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CASE REPORT

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

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ABSTRACT

Keratosis pilaris is a skin disorder which is characterized by follicular hyperkeratosis. It is most commonly seen in patients with atopic dermatitis and ichthyosis vulgaris. Abnormal keratinization of the hair follicle leads to plugging and bumpy, rough appearance. Upper extensor arms, thighs, buttocks and cheeks are most commonly affected by the disease. Even though keratosis pilaris is associated with autosomal dominant inheritance; it may also be seen as a side effect of various targeted cancer therapies including BRAF and tyrosine kinase inhibitors. Herein, we would like to present a case of keratosis pilaris that had developed secondary to nilotinib treatment.

Keywords: Keratosis pilaris, nilotinib, tyrosine kinase inhibitors.

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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 takingoral 300 mg nilotinib twice a day for 1 year. The patient was not underany 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

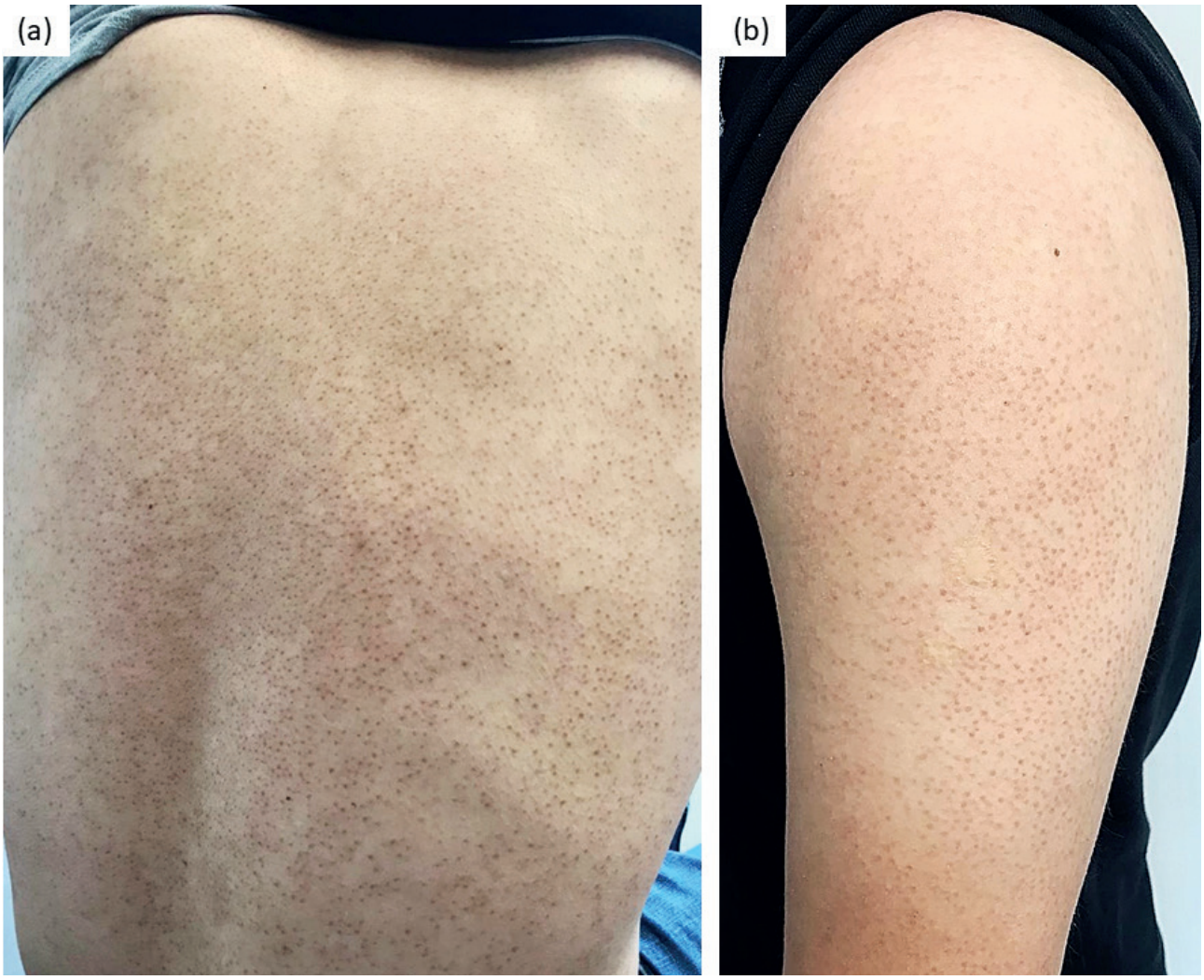

Figure 1. Black/erythematous, folliculocentric papules on a slightly hyperpigmented skin are present on the back (a) and the lateral upper arms (b)

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

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.

Author contribution

Study conception and design: EB, AJ and SEE; data collection: AJ and EB; analysis and interpretation of results: AJ and EB; draft manuscript preparation: AJ, EB and SEE. All authors reviewed the results and approved the final version of the manuscript.

Ethical approval

Informed consent for publication of medical images was taken from the patient.

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Conflict of interest

The authors declare that there is no conflict of interest.

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