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Presentación de caso

Interaction between Severe Mental Illness and Autoimmune Pathology: Schizophrenia and Psoriatic Arthritis

Interacción entre enfermedad mental grave y patología autoinmune: esquizofrenia y artritis psoriásica

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Abstract

Introduction: A bidirectional association between schizophrenia and chronic inflammatory diseases such as arthritis and psoriasis is now recognized. These disorders share common pathophysiological mechanisms, including immune dysfunction, systemic pro-inflammatory activation and alterations in the neuroimmune axis. Schizophrenia has been linked to a chronic low-grade inflammatory state, while arthritis and psoriasis have a higher prevalence of psychiatric disorders, suggesting a complex interaction between inflammation, genetics, stress, and environmental factors, with relevant implications for a comprehensive clinical approach.

Case Report: A female patient who suffered from acute or recurrent psychiatric symptoms, accompanied by cognitive impairment, hand stiffness, and skin lesions in the auricular and periauricular regions, with hand radiographs showing marked radiological signs of chronic arthropathy.

Conclusión: This clinical case underscores the interconnection between chronic psychiatric illnesses and autoimmune/inflammatory disorders, highlighting the brain-skin-joint axis. The evolution of long-standing paranoid schizophrenia to psoriasis and psoriatic arthritis suggests that persistent systemic inflammatory activation and chronic stress act as immunological triggers. The importance of an interdisciplinary approach (psychiatry, dermatology, rheumatology) for the comprehensive management of this patient is emphasized.

Keywords: schizophrenia; psoriatic arthritis; comorbidity

Resumen

Introducción: En la actualidad se reconoce una asociación bidireccional entre esquizofrenia y enfermedades inflamatorias crónicas como la artritis y la psoriasis. Estos trastornos comparten mecanismos fisiopatológicos comunes, entre ellos la disfunción inmunológica, la activación proinflamatoria sistémica y alteraciones en el eje neuro inmunológico. La esquizofrenia se ha vinculado a un estado inflamatorio crónico de bajo grado, mientras que la artritis y la psoriasis presentan mayor prevalencia de trastornos psiquiátricos, lo que sugiere una interacción compleja entre inflamación, genética, estrés y factores ambientales, con implicaciones relevantes para el abordaje clínico integral.

Presentación del caso: Paciente femenina que presentó síntomas psiquiátricos agudos o recurrentes, acompañados de deterioro cognitivo, rigidez en las manos y lesiones en piel de regiones auricular y peri auricular, con radiografía de manos donde se evidencia marcados signos radiológicos de artropatía crónica.

Conclusión: Este caso clínico subraya la interconexión entre enfermedades psiquiátricas crónicas y trastornos autoinmunes/inflamatorios, destacando el eje cerebro-piel-articulaciones. La evolución de una esquizofrenia paranoide de larga data hacia psoriasis y

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artritis psoriásica sugiere que la activación inflamatoria sistémica persistente y el estrés crónico actúan como desencadenantes inmunológicos. Se destaca la importancia del manejo interdisciplinario (psiquiatría, dermatología, reumatología) para el abordaje integral de la paciente.
Palabras clave: esquizofrenia; artritis psoriásica; comorbilidad.

Introduction

Psoriasis arthritica (PsA) is a chronic inflammatory disease of immunological origin that affects both the skin and joints. Its pathophysiology is characterized by the activation of T cells and the release of proinflammatory cytokines such as interleukin (IL) 17, IL 23, and tumor necrosis factor alpha (TNF α), which generate a state of persistent systemic inflammation in affected patients. [1,2] This chronic inflammation is associated with metabolic and cardiovascular comorbidities, as well as psychiatric manifestations, including depression and anxiety, at a higher rate than in the general population. [3,4]

Schizophrenia is a complex neuropsychiatric disorder characterized by disturbances in thought processes, perception, and behavior. Its etiology is multifactorial and not yet fully elucidated, with emerging evidence linking systemic inflammation to its pathogenesis, suggesting the involvement of immunological mechanisms similar to those observed in chronic autoimmune diseases. Recent studies have identified shared pathways of T-cell activation and production of proinflammatory cytokines (such as TNF-α and IL-6), demonstrating a possible common biological basis between peripheral inflammatory processes and neuroimmunological dysfunction associated with psychotic disorders. [5]

Explicit comorbidity between psoriasis and schizophrenia is not widely described in the literature; however, recent genetic analyses point to possible causal relationships mediated by chronic inflammation and oxidative stress pathways, as well as alterations in the hypothalamic-pituitary-adrenal axis that could predispose to the coexistence of these pathologies. [6] Given the clinical and therapeutic impact that these two conditions can have together, it is relevant to analyze cases in which these entities coexist, in order to contribute to a better understanding of their interrelated mechanisms and possible integrated management approaches.

The mutual influence of coexisting psoriasis arthriticus (PsA) and schizophrenia may occur primarily through shared systemic inflammatory mechanisms. PsA is a chronic inflammatory disease mediated by cytokines, with evidence that persistent inflammation contributes to comorbidities beyond joint and skin involvement, including neuropsychiatric disorders. [7]

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In patients with schizophrenia, inflammation and proinflammatory cytokines such as IL-6 and TNF-α have also been described as playing a role in the pathophysiology of the disease and in modulating brain functions related to affect and perception. [8,9] Increased systemic inflammation from active PsA flares could exacerbate psychotic or emotional symptoms, while decompensation of schizophrenia (with increased stress and immune dysfunction) could exacerbate peripheral inflammation, promoting more severe PsA activity.

Furthermore, psychiatric treatments can have immunomodulatory and metabolic effects that influence the course of PsA. Both typical and atypical antipsychotics have been shown to alter cytokine production, decreasing some pro-inflammatory mediators such as IFN-γ and modulating other immune factors, which can lead to changes in the patient's inflammatory balance. [10] However, prolonged use of second-generation antipsychotics is also associated with metabolic alterations (such as weight gain and metabolic syndrome), which are related to chronic pro-inflammatory states that can worsen systemic inflammatory diseases such as PsA. [11] Therefore, comprehensive management should consider both the control of psychiatric symptoms and the systemic and metabolic effects of the drugs, in order to minimize the exacerbation of inflammatory comorbidities and improve the patient's overall outcome.

This case report was prepared following the 2013 CARE (Case REport) guidelines, [12] which establish standardized criteria for the presentation of individual clinical reports. These guidelines provide a structured framework that includes detailed information on patient history, clinical findings, interventions, clinical course and outcomes, as well as ethical considerations and informed consent. Using the CARE guidelines ensured that clinical information was documented completely, clearly, and reproducibly, facilitating transparency and the case's usefulness for clinical practice and research, while also ensuring compliance with international quality standards for case report communication.

Case report

A 59-year-old female patient with a history of paranoid schizophrenia (ICD-10 F20.0) presented with a clinical course that chronologically documented the subsequent onset of psoriasis and its progression to psoriatic arthritis. The psychiatric condition began in 2002 with hospitalization under a diagnosis of organic mental disorder (F06.8). Laboratory tests were within normal parameters, and partial improvement was observed upon discharge. Subsequent re-evaluations culminated in 2008 with the confirmation of paranoid schizophrenia. Regular follow-up was maintained between 2009 and 2020, during which episodic crises were treated with antipsychotics. In 2022, she experienced a severe psychotic decompensation characterized by aggression, disorganized behavior, global insomnia,

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affective lability, and suicidal ideation, requiring prolonged hospitalization. Additional studies ruled out cardiovascular involvement and epileptiform activity, and cognitive assessment showed mild impairment attributable to the chronicity of the disorder**.** Following stabilization and adequate therapeutic adherence, in 2023 erythematous-dequamative skin lesions appeared on the dorsal region (fig. 1 A-B-C), lower extremities, and scalp in a guttate pattern, confirming the dermatological diagnosis of psoriasis, initially guttate and later reclassified as unspecified. Topical treatment with periodic follow-up was initiated. During this period, concomitant systemic alterations began to be documented (anemia under investigation, episodes of leukopenia, and mild liver dysfunction), which were interpreted collectively as the expression of a chronic inflammatory state. Finally, in 2026, during a new hospitalization for psychiatric decompensation, the patient presented with marked asthenia and polyarthralgia.

Physical examination revealed active psoriatic lesions associated with peripheral inflammatory joint involvement with dactylitis and characteristic digital deformity (fig. 2), confirming the clinical diagnosis of psoriatic arthritis (CASPAR criteria, table 1) despite negative immunological studies. Disease-modifying therapy with methotrexate and interdisciplinary follow-up were initiated. The temporal sequence (long-standing schizophrenia, subsequent onset of psoriasis, and progression to psoriatic arthritis) supports the hypothesis of an interaction between severe mental illness, persistent inflammatory activation, and systemic immune dysfunction, demonstrating the brain-skin-musculoskeletal axis as an integrating mechanism in this clinical case.



Fig. 1A. Hands with swan-neck–type deformities in multiple fingers, suggestive of chronic inflammatory arthropathy.



Fig. 1B. Well-demarcated erythematous scaly plaques with whitish, micaceous scales, consistent with plaque psoriasis.



Fig. 1C. Erythematous scaly plaques and adherent scaling.

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Fig. 2. Anteroposterior view radiograph of hands showing signs of erosion, osteolysis and pencil-in-cup deformities in interphalangeal joints, consistent with advanced psoriatic arthritis

Table 1. Results of the application of the CASPAR criteria [13]

Evidence of psoriasis: (one of a,b,c)	Current psoriasis: Psoriatic skin or scalp disease present today as judged by a rheumatologist or dermatologist (2 Points)
Psoriatic nail dystrophy	Typical psoriatic nail dystrophy including onycholysis, pitting and hyperkeratosis observed on current physical examination (0 Points)
A negative rheumatoid factor	By any method except latex but preferably by ELISA or nephelometry, according to the local laboratory reference range (1 Point)
Dactylitis (a or b)	0 Points
Radiological evidence of juxta-articular new bone formation (Fig. 2)	1 Point

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Discussion

Patients with autoimmune diseases, including rheumatoid arthritis (RA), psoriatic arthritis (PsA), and psoriasis, have a high burden of psychiatric comorbidity, particularly anxiety and depression, reflecting the complex interplay between chronic inflammation, psychological stress, and mental health. Recent meta-analyses indicate that the lifetime prevalence of depressive disorders in patients with RA can reach up to 32.4 %, while anxiety affects 22.2 % of these patients. [14] Specific subtypes such as major depressive disorder (MDD) and generalized anxiety disorder (GAD) show higher prevalence than other, suggesting the need to prioritize these diagnoses in clinical evaluation and systematic screening.

In patients with psoriasis, the psychological impact is equally significant. Data from a Spanish study of 746 patients show that the disease directly affects mood (87.1 %), self-esteem (74.9 %), and social life (52.1 %), and is associated with anxiety, sadness, stress, and sleep disturbances in more than 70 % of cases. [15] Furthermore, most patients feel they do not receive adequate information or resources to manage their emotional distress. These findings reflect the insufficient integration of mental health into clinical psoriasis care, which could limit treatment adherence and overall prognosis.

PsA represents a critical intermediate point between psoriasis and RA, as it combines skin and joint involvement. The presence of chronic stress and inflammatory symptoms activates the hypothalamic-pituitary-adrenal (HPA) axis, modulating the immune response and exacerbating systemic inflammation, resulting in greater disease severity and more intense psychological symptoms. [16] This bidirectional cycle between inflammation and psychological distress is reinforced by psychosocial factors, such as stigmatization, functional limitations, and concerns about appearance, which can worsen depression and anxiety and perpetuate the decline in quality of life.

Psychiatric disorders in autoimmune diseases have also been linked to deeper neuroimmunological alterations. Evidence from Danish population studies indicates that the presence of autoimmune diseases and hospitalizations for severe infections significantly increases the risk of schizophrenia and mood disorders, suggesting a synergistic effect between immune activation, inflammation, and environmental exposure. [17,18]

The relationship between autoantibodies and neuropsychiatric symptoms, also observed in long COVID, supports the hypothesis that autoimmunity may directly contribute to psychiatric manifestations, especially invulnerable subgroups. [19,20] The clinical findings of this case report reinforce the importance of early detection of psychiatric symptoms in patients with autoimmune diseases. Anxiety and depression not only affect emotional well-

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being but are also associated with reduced self-care, decreased treatment adherence, and a poorer disease prognosis. [21,22] In this context, the recognition of autoimmune psychosis, characterized by isolated psychiatric symptoms and a partial response to conventional treatments, highlights the need for a multidisciplinary approach that combines immunomodulation, psychiatric pharmacological therapy, and continuous follow-up, since early intervention with steroids can prevent recurrences and improve clinical outcomes. [23]

Additionally, sociodemographic and disease-related factors, such as sex, age, educational level, disease severity, and duration of diagnosis, influence vulnerability to anxiety and depression. [24] This underscores the need for personalized mental health prevention and management strategies, including patient education, psychosocial support programs, and a comprehensive approach to physical and psychological symptoms. Available evidence suggests that integrating quality of life and mental health assessments into clinical practice is crucial for improving prognosis and treatment adherence in patients with autoimmune diseases.

Conclusion

The interconnection between chronic psychiatric illnesses and autoimmune/inflammatory disorders demonstrates the shared involvement of the brain-skin-joint axis. The evolution of long-standing psychoses with comorbidities such as psoriasis and psoriatic arthritis suggests that persistent systemic inflammatory activation and chronic stress act as immunological triggers.

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Conflicts of interest

The authors declare that there are no conflicts of interest related to the research presented.

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Data Availability Statement

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The anonymized data supporting the findings of this study are available from the corresponding author upon reasonable request.

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