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Undesirable repigmentation in vitiligo patient receiving methotrexate therapy for the treatment of psoriasis; treatment or side effect?

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Abstract

Vitiligo is an acquired skin depigmentation disorder related to the destruction of melanocytes. There are a limited number of case reports and studies in current literature that show methotrexate (MTX) is effective in the treatment. A 44-year-old man presented to our clinic with a one-year history of psoriasis. On dermatological examination, there were erythematous, scaly papules and plaques on knees, elbows, gluteal area, and scalp compatible with psoriasis. In addition, there was total depigmentation over the body. He had a 30-year history of vitiligo, beginning localized but progressed gradually and covered the entire body surface. Subcutaneous methotrexate 10mg weekly was started for psoriasis. On the 6th week of methotrexate treatment, he presented to our clinic with newly developed brown macules on his face. The result of the punch biopsy taken from a macule was reported as normal skin findings. Because his body was fully depigmented, his brown melanocytic macules on his face were considered as repigmentation associated with MTX treatment. His MTX treatment was stopped by patient request. On his 6-month follow-up, hypopigmentation was observed at prior repigmented macules. Methotrexate can be considered an alternative treatment for vitiligo patients when topical therapy and phototherapy are ineffective or not applicable.

Keywords: methotrexate, repigmentation, vitiligo

Introduction

Vitiligo is an acquired skin depigmentation disorder related to the destruction of melanocytes that typically presents with well-defined white macules. Despite many local and systemic treatment options, it is still a difficult disease to treat today [1]. In the current literature, there are a few case reports and studies showing that methotrexate (MTX) is effective in the treatment of vitiligo [2-6]. We report a patient receiving methotrexate therapy for the treatment of psoriasis who developed repigmentation on longstanding vitiligo lesions.

Case Synopsis

A 44-year-old man presented to our clinic with a one-year history of psoriasis. On dermatological examination, there were erythematous, scaly papules and plaques on knees, elbows, gluteal area, and scalp compatible with psoriasis. He also had a 30-year history of total body surface involved with vitiligo. Over the years he had undergone a variety of treatments for this without success. For the last 15 years, he has not used any topical or systemic treatment for vitiligo. Subcutaneous methotrexate 10mg weekly was started for the psoriasis. Additionally, oral folic acid 5mg weekly and topical emollients were prescribed. He used topical corticosteroids only on psoriatic plaques, not his face. On 6th week of methotrexate treatment, he presented to our clinic with newly developed brown macules on his face (**Figure 1**). The result of the

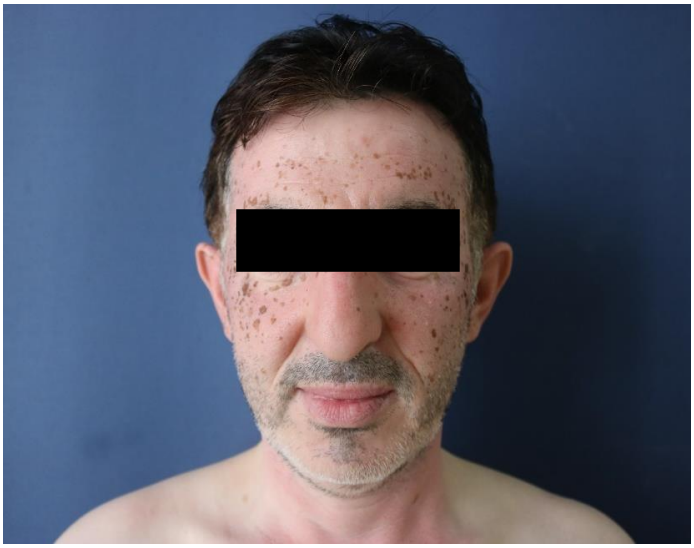

Figure 1. *Newly developed brown macules on t face after methotrexate therapy.*

punch biopsy taken from a macule was reported as minimal perivascular lymphocyte infiltration in superficial dermis. Minor lymphocytic infiltration in superficial dermis was observed in H&E histopathology (**Figure 2**), and nonspecific staining was present with Masson-Fontana and S-100. Because his body was otherwise fully depigmented, his brown melanocytic macules on his face were considered to be repigmentation associated with MTX treatment. His MTX treatment was stopped because the patient considered this appearance as cosmetically unattractive. On his sixth month of follow-up, hypopigmentation was observed on repigmented macules (**Figure 3**).

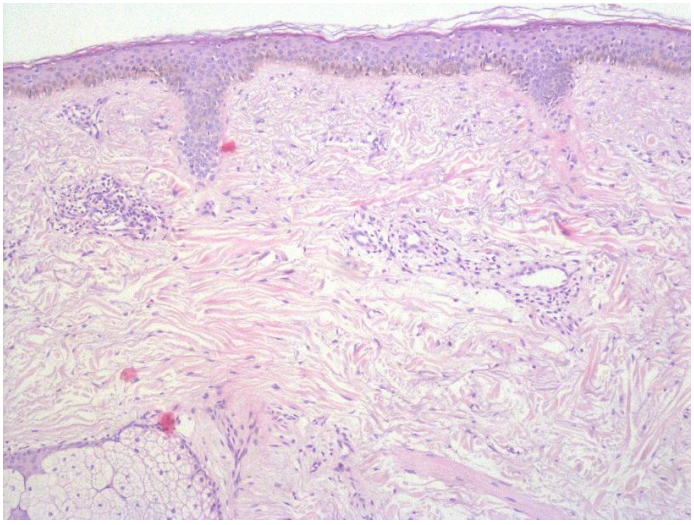

Figure 2. *Histopathology of newly-developed brown macules. Minimal perivascular lymphocyte infiltration in superficial dermis. H&E, 100×.*

Case Discussion

Vitiligo is an acquired skin depigmentation disorder that manifests major challenges in terms of treatment. First-line treatments such as topical corticosteroids, topical calcineurin inhibitors, and phototherapy, either as monotherapy or in combination, are mostly unsatisfying, showing the need for development of effective treatments. Increased knowledge of the pathophysiology of vitiligo should provide more targeted therapies.

Methotrexate is an effective, safe, and tolerable treatment widely used in various autoimmune disorders [7]. Methotrexate, a folic acid antagonist and an inhibitor of cell proliferation that particularly inhibits T lymphocyte proliferation [8]. It has been suggested that it suppresses disease progression by decreasing the production of TNF from T cells [6]. Data assessing the use of methotrexate in vitiligo remains limited. The first case of methotrexate use in vitiligo was reported in a woman treated at 7.5mg per week for rheumatoid arthritis. She had a 6-month history of rapidly spreading vitiligo. She stopped developing new lesions after three months of

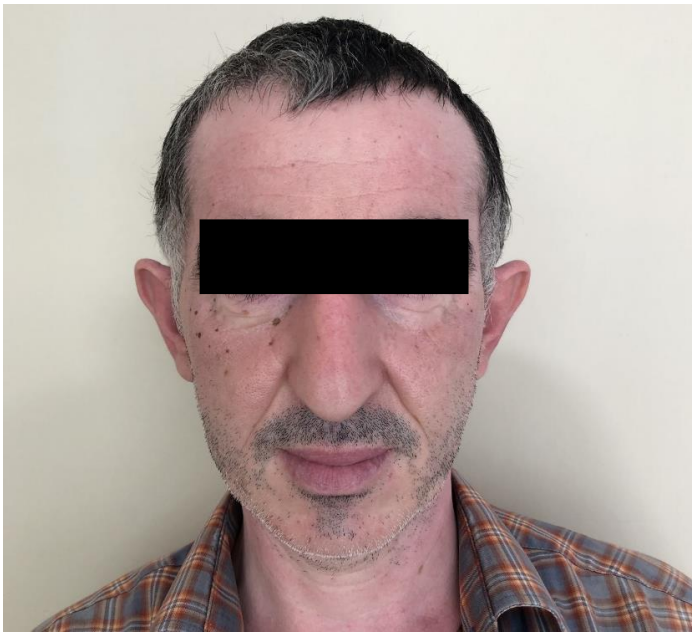

Figure 3. *Hypopigmentation on repigmented macules after cessation of methotrexate therapy.*

treatment [2]. More recently, the efficacy of methotrexate (15mg weekly), oral mini pulse dexamethasone (5mg/day for two successive days, every week for three months), and combination of both were compared in a prospective randomized study in 42 vitiligo patients [6]. Methotrexate alone or in combination with oral mini pulse dexamethasone was superior in inducing repigmentation. On this basis, low-dose oral methotrexate may be recommended for the treatment of vitiligo. Because our patient experienced repigmentation only on sun-exposed areas, combination of MTX with phototherapy can be considered.

Conclusion

Although our patient refused continued treatment because of the cosmetic appearance of repigmentated areas, methotrexate can be considered as an alternative and/or combination treatment for vitiligo patients for whom topical therapy and phototherapy are ineffective or not applicable. However, further investigations should be performed to discover the exact mechanism of action and effective dose.

Potential conflicts of interest

Authors declare no conflicts of interest.

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