Our Dermatology Online

Case Report

Drug-induced lupus induced by osimertinib (Tagrisso): A case report

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ABSTRACT

Osimertinib is an irreversible epidermal growth factor receptor tyrosine kinase inhibitor (EGFR-TKI) used to treat patients with locally advanced or disseminated non-small cell lung cancer (NSCLC) with a T790M mutation in the gene encoding EGFR present. Among the most common complications of using this drug are various dermatological complications. In the following paper, we present the case of a 75-year-old woman treated with osimertinib for disseminated non-small cell lung cancer, who developed a rare skin complication of the applied treatment in the form of drug-induced lupus. After the discontinuation of anticancer treatment and the administration of systemic and topical corticosteroids, the withdrawal of skin lesions and subjective symptoms was observed. Correct diagnosis and appropriate therapeutic management allowed the resumption of optimal anticancer treatment in the following weeks, while eliminating the patient's bothersome skin lesions and associated complaints.

Key words: Osimertinib, Drug-induced lupus, Lung cancer

INTRODUCTION

Drug-induced lupus (DIL) is defined as a condition characterized by clinical symptoms, serum antinuclear antibodies, and other abnormalities in laboratory tests similar to those of idiopathic systemic lupus erythematosus (SLE), yet temporally associated with long-term intake of various drugs [1]. The associated prognosis of the disease is good, with symptoms usually resolving within several weeks after the discontinuation of the causative drug [2]. Glucocorticosteroids are used for treatment, especially when symptoms are severe, such as the symptomatic presence of pericardial fluid (in the case described here, pericardial tamponade occurred) [3]. EGFR inhibitors, unlike traditional chemotherapy, do not affect most dividing cells; they primarily act on pathways crucial for tumor growth and survival [4]. Numerous studies have shown that the use of first- and second-generation EGFR-TKIs in the treatment of patients with locally advanced or disseminated non-small cell lung cancer with a mutation in the gene encoding EGFR present prolonged the time before tumor progression and reduced the number of side effects compared to patients receiving standard chemotherapy [5]. However, therapy with EGFR-TKIs is associated with side effects especially often related to the skin, the most common of which include acne-like rash and paronychia [6]. The mechanism of the aforementioned side effects is related to the effect of EGFRI on basal keranocytes. It leads to the inhibition of their growth and increased apoptosis, reducing cell migration and increasing their differentiation, as well as stimulating the development of a local inflammatory response [7]. Osimertinib, which is a third-generation EGFR-TKI, shows longer survival times among patients compared to older-generation drugs and has a similar safety profile [8]. In addition, the use of osimertinib is associated with a statistically significant lower risk of serious side effects in comparison with older-generation drugs [9]. The risk of grade 3 or 4 rash with

How to cite this article: Sułkowski K, Bigdoń A, Worobiej D, Podolak M. Drug-induced lupus induced by osimertinib (Tagrisso): A case report. Our Dermatol Online. 2025;16(1):87-89.

Submission: 23.07.2024; **Acceptance:** 12.11.2024
DOI: 10.7241/ourd.20251.18

osimertinib is about 1% [10], compared to 2–16% with first- and second-generation EGFR-TKIs [11]. The described case of drug-induced lupus is rare. In the available literature, we found only one description of its occurrence associated with the use of osimertinib [12].

CASE REPORT

A 75-year-old woman treated with osimertinib for non-small cell lung cancer at the disseminated stage and with chronic hypertension was referred to the department by her primary care physician because of increasing dyspnea and lower limb edema that had been present for two weeks. Prior to the onset of symptoms causing hospitalization, the patient was in good general condition (ECOG 1). She had a history of a rash on the lower limbs in August 2023, which resolved after the dose of antineoplastic drug was reduced by half. On admission, the patient was in average general condition, reporting slight dyspnea and the presence of itchy lesions on the skin of the back, chest, and arms (Figs. 1a and 1b). On physical examination, the patient's abnormalities included a papular rash on the skin of the back, chest, and arms, a decrease in saturation to 92% without supplemental oxygen, muffled heart sounds, and moderate lower limb edema extending to the knees. Chest CT showed the presence of a significant amount of fluid in the right pleural cavity and the pericardial sac. Therapeutic thoracocentesis and pericardiocentesis were performed, and treatment for exacerbation of heart failure was administered, resolving dyspnea. A biopsy of skin lesions was performed, which revealed drug-induced lupus (SCLE-DI). Osimertinib was discontinued and systemic treatment with 10 mg of prednisone and topical treatment with mometasone-containing steroid ointment was administered. The disappearance of skin lesions and associated subjective symptoms was observed (Fig. 2), accompanied by an improvement in the patient's mood and quality of life. The patient was referred to the oncology outpatient clinic for the modification of oncological treatment. In view of the disappearance of skin symptoms, the administration of the drug was resumed at a reduced dose.

DISCUSSION

Skin complications are among the common side effects occurring in patients undergoing EGFR-TKI treatment. Usually, especially with newer-generation drugs, they take the form of benign lesions. The

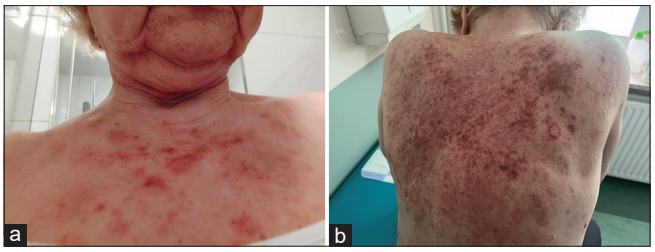

Figure 1: (a) Lupus-like lesions on the anterior surface of the chest. (b) Diffused skin lesions of the lower limbs.

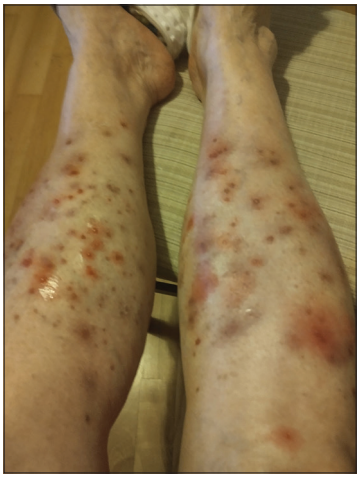

Figure 2: Healing skin lesions on the surface of the back as a result of the applied treatment.

interruption of oncological treatment, which has a higher efficacy and better safety profile than conventional chemotherapy, is then not required [13]. It is clinically important to recognize grade 3 or 4 side effects, as these require the discontinuation of the drug for up to three weeks with the resumption of treatment if symptoms resolve within this time. In the case described here, the preferred regimen was applied. This allowed the patient to continue optimal cancer therapy, while the patient's troublesome side effects subsided, which in turn significantly increased her comfort of life. An important role in the optimal management of skin lesions developed in the course of osimertinib treatment proved to be the knowledge of rare complications of the applied treatment, such as SCLE-DI.

CONCLUSION

Drug-induced lupus is a disease entity characterized by clinical symptoms and serum antinuclear antibodies temporarily associated with long-term drug intake. The prompt recognition of recognized SCLE-DI associated with the use of osimertinib allows for rapid modification of oncological treatment. This gives the

chance to continue optimal oncological therapy while reducing the occurrence of side effects.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Source of Support: This article has no funding source.

Conflict of Interest: The authors have no conflict of interest to declare.