

# Pathergy-like reaction induced by laser hair removal in a patient with Behçet disease

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## SUMMARY

Behçet disease (BD) is a rare systemic vasculitis of unknown etiology, primarily characterized by recurrent oral aphthous ulcers, genital ulcers, uveitis, and skin lesions. Pathergy test positivity is a nonspecific inflammatory response of the skin to trauma and supports the diagnosis. Recently, new inducers of pathergy reactions have been identified, for example, the placement of dental braces and laser hair removal. Our clinical case highlights the importance of thinking about this potential pathergy inducer in BD patients, to improve their quality of life and avoid complications.

**Key words:** Behçet disease, laser hair removal, pathergy reaction.

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## INTRODUCTION

Behçet disease (BD) is a rare systemic vasculitis of unknown etiology, mainly characterized by recurrent oral aphthous ulcers, genital ulcers, uveitis, and skin lesions. Pathergy test positivity is a nonspecific inflammatory response of the skin to trauma and supports the diagnosis (1). Recently, new inducers of pathergy reactions (PR) have been described, such as the placement of dental braces and laser hair removal (2).

## CASE REPORT

This is the case of a 25-year-old male patient diagnosed with BD in 2014. He presented with *HLA-B51* positivity, familiar history of BD, mucocutaneous (recurrent oral and genital ulcers, pseudofolliculitis lesions, positive pathergy test) and ocular (recurrent uveitis) involvement. He was on azathioprine 50 mg/day and colchicine 0.5 mg/day with symptomatic control and was kept on regular follow-ups at our Rheumatology Department. In April 2022, he reported the appearance of new skin lesions on his thighs and trunk. Symptom onset occurred 3 days after the first laser treatment

for hair removal in the mentioned regions. On physical examination, painless pustules were present on the anterior trunk, dorsal region, and thighs (Figure 1). There were no other remarkable findings during the general physical examination. Laboratory tests showed a mildly elevated C reactive protein level (5.8 mg/L, reference <3.0 mg/L). The azathioprine dose was increased to 75 mg/day and that of colchicine to 1 mg/day. After one month, the patient showed a clear improvement in the skin lesions.

## DISCUSSION

PR is defined as a tissue inflammatory response to minor trauma and represents a typical BD finding. The exact mechanisms underlying the pathergy phenomenon remain unknown. Keratinocyte damage induced by trauma and/or presence of an undefined microbial antigen, apparently triggers the activation of intracellular signaling pathways, releasing pro-inflammatory cytokines (interleukin-6, tumor necrosis factor- $\alpha$  and interleukin-1 $\beta$ ) and leading to T helper type 1 responses. Keratinocytes also release chemokines, which attract neutrophils, mature dendritic cells and activated T-lymphocytes to the dermis causing collections of poly-

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**Figure 1** - Pustules in the dorsal region, anterior trunk, and thighs.

morphonuclear cells that are identified in histopathological examination. This reaction is not limited to the skin and a similar hyperreactivity response can be observed following mechanical or surgical trauma in various organs and tissues. Uveitis developing after ophthalmic surgery, transverse myelitis after lumbar steroid injection and aneurysms after vascular intervention in BD patients have all been associated with the pathergy phenomenon (3-5).

### ■ CONCLUSIONS

To the best of our knowledge, only one case of a pathergy-like reaction due to laser hair removal has been published. Our clinical case emphasizes the importance of thinking about this potential pathergy inducer in BD patients, in order to improve their quality of life and avoid complications.

### Contributions

All authors contributed equally.

### Conflict of interest

The authors declare no potential conflict of interest.

### Patient consent for publication

Patient consent to share this case for scientific purposes was obtained.

### Availability of data and materials

Data and materials are available from the corresponding author upon request.

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