

## Case Report

# Exacerbation of vitiligo following oral tranexamic acid therapy administered for the treatment of melasma: a case report

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### ABSTRACT

The presence of vitiligo has been identified as an independent risk factor for the development of melasma, and the two conditions may coexist in clinical practice. However, evidence regarding the optimal management of melasma in patients with concomitant vitiligo remains limited. Oral tranexamic acid has been increasingly recognized in recent years as a safe and effective treatment option for melasma. Nonetheless, its safety profile in patients who also have vitiligo has not been clearly established. In this report, we describe a case of a patient with melasma and coexisting vitiligo who developed a vitiligo flare following oral tranexamic acid therapy.

**Keywords:** Tranexamic acid, Vitiligo, Melasma

### INTRODUCTION

Melasma is an acquired hyperpigmentation disorder that predominantly affects women between the ages of 20 and 40. It is characterized by increased melanogenesis and vascularization, presenting as brown macules and patches on sun-exposed areas of the face. The pathogenesis of melasma is multifactorial and not yet fully elucidated; however, genetic predisposition, hormonal imbalances, phototoxic medications, and intense sun exposure are recognized as major triggering factors.<sup>1</sup>

Vitiligo is a chronic autoimmune disorder characterized by depigmentation, manifesting as milky-white macules and patches. It typically presents with a characteristic distribution involving the lips, distal lower extremities, genital area, and frictional sites. The pathogenesis of vitiligo is also multifactorial; in addition to a genetic background, factors such as oxidative stress and impaired immune function have been shown to play significant roles.<sup>2</sup> The efficacy of oral tranexamic acid (TA) in cases of treatment-resistant melasma has been demonstrated, and its safety profile has been investigated in numerous studies.<sup>3-5</sup> However, the safety of oral TA in patients with coexisting melasma and vitiligo has not been adequately

evaluated. Here, we present a case of a patient with melasma and vitiligo who experienced a vitiligo exacerbation shortly after initiating TA therapy.

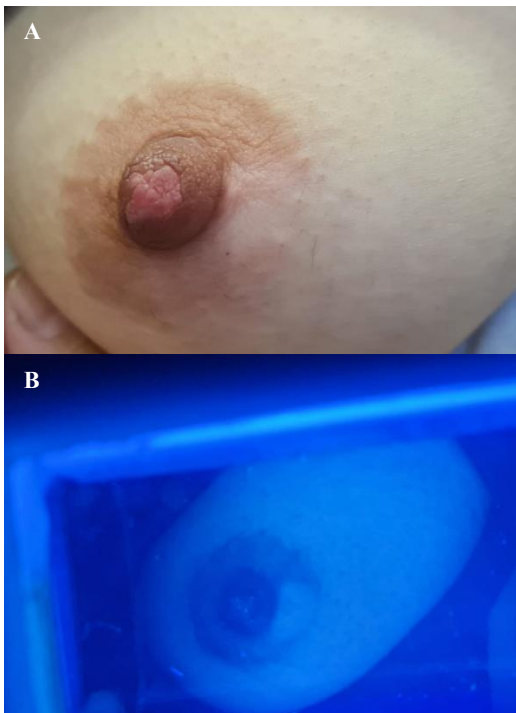
### CASE REPORT

A 43-year-old married woman with three children presented to our clinic with hyperpigmentation on the forehead, cheeks, and temples, persisting for 15 years. Dermatologic examination revealed hyperpigmentation on the malar region, forehead, and cheeks, which became more prominent under Wood's lamp examination (Figure 1). Additionally, the patient had a vitiligo patch limited to the left oral commissure that had first appeared 6 years earlier. She had intermittently used topical tacrolimus and pimecrolimus, and the vitiligo lesion had remained stable. The patient had previously used various topical treatments for melasma (hydroquinone, tretinoin, vitamin C) without clinical improvement. TA therapy was planned at a dose of 500 mg twice daily (1000 mg/day). She had no personal or family history of thromboembolism, connective tissue disease, cancer, heavy smoking, or oral contraceptive use. She was receiving regular intravenous iron therapy for idiopathic chronic anemia. Coagulation tests including prothrombin time, activated partial thromboplastin time,

and D-dimer were within normal ranges. Laboratory evaluation revealed a positive anti-dsDNA result, and she was referred to rheumatology. Repeat testing showed anti-dsDNA negativity, and no other abnormalities suggesting connective tissue disease were detected.



**Figure 1: Pigmentation on the forehead, temples, and cheeks under Wood's lamp.**



**Figure 2 (A and B): A 3x3 cm depigmented patch on the right breast areola.**

The patient returned to our clinic one month after initiating TA therapy. She reported that she noticed a new white discoloration on her right breast areola 10 days after starting the medication. She also noted enlargement of the previously stable vitiligo lesion on the left oral commissure and the appearance of a new depigmented macule on the upper lip. Examination revealed a 3x3 cm depigmented patch on the right breast areola, along with depigmented patches on the left oral commissure and upper lip (Figure 2). Wood's lamp examination demonstrated sharply demarcated, bright depigmented patches in the above-mentioned areas (Figure 3).



**Figure 3 (A and B): Depigmented patches on the right oral commissure and upper lip.**

The patient was diagnosed with active vitiligo. There was no history of topical or systemic medication use and recent emotional or physical stress, that could explain the flare. TA was the only medication she had been taking, and the vitiligo flare which occurred shortly after TA initiation in lesions stable for six years suggested that TA was the likely precipitating factor. TA was discontinued, and treatment with mometasone furoate cream and tacrolimus cream was initiated.

## DISCUSSION

TA is a synthetic lysine analogue that competitively inhibits plasminogen activation, stabilizes fibrin clots, and reduces bleeding. It is FDA-approved only for the short-term control of bleeding in conditions such as heavy menstrual bleeding and dental extraction in hemophilia patients. Recently, TA has been increasingly used off-label

for the treatment of refractory melasma, particularly in cases unresponsive to first-line therapies. The most common adverse effects are gastrointestinal symptoms; more serious but rare complications include deep vein thrombosis, acute renal cortical necrosis, myocardial infarction, and pulmonary embolism. Given the low doses used for melasma, the likelihood of these events is minimal.<sup>6</sup> In our case, none of these adverse effects occurred.

Sherman et al identified pre-existing vitiligo as a significant independent risk factor for new-onset melasma in women aged 20 years and older.<sup>7</sup> Consistent with this finding, our patient was a woman over 20 years old with pre-existing vitiligo.

In the literature, only one retrospective study has evaluated the feasibility of TA in melasma patients with concomitant vitiligo. In that study, 32 patients with nonsegmental, widespread vitiligo receiving NB-UVB phototherapy and concurrent melasma were treated with TA 250 mg twice daily for at least two months. Improvement in melasma was reported without worsening of vitiligo, and no significant adverse events occurred.<sup>8</sup> However, concurrent NB-UVB phototherapy may have contributed to the stabilization or improvement of vitiligo. In contrast, our patient had not been receiving any treatment for vitiligo, and the lesion on left oral commissure had remained stable for six years.

Plasminogen/plasmin pathway activation plays a central role in melasma pathogenesis. TA reduces melanin synthesis by inhibiting plasminogen/plasmin, fibroblast growth factor,  $\alpha$ -melanocyte-stimulating hormone, and prostaglandin E2. TA also decreases VEGF and endothelin-1 levels, thereby reducing the increased vascularity characteristic of melasma lesions.<sup>9</sup>

In vitiligo, autoreactive CD8<sup>+</sup> T cells and oxidative stress within melanocytes are major contributors to melanocyte apoptosis.<sup>8</sup> Melanin exhibits strong antioxidant and free-radical scavenging properties in addition to functioning as an ultraviolet radiation filter.<sup>10</sup> Thus, reduced melanin synthesis due to TA may increase oxidative stress, and combined with UV exposure, may promote melanocyte destruction. Furthermore, TA's anti-angiogenic properties may impair dermal microcirculation, increase ischemic stress and render melanocytes more vulnerable to apoptosis. These mechanisms may explain the TA-associated onset or exacerbation of vitiligo.

## CONCLUSION

Available data on the concurrent management of vitiligo and melasma are limited. Contrary to previous report, oral

TA may potentially worsen vitiligo in patients with both conditions. As this case represents the first reported instance of TA-induced vitiligo exacerbation, we consider it valuable and believe that it will contribute to the existing literature.

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## REFERENCES

1. Artzi O, Horovitz T, Bar-Ilan E, Shehadeh W, Koren A, Zusmanovitch L, et al. The pathogenesis of melasma and implications for treatment. *J Cosmet Dermatol.* 2021;20(11):3432-45.
2. Joge RR, Kathane PU, Joshi SH. Vitiligo: A Narrative Review. *Cureus.* 2022;14(9):e29307.
3. Lee HC, Thng TG, Goh CL. Oral tranexamic acid (TA) in the treatment of melasma: A retrospective analysis. *J Am Acad Dermatol.* 2016;75(2):385-92.
4. Bala HR, Lee S, Wong C, Pandya AG, Rodrigues M. Oral tranexamic acid for the treatment of melasma: A review. *Dermatol Surg.* 2018;44(6):814-25.
5. Perper M, Eber AE, Fayne R, Verne SH, Magno RJ, Cervantes J, et al. Tranexamic acid in the treatment of melasma: A review of the literature. *Am J Clin Dermatol.* 2017;18(3):373-81.
6. Chauncey JM, Patel P. Tranexamic Acid. In: *StatPearls. Treasure Island (FL): StatPearls Publishing.* 2025.
7. Sherman S, Duskin-Bitan H, Agiv T, Bar D, Marom-Haham L, Levi A, et al. Bidirectional association between vitiligo and melasma: A large-scale population-based study. *Indian J Dermatol Venereol Leprol.* 2025;1-7.
8. Chiang PH, Lin YJ, Chiu YC, Chung WH, Ku CL, Ng CY. Feasibility of oral tranexamic acid for vitiligo patients with melasma. *Dermatol Ther.* 2021;34(5):e15047.
9. Lee HC, Thng TG, Goh CL. Oral tranexamic acid (TA) in the treatment of melasma: A retrospective analysis. *J Am Acad Dermatol.* 2016;75(2):385-92.
10. Brenner M, Hearing VJ. The protective role of melanin against UV damage in human skin. *Photochem Photobiol.* 2008;84(3):539-49.

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