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A case of Atopic dermatitis and Hidradenitis Suppurativa successfully treated with Dupilumab

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Letter to Editor

Dear Editor,

We report the case of a 50-year-old man affected by a moderate form of atopic dermatitis and hidradenitis suppurativa (HS) (Fig. 1a-1b). Previously, he received a diagnosis of hand psoriasis associated with a moderate form of hidradenitis suppurativa and he was treated with the anti- TNF-alfa antibody adalimumab, at the dosage for hidradenitis suppurativa . After 6 months of treatment, he obtained only minor response and he decided to ask for a second opinion at our Dermatology Unit. At the clinical examination, the patient presented with severely itchy erythematous papules, excoriations and lichenification on the face, trunk, and extremities. The hands showed lichenification, skin thickening and hyperkeratotic plaques. The patch testing results were negative. A biopsy was performed from a lesion located on the hand and the histological report showed features indicative of eczema (spongiosis, exocytosis and parakeratosis). The EASI score (Eczema Area and Severity Index), the DLQI score and the NRS were respectively equal to 20, 16 and 10, thus in line with a moderate form of atopic dermatitis. In particular, the patient referred that the hand eczema heavily affected his working ability and, consequently, his quality of life.

The diagnosis of hidradenitis suppurativa was supported by the presence

of nodules and abscesses, separated by normal looking skin, interesting the groin and the inguinal fold. According to the Hurley classification that traditionally defines the disease severity, our patient was classified as a stage II (several recurrent abscesses with scarring formation, separated by normal looking skin). At the baseline examination, the abscess and inflammatory nodule count (AN count) was equal to 16 lesions. The patient referred that abscesses were presented for 5 years and were associated with moderate discomfort. Because the main problem for the patient was represented by the eczema, in particular on the hand, we decided to treat him with dupilumab, a monoclonal antibody against IL-4, with a dosage of 600 mg, followed by maintenance dose of 300 mg every 2 weeks (1).

After 4 months of treatment, the eczematous lesions of the hand and also the hidradenitis suppurativa improved (Fig. 2a-2b). In particular, the number of HS lesions was reduced from 16 to 6, and the Hidradenitis Suppurativa Clinical Response (HiSCR) was achieved. The latter is a recently developed score defined as $\geq 50\%$ reduction in inflammatory lesion count and no increase in abscesses or draining fistulas when compared with baseline examination.

In the literature, there are no other described cases of association between atopic dermatitis and hidradenitis suppurativa, both of them successfully treated with dupilumab. Hidradenitis suppurativa is an heterogeneous disease of uncertain etio-pathogenesis, although several studies demonstrated elevated levels of pro-inflammatory cytokines (TNF- α , IL-

1B, IL-17) in the HS lesions (2). In contrast, IL-13 and IL-4, TH2-associated cytokines, which represent the target of dupilumab, are undetectable on lesional biopsy samples from untreated patients with HS (3).

A possible correlation between atopic dermatitis and HS could be explained by a recent study that showed that the sphingolipid metabolism is altered in both diseases (4). HS lesional skin samples have significantly decreased expression of enzymes generating ceramide and sphingomyelin, increased expression of enzymes catabolizing ceramide to sphingosine, and increased expression of enzymes converting ceramide to galactosylceramide and gangliosides (4). Probably, decreasing ceramide and sphingomyelin levels disrupt the cutaneous barrier with consequent activation of the inflammatory cascade and the release of cytokines and growth factors, such as tumor necrosis factor- α . Our case suggests the hypothesis that HS is an heterogeneous disease particularly when associated with other skin diseases, such as psoriasis and atopic dermatitis.

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References

1. Awosika O, Kim L, Mazhar M, Rengifo-Pardo M, Ehrlich A. Profile of dupilumab and its potential in the treatment of inadequately controlled

moderate-to-severe atopic dermatitis. Clin Cosmet Investig Dermatol. 2018; 11:41-49.

2. Negus D, Ahn C, Huang W. An update on the pathogenesis of HS: implications for therapy. J Am Acad Dermatol. 2017; 77:268-273.
3. Thomi R, Cazzaniga S, Seyed Jafari SM, Schlapbach C, Hunger RE. Association of Hidradenitis Suppurativa With T Helper 1/T Helper 17 Phenotypes: A Semantic Map Analysis. JAMA Dermatol. 2018; 154: 592-595.
4. Dany M, Elston D. Gene expression of sphingolipid metabolism pathways is altered in HS. J Am Acad Dermatol. 2017; 77: 268-273.

Figure legend:

figure 1: a) Clinical image of nodules and abscesses interesting the abdomen and the inguinal fold, before starting treatment with Dupilumab . b) Clinical images of hand eczema before starting treatment with Dupilumab

figure 2: a) Clinical image of hidradenitis suppurative interesting the abdomen and the inguinal fold, after 4 months of treatment with Dupilumab b) Clinical images of hand eczema after 4 months of treatment with Dupilumab



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