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LETTER

Successfully and safety use of dupilumab in the management of severe atopic dermatitis and concomitant moderate-to-severe hidradenitis suppurativa

Dear Editor,

Atopic dermatitis (AD) is a chronic immune-mediated inflammatory skin disorder presenting with eczematous recurrent lesions and severe pruritus and associating with significant morbidity and poor quality of life. Treatment options include oral corticosteroids, cyclosporine, phototherapy, janus kinase inhibitor (upadacitinib), and dupilumab, which is the only biologic EMA approved for moderate to severe AD.[1]

Hidradenitis suppurativa (HS) is a debilitating chronic cutaneous disease, characterized by painful nodules, abscess, and sinus tracts distributed in the intertriginous areas. Medical approaches are

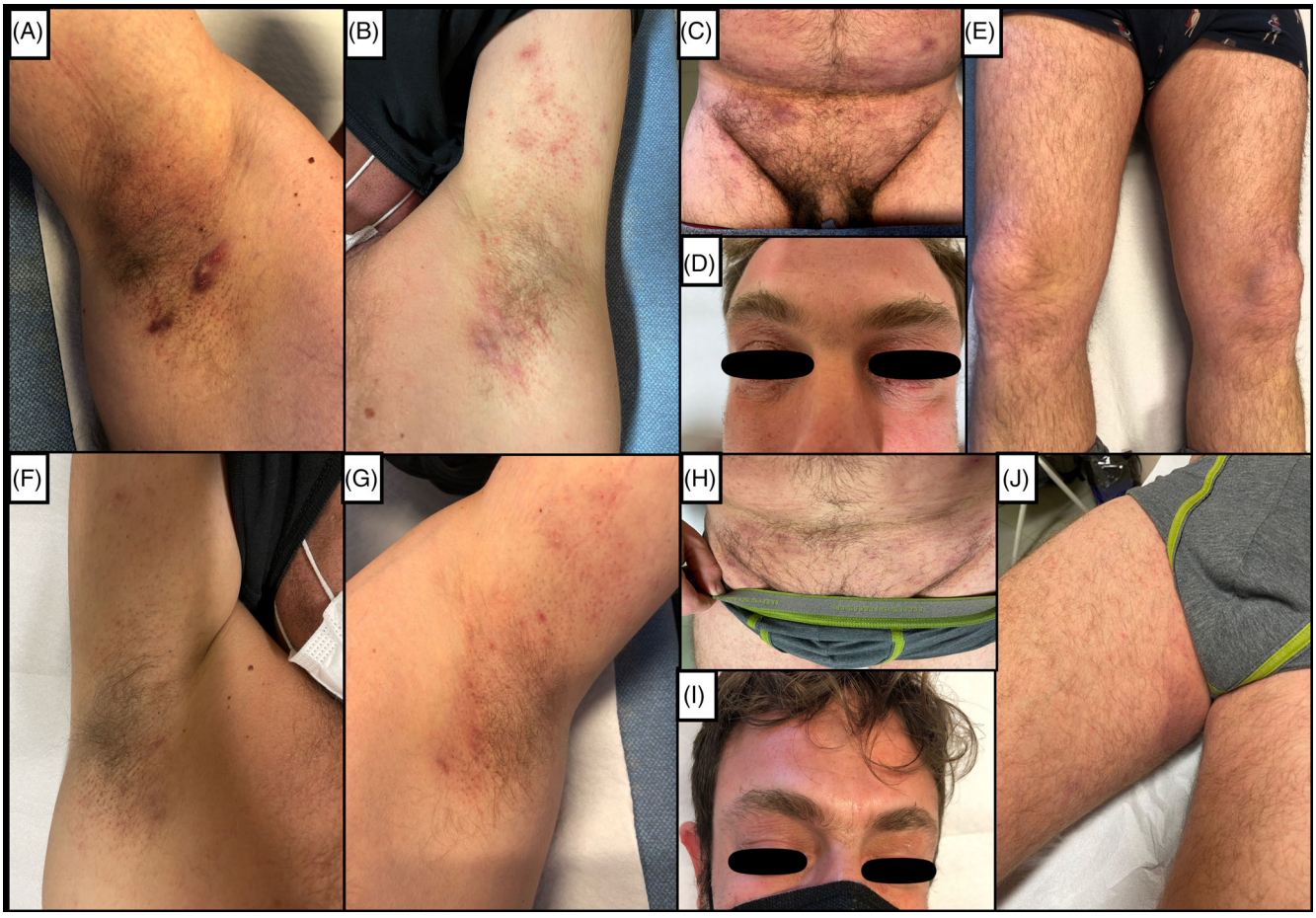

FIGURE 1 (A and B) HS involving the groin and the inguinal fold, before starting treatment with dupilumab. (C–E) Clinical images of atopic eczema before starting treatment with dupilumab. (F and G) HS in clinical remission after 6 months of dupilumab therapy. (H–J) Atopic eczema after 6 months of dupilumab therapy

heterogeneous and include topical and oral antibiotics, retinoids, dapsone, oral zinc, contraceptive agents, and immunomodulators. Adalimumab is the only EMA-approved biologic drug for moderate-to-severe HS.[2,3]

In July 2021, a 43-year-old man presented with a history of AD since early childhood, treated with topical steroidal ointments, topical tacrolimus, and oral steroids with partial clinical benefit. At time of presentation, he had widespread erythematous patches on the flexor areas of both arms, legs, chest, and back with associated severe systemic pruritus; extensive facial erythema and desquamation were also observed (EASI: 30, VAS pruritus: 10, DLQI: 25). Concomitantly, the patient reported frequent inflammatory exacerbations (every 2–3 weeks) of nodules and abscess located on the groins and axillae bilaterally treated in the last 2 years with topical and systemic antibiotics (amoxicillin) without benefit. According to European Hidradenitis Suppurativa guidelines, a diagnosis of HS was formulated by clinical and ultrasonographic evaluation (Hurley score: II; IHS4: 8; Pain VAS 6).[4] The patient started oral cyclosporine (100 mg, twice a day) for AD and oral lymecycline 300 mg/daily for HS. However, after 8 weeks, AD was insufficiently controlled with an EASI score of 26 and HS lesions worsened. The patient stopped oral cyclosporine and lymecycline and received dupilumab injections at a loading dose of 600 mg subcutaneously on the first day of treatment, followed maintenance dose of 300 mg every other week. After 6 months of therapy EASI score was 5.4, VAS pruritus 1, and DLQI 3. No acute flare of HS was reported for the next 6 months. No adverse events were registered.

HS and AD are both chronic inflammatory skin diseases with a relapsing course. Kaakati et al.[5] in a large retrospective cohort study, have recently postulated an association between these two conditions with relevant implications in the pathogenesis, disease course, and treatment. The authors concluded that patients with a diagnosis of AD have an approximately 5.57-fold increased OR of having HS as compared with those who do not have AD. This relationship is highly significant and suggests a potential unique pathophysiologic link that may be related to similar notch signaling dysregulation, epidermal barrier defect and antimicrobial peptide (AMP) dysfunction; it may also reflect a common genetic susceptibility shared between AD and HS (Figure 1A–J).[5–8]

Gambardella et al.[9] have already reported the successful use of dupilumab in a patient with AD and concomitant HS for 4 months. The authors explained the efficacy of dupilumab both in HS and AD through the alteration of sphingolipid metabolism observed in both conditions as a possible correlation between AD and HS.

Our case confirmed the safety of 6 months dupilumab therapy in HS patient with no HS and AD exacerbation during treatment. Multiple immunological pathways are implicated in HS progression and undoubtedly treatment may need to target more than one pathway. However, how blocking IL-4 and IL-13 signaling, which play an important role in the T helper cell 2 (Th2)-mediated inflammatory reaction, could have a positive impact in HS, which is mainly a Th1/Th17-mediated inflammatory disease, remains unknown. Flares represent a unique aspect of long-term control of AD and HS; deepening our knowledge on the role of these cytokines in HS and AD could be highly relevant to better manage both conditions.

AUTHOR CONTRIBUTIONS

Elisa Molinelli: Conceptualization; methodology. **Claudia Sapigni**: Writing – original draft. **Oriana Simonetti**: Writing – review & editing. **Giulia Radi**: Writing – original draft. **Daisy Gambini**: Investigation. **Andrea Maurizi**: Investigation. **Giulio Rizzetto**: Resources. **Giovanni Marco D'Agostino**: Visualization. **Annamaria Offidani**: Supervision.

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CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

DATA AVAILABILITY STATEMENT

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

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