

# Guselkumab for the treatment of severe plaque psoriasis in a schizophrenia patient

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## Abstract

A wide range of comorbid conditions are associated with psoriasis, many studies have drawn attention to a higher prevalence of psychiatric comorbidities in psoriatic population. Herein, we present a case of a Caucasian 44-years-old man suffering from a severe schizophrenia, who received guselkumab (a human monoclonal antibody targeting the p40 subunit of IL-23) for the treatment of a moderate-to-severe plaque type psoriasis. After 3 months, the patient reached complete resolution of psoriasis without any side effects, maintained at 6 months follow up visit. Some studies have highlighted the hypothesis that an hyperactivation of immune response appears to be one of the main mechanisms underlying the increased risk of this association. In particular, the axis il-17/il-23 plays a central role in the pathogenesis of this disease. Further research will be needed to assess whether anti-IL23 drugs could be a more suitable therapeutic option in psoriatic patients with schizophrenia.

## Introduction

Psoriasis is an immune-mediated disorder, affects approximately 2-3% of general population.<sup>1</sup> Angiogenesis plays a key role in the pathogenesis of psoriasis and the formation of new blood vessels is an early event in the development of psoriatic plaque and recurrences.<sup>2</sup>

A wide range of comorbid conditions are associated with psoriasis, in particular cardiovascular disease, metabolic syndrome, and hypertension. Moreover, many studies have drawn attention to a higher

prevalence of psychiatric comorbidities in psoriatic population.<sup>3</sup>

## Case report

Herein, we report the case of a 44-years-old male suffering from a severe form of psoriasis since the age of 15. He had a long history of chronic severe schizophrenia. At the time of the evaluation, his self-care was very scarce, and he was experiencing the worsening of pre-existing psychotic symptoms. The clinical exam revealed a moderate-to-severe flare of plaque type psoriasis coinciding with an exacerbation of his psychiatric pathology. Sharply demarcated erythematous plaques covered by silvery lamellar scales were localized on legs, arms and trunk configuring a flare of plaque type psoriasis with psoriasis area severity index (PASI) of 36 (Figure 1a).

In agreement with the psychiatrists, guselkumab, a human monoclonal antibody targeting the p40 subunit of IL-23, was started at dosage of 100 mg subcutaneously initially, after 4 weeks, and then every 8 weeks. After 1 month of treatment an improvement was observed with a PASI decrease from a score of 36 to 7. After 3 months, the patient reached complete resolution of psoriasis without any side effects (Figure 1b), maintained at 6 months follow up visit.

## Discussion

Schizophrenia is a chronic and high disabling mental disorder, defined by the presence of psychotic symptoms, which include both positive and negative symptoms.<sup>4</sup> The pathogenesis is not completely understood and is commonly considered multifactorial.<sup>5</sup> Amongst supposed mechanism underlying schizophrenia, the role of the immune system has recently been suggested.<sup>6</sup>

We present the case of a patient with a coexisting diagnosis of psoriasis and schizophrenia. To our knowledge, there are only few case reports dealing this association. Miyaoka et al. have described three cases of patients in whom exacerbated symptoms of psoriasis coincided with the emergence of schizophrenia. A recent meta-analysis showed a 1.83-fold increased risk of psoriasis among patients with schizophrenia compared with subjects without schizophrenia. Similarly, another meta-analysis indicated that the risk of developing psoriasis in schizophrenic patients is 41% higher than in health subjects.<sup>7</sup>

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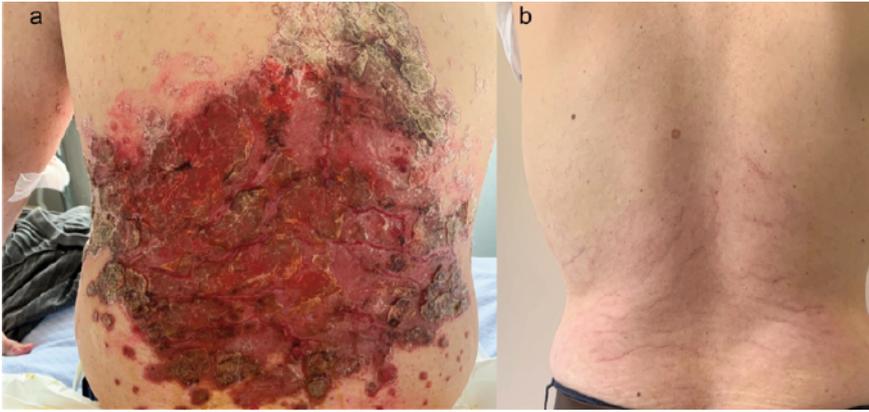
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An hyperactivation of immune response appears to be one of the main mechanisms underlying this increased risk. In particular, the axis il-17/il-23 plays a central role in the pathogenesis of psoriasis and representing an important therapeutic target.<sup>8</sup> More recently some studies have also highlighted the hypothesis that immune system and inflammation may have a role in psychotic spectrum disorders and schizophrenia.<sup>9</sup> Furthermore, the role of pro-inflammatory cytokines and Th17 signaling pathway in the pathogenesis of schizophrenia has also been suggested. According to some evidence, Dopamine stimulates the secretion of



**Figure 1. a) Psoriasis presentation before the first administration of guselkumab 100 mg (PASI 36); b) Achievement of PASI 0 after 3 months of therapy with guselkumab 100 mg.**

IL-17 in some psychiatric pathologies, such as in psychotic disease. The dopamine (DA) hypothesis is classically considered to explain psychotic symptoms in schizophrenia, with positive symptoms suggested being linked to the high dopamine levels in the striatum, and negative symptoms associated with the reduced dopamine function in both prefrontal cortex and meso-cortical pathway.

Therefore, dopaminergic inhibitors represent the milestone in the treatment of disease. The presence of this common immunological substrate might be possible that biologic agents targeting on immune molecules may provide new therapeutic alternatives for schizophrenia.

Interestingly, a common genetic susceptibility has been assumed between psoriasis and schizophrenia. In correspondence of chromosome 6 there are regions of major susceptibility both for psoriasis and for schizophrenia, on 6p21.3 and 6p22.1, respectively.<sup>10</sup>

## Conclusions

Increased serum levels of IL23, which underlies the pathogenetic mechanism of schizophrenia, could support the use of IL23-inhibiting drugs. However, further research will be needed to assess whether anti-IL23 drugs could be a therapeutic option in patients with a psychiatric comorbidity such as schizophrenia.

In conclusion, guselkumab, was effective and safe in the treatment of psoriasis in a schizophrenic patient.

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