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Case Report

Punch graft on stable vitiligo patient with HIV

Diah Pitaloka Prabandari, Endi Novianto, Eyleny Meisyah Fitri, Maria Clarissa Wiraputranto, Noer Kamila

Dermatology and Venereology Department, Faculty of Medicine, Universitas Indonesia – dr. Cipto Mangunkusumo National Referral Hospital, Indonesia.

Abstract Vitiligo is an autoimmune disease caused by melanocyte destruction, with clinical manifestations of milky white depigmented macules and firm borders. This disease can occur at any age, has multifactorial predisposing factors and one of them is viral infection. In recent years there have been numbers of case report showing a correlation between HIV infection and vitiligo. We present a 42-year-old man with HIV positive and vitiligo since 2008. Lesions initially appeared on the stomach and then spread throughout the body and face. Patients received anti-retroviral (ARV) therapy from the beginning of HIV diagnosis and received vitiligo treatment, which is a combination of topical steroid and whole body narrowband Ultraviolet B (nb-UVB) phototherapy for the last three years, since 2018. Initially, the combination therapy showed a fair repigmentation response, but in the last 2 years didn't show significant improvement of repigmentation. According to cellular immune mechanisms, melanocyte destruction in vitiligo involves CD8 + T cells. Several theories of the occurrence of vitiligo in HIV patients are associated with a decrease in the ratio of CD4 + / CD8 + and autoantibodies to melanocytes. Management in this patient includes a combination therapy, but since there was minimum response, we gave additional therapy which was punch graft. Our patient had received two punch graft procedures on the skin of the neck. The first one was on February, 2020 and the second one was on October, 2020; both showed significant results.

Key words
HIV; Punch graft; Vitiligo.

Introduction

Vitiligo is a chronic skin and mucous membrane disease caused by melanocyte destruction, manifests as asymptomatic depigmented macule or patches. It has multifactorial predisposing and precipitating factors such as trauma, sunburn, stress, systemic diseases, and viral infections. The prevalence of this disease is estimated 0.5-1% in the world's population, the ratio of the male and female are equal.[1,2] There are several case reports of vitiligo occurring in HIV patients, and the underlying immunological mechanism is still unclear, based on the theory of cellular immune mechanisms, melanocyte destruction in vitiligo is mediated directly by T cells CD8+.[1,3-5] Treatments for vitiligo include the use of topical and oral steroids, topical immunomodulators, phototherapy, surgical, and combination therapy.[6-8] Surgical procedure with punch graft technique is one of the procedures of choice for stable vitiligo management. It's easy to perform and does not require special facilities and equipment.[9,10]

Address for correspondence
Dr. Endi Novianto
Head of Division of Dermato-Allergo-Immunology, Department of Dermatology and Venereology, Faculty of Medicine Universitas Indonesia – Dr. Cipto Mangunkusumo General Hospital, Jakarta, Indonesia.
Email: endi.novianto@ui.ac.id

Case report

A 42-year-old man with chief complaints of white patches on the right and left sides of the neck and both legs that has not improved after given combination of wholebody nb-UVB phototherapy and topical steroid since 2018.

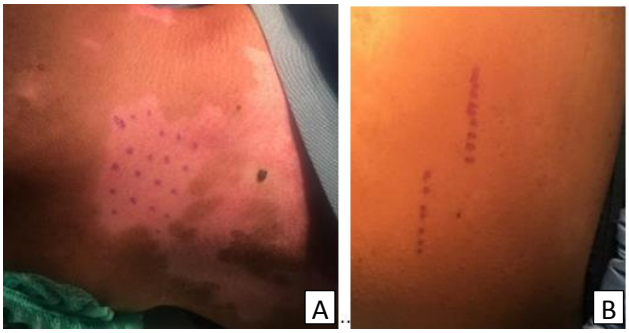

Figure 1 (A) lesions on the neck (recipient); (B) Skin donor area was abdominal.

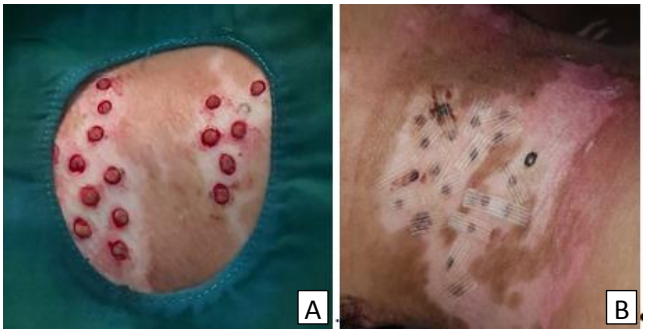

Figure 2 (A&B) Skins donor fixated on recipient area with thin adhesive bandages.

Figure 3 (A&B) Repigmentation on recipient area, three weeks after punch graft.

On 2008, he was diagnosed as HIV positive, the complaints of white patches appeared for the first time in the abdomen and then spread to the neck and extremities. He visited HIV centre in Cipto Mangunkusumo Hospital regularly and received ARV drugs. The current combinations of ARV are Tenofovir, Lamivudine, and Nevirapine. In the first three years of treatment with ARV, there was spontaneous repigmentation of the skin on the trunk and parts of the face.

In 2018, the patient started routine whole body nb-UVB phototherapy at Dermatology and Venereology outpatient clinic for vitiligo lesions on the neck, trunk, and upper and lower extremities. After two years of phototherapy, the repigmentation of the lesions on the right and left sides of the neck and both legs showed minimum progress. Based on the physical examination, vitiligo lesions affected 7% of body surface area (BSA), with Vitiligo Disease Activity (VIDA) score was zero. Laboratory tests in January 2020 showed absolute CD4+ was 650 cells/μL, CD 8+ was 1167 cells/L, and viral load not detected. Prior punch graft procedure, the last dose of wholebody nb-UVB phototherapy was 1309 mj/cm^2 and additional localized nb-UVB phototherapy for lesions on the neck with dose of 1400 mj/cm^2 for eight months. He also applied 0.1% betamethasone cream on the white patches, twice a day, every Monday-Friday.

In February 2020 and October 2020, the patient received a punch graft surgery treatment for the lesions on the neck (recipient) **(Figure 1A)**. The first one was for the right side and the last one was for other side. The procedure required skin punch instrument with size 4 mm in diameter, the skin donor area was abdominal **(Figure 1B)**. We took few skins donor and fixated them on recipient area with thin adhesive bandages **(Figure 2)**. The patient received clindamycin 300 mg twice a day and paracetamol 500 mg three times a day for 14 days. The bandage was opened three weeks after punch graft, and there was repigmentation seen in recipient area **(Figure 3)**. After procedure, the dose of whole body nb-UVB phototherapy was reduced 50% with frequency twice weekly. The dose was increased by 10% for each phototherapy visit. After six-months and one-year follow up, repigmentation still showed significant improvement. He did not complain of new patches appearing on the neck area or other body parts.

Discussion

HIV infection can cause various manifestations of skin diseases. In this case, the patient was a young adult male with complaints of white patches on the trunk and both legs and hands diagnosed as vitiligo and in the same year the patient was first diagnosed as HIV positive. There was spontaneous repigmentation in the first three years of ARV treatment. In recent years there have been case reports that connected vitiligo and HIV, in these reports there was a correlation between an increase in CD4 + titer and spontaneous repigmentation. CD4+/CD8+, activation of B lymphocytes that produce autoantibodies against melanocytes is one of the possible pathogeneses of vitiligo in HIV patients. However, these theories require further research.[3-5]

The treatment modalities of vitiligo are varied. The choice of therapy in this patient was based on the extent of the lesion, namely >5% of BSA, stable course of disease, and skin type which is Fitzpatrick type 4. The patient had received a combination of topical steroids and whole body with additional localized nb-UVB phototherapy. However, the lesions particularly on the neck showed slow repigmentation over the past two years. Based on that condition, another modality was considered which was a combination of phototherapy with punch graft. On some reports, there are variations in the patient's response to surgical therapy depending on the patient's immune system. Patients with stable or non-immune disease usually respond better to surgery.[6-9] In this case report, the patient had a stable disease for the past two years.

Prospective study by Mohamed *et al*.[8] in 2017 compared surgery with punch graft and follicular hair transplantation both followed by phototherapy with excimer lamps twice weekly in 32 stable vitiligo patients. This study showed that in the group of vitiligo patients who received a punch graft, repigmentation occurred more quickly with a mean period (2.5±0.5 weeks); while in the group of patients who received follicular hair transplantation, repigmentation occurred slower with a mean period (5.2±1.9 weeks).[10] Another study by Ezz-Eldawla *et al*.[11] in 2019 compared the effectiveness between suction blistering graft, mini punch graft, and hair follicle transplant in treatment of patients with stable vitiligo. The study showed that all methods gave significant repigmentation, and mini punch technique showed fair result and less expensive.[11]

Conclusion

Combination of punch grafts followed by nb-UVB phototherapy, can be a promising optional therapy with excellent result and minimum risk of complication for vitiligo patients with HIV.

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