was recommended.

On 7 March 2023, the patient was examined by a dermatologist at a municipal consultative diagnostic centre and was advised to continue methotrexate therapy together with antihistamines and topical corticosteroids. He followed these recommendations while continuing military service until 2024 but later discontinued treatment on his own initiative.

In April 2023, the disease progressed during a period of severe psycho-emotional stress. The diagnosis at that time was widespread plaque psoriasis with psoriatic onychodystrophy and psoriatic polyarthropathy grade II with functional insufficiency grade II. The patient received systemic therapy together with topical corticosteroids and psoralen plus ultraviolet A (PUVA) phototherapy.

In January 2025, the patient reported a marked increase in the number of skin lesions accompanied by intense pruritus and severe pain in the small joints of the hands and feet. Self-administered topical corticosteroids produced no significant improvement. On 23 January 2025, he was hospitalised again. By early 2025, the scalp, trunk (including the genital area), and upper

and lower extremities were covered with cyanotic-red plaques measuring 1–10 cm in diameter, which were elevated above the skin surface, prone to coalescence, and covered with large seropurulent scales. Purulent discharge was observed from some lesions, and the Auspitz sign was positive. Nail plates were deformed, yellowish, brittle, and covered with hyperkeratotic deposits accompanied by purulent discharge. The total affected body surface area exceeded 70%. Treatment included topical keratolytic and corticosteroid therapy. During this period, the patient did not modify his lifestyle. Psycho-emotional stress remained high due to ongoing military service, combat missions, and shelling. He also reported increased smoking associated with stress.

By January 2026, when he was hospitalized again because of exacerbation of psoriasis and psoriatic arthritis, he smoked approximately 20 cigarettes per day. Dermatological examination revealed multiple papular eruptions measuring 3–5 cm in diameter with well-defined margins and covered with silvery-white scales on the scalp, retroauricular folds, and extensor surfaces of the extremities. In the lumbar, inguinoscrotal, axillary, intergluteal, perianal, pubic, and genital regions, as well as on the extremities, lesions merged to form large plaques up to the size of the patient's palm with pronounced infiltration, affecting more than 50% of the body surface area. Deep fissures were present, particularly on the palms and soles, accompanied by marked hyperkeratosis and hemorrhagic crusts. The psoriatic triad was positive. Hyperemia and maceration were observed in skin folds and the perineal area. Nail plates of the hands and feet



Fig. 3. Severe plaque psoriasis (PASI 25.9) with generalized symmetrical erythematous papules and plaques, silvery-white scales, confluent lesions on the trunk and extremities, grayish-brown crusts on the lower legs, and marked infiltration

Picture taken by the authors

were thickened, deformed, yellowish and demonstrated the characteristic “thimble sign”.

After discharge in late January 2026, the patient consulted a family doctor for the first time to sign a primary care declaration at the University Clinic of Bogomolets National Medical University. Considering the patient’s occupation in a high-stress environment and persistent sleep disturbances since 2022, screening for anxiety and depression using the Hospital Anxiety and Depression Scale (HADS) was performed [9]. The patient reported that his psychological condition had never been previously evaluated and that consultations with mental health specialists had not been recommended, which was confirmed by discharge summaries from 2022. The HADS score was 14 on the Anxiety subscale, indicating clinically significant anxiety, and 5 on the Depression subscale, corresponding to normal levels without clinically significant depressive symptoms. Following the mhGAP algorithm “Other Significant Mental Health Complaints” [10], the doctor provided psychoeducation and recommended lifestyle modification, smoking reduction, and improved adherence to therapy. The family doctor also became the first specialist to whom the patient disclosed his previous alcohol abuse as a coping mechanism for insomnia following the gunshot injury. He reported that stress exacerbated his psoriasis, which in turn increased psychological distress related to concerns about his health. Because the patient described episodes resembling flashbacks associated with the traumatic event during sleep onset, post-traumatic stress disorder (PTSD) was suspected and he

was referred to the Mental Health Center of the University Clinic and to a dermatologist for further evaluation. Despite ongoing treatment, skin lesions remained widespread (Fig. 3). The eruption was inflammatory and generalized, involving the trunk, extremities, scalp, and face, with the most prominent lesions located on the lower extremities and hands. The rash was symmetrical and monomorphic, represented by erythematous papules with a strong tendency to enlarge and merge into plaques. Many plaques were covered with silvery-white scales, while some lesions on the lower limbs were covered with grayish-brown crusts. Infiltration was most pronounced on the lower extremities. Nail changes included thickening, irregular surface, and pronounced onycholysis. The Psoriasis Area and Severity Index (PASI) score was 25.9, indicating severe psoriasis, and the Dermatology Life Quality Index (DLQI) was 16, reflecting a severe impact on quality of life [11]. The final diagnosis corresponded to widespread papulo-plaque psoriasis with psoriatic onychodystrophy.

The patient initiated treatment at the Mental Health Centre of the University Clinic and also underwent inpatient treatment for 7 days. Although psoriasis treatment remained standard, the patient reported a subjective reduction in pruritus during psychotherapy sessions. In addition, according to the patient, the rash became paler and exhibited fewer scales. Upon assessment using the DLQI by the family doctor after discharge, the patient scored 5 points, which corresponds to a small effect on the patient’s quality of life. The period of the patient’s treatment in Kyiv also

coincided with a relatively calm period, during which no missile attacks occurred, and only one preventive air-raid alert was recorded during the 7-day hospitalisation. The patient agreed that the improvement in his condition may be associated with the absence of stress related to military service.

The development of psoriasis in a patient without a family history of the disease and without prior dermatological complaints following a through-and-through gunshot wound is uncommon but plausible. Cases of psoriasis developing after skin trauma in individuals with previously healthy skin have been described only sporadically in the literature. Among them are reports of the Koebner phenomenon occurring after burns [12], accidental skin scratches [13], and insulin injections [14]. The formation of new psoriatic lesions within the Koebner phenomenon is driven by a complex interaction of several pathophysiological mechanisms.

A key role is played by the activation of inflammatory mediators released by mast cells, including tryptase and interleukins IL-6, IL-8, IL-17, and IL-36 γ [15–18]. Skin injury also induces type I interferons from cutaneous cells, which may initiate autoimmune cascades capable of triggering psoriasis [18]. This process may be further amplified by increased production of neurotrophic and angiogenic factors such as nerve growth factor (NGF) and vascular endothelial growth factor (VEGF), which stimulate cellular proliferation and tissue remodeling [15, 17]. Cell adhesion molecules, particularly integrin $\alpha 2\beta 1$, as well as proteins S100A7 (psoriasin), and S100A15 (koebnerisin), also play an important role in regulating inflammatory responses and epidermal differentiation. In parallel, an immunological imbalance develops, characterized by alterations in the CD4 / CD8 T-lymphocyte ratio, reduced expression of the mechanosensitive protein polycystin-1, and dysregulation of the atypical chemokine receptor ACKR2, which normally limits inflammatory activity [15]. Epidermal keratinocytes are a rich source of CC chemokine ligand 20 (CCL20) and recruit CCR6-expressing T cells producing interleukin-17A, which are considered pathogenic in psoriasis [19].

In the present case, the patient had no history of dermatological disease prior to sustaining the gunshot wound, suggesting a temporal association between trauma and the onset of psoriasis. However, it cannot be definitively concluded that the wound itself served as the primary trigger. The patient, who had no previous military background, was exposed to substantial psychological stress related to military service and combat deployment. Psychological stress is a well-established trigger for the onset and exacerbation of psoriasis. The patient also

reported sleep disturbances and a period of alcohol abuse following the injury. Previous studies suggest that psoriasis itself does not necessarily impair sleep quality [20]. Based on the clinical interview and detailed medical history, the family doctor suspected post-traumatic stress disorder (PTSD), which had not been diagnosed in 2022 and therefore had not been appropriately managed. An additional limitation of this case is the absence of a family doctor involved in the patient's care until January 2026. The patient reported limited trust in physicians who treated him during hospitalizations in military hospitals and municipal consultative-diagnostic centers.

Previous research indicates that patients tend to have the highest level of trust in their family doctors, who often act as interpreters of medical information and long-term advisors. Patients frequently trust recommendations from their family doctor more than those from well-known specialists [21]. Earlier involvement of a family doctor, beginning in 2022, might therefore have contributed to better adherence to treatment recommendations and earlier identification of mental health disorders. Psoriatic arthritis represents another factor complicating the course of psoriasis in this patient. According to previous studies, the global prevalence of psoriatic arthritis among patients with psoriasis is approximately 17.58% [22]. Psoriatic arthritis has also been described as potentially triggered by a deep Koebner phenomenon [23]. However, in the present case there is no evidence suggesting a direct causal relationship between the gunshot wound and the development of psoriatic arthritis. Instead, the progression of the disease is more likely related to the absence of structured management of the chronic condition and the patient's discontinuation of prescribed treatment, partly associated with harmful habits and ongoing exposure to chronic stress [24].

This situation may have led to the formation of a vicious cycle in which chronic stress—peaking at the time of the gunshot injury—acted as a trigger for the onset of psoriasis, while the severe course of the disease subsequently generated additional psychological stress. This, in turn, contributed to increased anxiety regarding the patient's health status in the context of continued military service. Currently, there is limited evidence regarding the effectiveness of mhGAP protocols in populations living under martial law and prolonged exposure to war-related stressors. These protocols remain one of the few practical tools available for primary care doctors to identify mental, neurological, and substance use disorders and initiate early management or referral. However, several challenges arise when applying these recommendations in wartime conditions.

The guidelines emphasize the importance of addressing current psychosocial stressors as a priority [10]. In the context of military service, however, potential stressors, their timing, and the duration of threats are unpredictable. Furthermore, under life-threatening circumstances, stress may also serve an adaptive function by mobilizing the organism and enabling rapid physical responses that may be life-saving [25–29]. In the present case, other mhGAP recommendations—including referral for specialized mental health care and cautious use of anxiolytics or antidepressants in primary care—were followed. This case illustrates the multifactorial nature of psoriasis onset in the context of physical trauma, chronic stress, and insufficient continuity of care.

CONCLUSIONS

This clinical case illustrates the potential role of severe physical trauma and chronic psycho-emotional stress as contributing factors in the onset and progression of psoriasis. In this patient, psoriasis developed shortly after a combat-related gunshot wound and rapidly progressed to severe generalized disease complicated by psoriatic arthritis. The case highlights the importance of a multidisciplinary approach that includes dermatological treatment, psychological assessment, and continuous primary care follow-up. Early identification of mental health disorders and improved adherence to therapy may contribute to better disease control and improved quality of life in patients exposed to prolonged stress.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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RECEIVED: 05.03.2026

ACCEPTED: 01.06.2026

