

A CASE REPORT OF ZIDOVUDINE-INDUCED THUMBNAILS HYPERPIGMENTATION IN AN HIV POSITIVE PATIENT WITH SECONDARY HERPES ZOSTER OPHTHALMICUS INFECTIONTIRIN BABU¹, GEORGE MATHEW PANACHIYIL¹, JUNY SEBASTIAN^{1*}, VEERANNA SHASTRY²¹Department of Pharmacy Practice, JSS College of Pharmacy, JSS Academy of Higher Education and Research, Mysuru, Karnataka, India.²Department of Dermatology, JSS Medical College and Hospital, JSS Academy of Higher Education and Research, Mysuru, Karnataka, India.

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ABSTRACT

Zidovudine is one of the first-line antiretroviral therapy regimen drug used to treat human immunodeficiency virus infected patients. Nail pigmentation associated with zidovudine therapy is seen in adults and children's, mainly dark-skinned patients. This case attempts to draw attention among health-care professionals concerning the non-serious adverse effect of nail pigmentation with zidovudine. In our case, the patient was counseled about this adverse effect without any change in zidovudine therapy. Even though this side effect is harmless and reversible, the psychological aspects of this visible side effect may reduce medication adherence and can also result in inessential investigations and management for misdiagnoses such as cyanosis and melanoma.

Keywords: Zidovudine, Antiretroviral therapy, Nail hyperpigmentation, Human immunodeficiency virus.© 2019 The Authors. Published by Innovare Academic Sciences Pvt Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>) DOI: <http://dx.doi.org/10.22159/ajpcr.2019.v12i6.33050>**INTRODUCTION**

Zidovudine is one of the first-line antiretroviral therapy (ART) regimen drug used to treat human immunodeficiency virus (HIV) infected patients [1-3]. Nail pigmentation associated with zidovudine therapy is seen in adults and children's, mainly dark-skinned patients [4]. This grayish blue discoloration of the nails seems to be reversible and comparatively dose-dependent [5-7]. The causal mechanism behind this unusual nail pigmentation by the drug is not clearly understood [7]. Although nail pigmentation is harmless, this side effect can affect the psychological well-being of the patient which can lead to non-adherence to the therapy. As zidovudine is one of the most commonly recommended ART drugs, it is essential to create awareness among patients about nail pigmentation-related to zidovudine. Herein, we report a case of zidovudine-induced thumbnails hyperpigmentation in an HIV positive patient coinfecting with herpes zoster infection. This case tries to draw attention among health-care professionals concerning the non-serious adverse effect of nail pigmentation with zidovudine.

CASE REPORT

A 58-year-old male patient was admitted to the dermatology department of the hospital with a history of painful lesions on the left side of the face for 5 days. He also complained of hyperpigmentation of the thumbnails of both hands for 1 week. Antiretroviral therapy (lamivudine 150 mg, nevirapine 200 mg, and zidovudine 300 mg) was started for him from the past 10 months onward. In addition to ART therapy, he was on tablet cildnidipine (10 mg, once daily) for hypertension, human insulin (14-12-0 units/day), and neutral protamine Hagedorn 70%+human insulin 30% (0-0-10 units/day) for diabetes mellitus since 15 years.

He was averagely built, nourished with his general and systemic examinations were found to be normal. On cutaneous examination, there were fluid-filled blisters present on the left side of forehead extending to the left side of the frontoparietal part of the scalp. The lesions were associated with pricking pain and also few grouped vesicles were appeared on the erythematous base of the nasal bridge and lateral aspect of the left nose. Periorbital edema on the left eye with conjunctival congestion was associated with mucoid discharge. The thumbnails showed hyperpigmentation with no evidence of skin and mucous

membrane involvement (Figs. 1 and 2). The complete blood count done and was revealed to be normal. The CD4 count was 210 cells/cumm and the enzyme-linked immunosorbent assay test for HIV was positive. On the basis of clinical findings and laboratory parameters, the diagnosis made was herpes zoster ophthalmicus infection secondary to the HIV infection. He was managed conservatively with injection betamethasone (4 mg, once daily), valacyclovir (1 gm, PO 3 times a day), and amoxicillin 500 mg+clavulanic acid 125 mg (PO, 3 times a day) along with appropriate wound care (fusidic acid cream 2% w/w, 2 times a day and acyclovir eye ointment 5% w/w, 5 times a day).

However, the hyperpigmentation of the thumbnails cannot be explained. Thyroid profile done was found to be normal, and the Addison's disease was also ruled out for this patient. The patient had no history of injury, or no triggering factors were noted for these thumbnails hyperpigmentation, so a detailed medication history was taken, as nearly 10-20% of the cutaneous hyperpigmentation cases account for the drug. It revealed that the patient was on antidiabetic and antihypertensive medications for 15 years and ART for 10 months. The patient had a safe medication history with antidiabetic and antihypertensive drugs. The thumbnails hyperpigmentation occurred after starting the ART therapy. Among the ART regimen the patient is administered, the drug zidovudine has case reports for causing nail hyperpigmentation.

The time temporal relationship between the initiation of zidovudine and following which development of hyperpigmentation of thumbnails of both hands could not be clarified by any coexisting medications, medical conditions or chemicals used. Hence, the final diagnosis of zidovudine-induced nail pigmentation in an HIV patient with secondary herpes zoster ophthalmicus infection was established. It was a probable cause for hyperpigmentation of the thumbnails due to zidovudine therapy in accordance with Naranjo score of five and the World Health Organization causality assessment system. This adverse event was classified as non-serious adverse drug reaction (ADR) according to the Hartwig ADR severity assessment scale, so no change in the therapy for the current case. The patient was counseled about this non-serious adverse event of zidovudine to avoid the medication nonadherence of the patient.



Fig. 1: Hyperpigmentation of right hand thumb nail



Fig. 2: Hyperpigmentation of left hand thumb nail

DISCUSSION

Nail pigmentation due to zidovudine was first illustrated by Furth and Kazakis among two black patients [8]. Drugs could be the contributing factor in 10–20% of cutaneous hyperpigmentation cases, in addition to a variety of medical conditions [9,4]. The causative agents most commonly associated with discoloration of nails and skin are nonsteroidal anti-inflammatory drugs, antimalarials, amiodarone, chemotherapeutic agents, psychotropic drugs, zidovudine, tetracyclines, and heavy metals [9]. The nail pigmentation may appear with different clinical patterns such as either transverse bands, longitudinal bands, or diffuse discoloration [4]. According to the culprit drug, the hyperpigmentation pathogenesis and their clinical pattern may change [7]. The underlying mechanism behind nail pigmentation

in the case of the drug can be secondary deposition of the drug or its metabolites in the dermis making complexes with melanin or iron [7]. Animal studies demonstrated that there are elevated amounts of melanosomes in epidermal keratinocytes [4].

In this case, the thumbnails discoloration was noticed by the patient after the initiation of zidovudine therapy and this adverse event is a non-serious reaction, so he is continuing the same ART regimen.

CONCLUSION

Although this adverse effect is non-serious and reversible, the psychological aspects of this visible side effect may reduce medication adherence and can also result in inessential investigations and management for misdiagnoses such as cyanosis and melanoma. As many patients are on zidovudine therapy, so it is essential to create awareness among patients about nail pigmentation.

AUTHOR'S CONTRIBUTIONS

Tirin Babu and George Mathew Panachiyil were involved in the collection of clinical details of the case and preparation of the manuscript, Juny Sebastian supervised the manuscript preparation and reviewed the manuscript, Dr. Veeranna Shastry treating doctor, reviewed the manuscript.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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