CASE REPORT

A Case of Widespread Keratosis Pilaris-like eruption Associated with Nilotinib Used for Chronic Myelogenous Leukemia

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INTRODUCTION

Nilotinib is a second-generation tyrosine kinase inhibitor used for the treatment of Philadelphia chromosome-positive chronic myeloid leukemia (CML) [1]. It results in quick and efficacious response, especially when used in patients with CML [2]. Just like other chemotherapeutic agents, nilotinib is reported to be associated with various cutaneous side effects including pruritus, xerosis, rash, alopecia and eyebrow thinning [3,4]. Herein, we would like to report a case of widespread keratosis pilaris observed in a patient receiving nilotinib for CML.

CASE PRESENTATION

A 27-year old man receiving treatment for CML was admitted to our clinic, due to the emergence of widespread, pinpoint, follicular papules involving the trunk and extremities. He was diagnosed with BCR-ABL1 positive CML in 2018 and he was taking oral 300 mg nilotinib twice a day for 1 year. The patient was not under any other treatment and there was no familial or personal history of atopy. The papules appeared in an eruptive manner within the first 3 months of nilotinib therapy. Dermatological examination showed erythematous, brownish follicular, pinpoint papules on a slightly hyperpigmented background involving the chest and upper extremities (Figure 1). No other side effects related to the eyebrows, scalp hair and hair belonging to the other body parts were detected. The lesions were clinically compatible with keratosis pilaris, therefore the patient is diagnosed with keratosis pilaris like eruption secondary to nilotinib. He was reassured of the benign nature of the lesions and started on 10% urea ointment thrice daily. The itch and xerosis
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associated with keratosis pilaris were relieved by the application of 10% urea ointment within two months without side effects. Since keratosis pilaris developing in the setting of nilotinib use, tends to have a benign clinical course and the patient was relieved by the topical treatment, nilotinib was continued.

DISCUSSION

Various chemotherapeutic agents have been associated with cutaneous side effects. In a review by Amitay-Laish et al. [4], it is emphasized that tyrosine kinase inhibitors imatinib, dasatinib and nilotinib are commonly associated with various cutaneous side effects including maculopapular rash, hypo/hyperpigmentation, lichenoid reactions, urticaria, alopecia, pruritus and dry skin. Keratosis pilaris is a common cutaneous disorder characterized by brown/black folliculocentric, pinpoint papules most commonly observed on the lateral aspects of the upper and lower extremities [5]. The possible differential diagnoses of keratosis pilaris, are lichen spinulosus, lichen nitidus, folliculitis and Darier disease [6]. Keratosis pilaris is associated with xerosis, atopic dermatitis and ichthyosis vulgaris. In our patient, there was no prior history of any skin disease; and lesions compatible with keratosis pilaris had showed up three months after the initiation of nilotinib treatment. Similar to our patient, Leong et al. [7] reported a case of nilotinib-induced keratosis pilaris in patient with CML. Distinctively, in the aforementioned case, keratosis pilaris had manifested 3 days after the initiation of nilotinib treatment which is quite a short time interval compared to our case (three months). In another letter by Shimizu et al. [8] multiple keratotic papules appeared on the trunk and extremities of a CML patient six months after the start of

Figure 1. Black/erythematous, folliculocentric papules on a slightly hyperpigmented skin are present on the back (a) and the lateral upper arms (b)
nilotinib. Although the exact mechanism is not fully
determined, C-kit, which is targeted by tyrosine
kinase inhibitors, is also shown to be expressed not
only in tumor cells but also in basal layers of the skin
and melanocytes [9]. So, interfering with c-kit might
have resulted in the emergence of the associated
cutaneous adverse events. Since keratosis pilaris
associated with nilotinib use is self-limited and
tends to follow a benign course, symptomatic
treatment with emollients and keratolytic agents
is enough, interruption of nilotinib is usually not
necessary.

CONCLUSION

In conclusion, by reporting a case of nilotinib-
induced keratosis pilaris, we wanted to raise
awareness of the cutaneous side effects of tyrosine
kinase inhibitors. Proper management of keratosis
pilaris with keratolytic agents and humectants
must be initiated promptly to increase compliance
to the treatment.

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