

Coexistence of Two Autoimmune Diseases: A Case of Colocalized Vitiligo and Psoriasis in One Person

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Abstract: Vitiligo and psoriasis are autoimmune diseases. The occurrence of both diseases in a single patient, especially at the same sites, has been considered unusual. Herein, we report a case of coexisting vitiligo and psoriasis in a patient at the same site. A 40-year-old male visited our Dermatology and Venereology clinic with a history of white patches all over the body for 20 years and red patches with thick, scaly surfaces for three years before admission. Physical examination revealed multiple depigmented macules, lenticular-plaque in size, irregular, circumscribed, discrete-confluent with several erythematous plaques, nummular-plaque in size, irregular, circumscribed, thick silvery-white scales with positive Auspitz sign on the top of depigmented macules. He was diagnosed with vitiligo Vulgaris and Psoriasis Vulgaris and received systemic therapy, a combination of topical therapy and phototherapy narrowband UVB. The pathogenic mechanism underlying the coexistence of vitiligo and psoriasis has not been fully elucidated. The Koebner phenomenon, genetic, and environmental factors have been postulated to be involved in the development of the two diseases. Comorbid vitiligo and psoriasis is a red flag signaling the need to dig deeper, looking for potentially associated diseases, including cardiovascular, autoimmune, or psychiatric diagnoses.

1 INTRODUCTION

Vitiligo is a skin depigmentation disease caused by interactions of genetic and non-genetic factors causing loss of function of melanocytes, manifesting as a well-defined depigmented macula surrounded by healthy skin. (James WD et al., 2011; Jacob et al., 2017). There is no gender difference in vitiligo and can occur at any age. The incidence of vitiligo is 0.5–1% of the total population worldwide. (Ezzedine et al., 2015). The case of vitiligo with a family history ranges from 6.25–38%, but the genetic pattern is still debated (Jacob et al., 2017). The etiology of vitiligo is not yet known. Some hypotheses are related to the etiology of vitiligo, including the genetic hypothesis, the autoimmune hypothesis, as well as the biochemical hypothesis. (Jacob et al., 2017; Birlea SA 2012)

The diagnosis of vitiligo can be made based on history and physical examination.^{2,4} Various other

skin disorders that can be found in vitiligo lesions, including psoriasis Vulgaris, scleroderma, lupus erythematosus, alopecia areata, Morbus duhring, and melanoma.² The principle of managing vitiligo is to induce repigmentation. Spontaneous repigmentation has been reported in 6–44% of patients. Repigmentation is a sign that the lesion is responsive to therapy. (Birlea SA 2012)

Psoriasis is a chronic inflammatory skin disease with characteristics of changes in epidermal cell growth and differentiation as well as the presence of vascular manifestations with a strong genetic basis, also thought to have a nervous system effect.⁵ The worldwide incidence and prevalence of psoriasis is poorly understood. Psoriasis is estimated to affect about 2–3% of the world population. (Springate DA et al., 2017). The etiopathogenesis of psoriasis is still not clearly known, but the role of autoimmunity and genetics can be used as a principle of therapy. (Jacob TJA et al., 2017)

Clinically, a classic description of psoriasis in the form of a white squamous encompassing erythematous plaques with bleeding points if the scale is released, the lesion can be the size of a needle tip to a plaque that covers most areas of the body, usually symmetrical lesions. In addition to the skin, the involvement of nails, mucosa, and joints can be found. (Ezzedine K et al., 2015). Psoriasis diagnosis can be made based on history and physical examination. Psoriasis treatment aims to reduce the severity of the disease so that patients can move in social life, work and prosperity, and also remain in a condition of good quality of life.

Psoriasis and vitiligo are autoimmune diseases. Yet the pathogenesis of the association between these two dermatoses is still unknown. It is uncommon that the occurrence of both these diseases in the same patient, especially at the same sites. Coexistence psoriasis lesions on the top of vitiligo lesions made this becomes important for discussion because it is a red flag signaling the need to dig deeper looking for potentially associated diseases, including cardiovascular, autoimmune, or psychiatric diagnoses. Herein, we report on a case of coexisting vitiligo and psoriasis in the same individual at the same site.

2 CASE

A 40-year-old male admitted to Dermatology and Venereology clinic at Tarakan Regional General Hospital due to thick scales on red spots since three years ago that appeared on several white spots throughout the body since 20 years ago. Initially, white spots appear on the face, near the lips. Spots are round, milky white, firmly defined, with a diameter of about one centimeter. There was no history of itch, pain, numbness, and redness before. About five months later, the spots began wider, and more numerous appear on both hands, legs, thighs, calves, buttocks, lower back, stomach, and head.

Twenty years ago, the patient went to dermatovenereologist in Cianjur Hospital. He was diagnosed with vitiligo and was given a concoction cream that was applied twice a day and two types of unknown oral drug that taken one time per day. He was treated as an outpatient clinic at a hospital in Cianjur for approximately three years. However, because there was no excellent clinical response, then he went to dermatovenereologist at one of General Hospitals in Sukabumi. Seventeen years ago, he went to dermatovenereologist at Sukabumi General Hospital and was diagnosed with vitiligo. He was treated with liquid Delsoralen® once a day and asked to bask for 15

minutes after applying the drug. He was also given concoction capsules that taken three times per day. He was treated for five years, but still, there was no excellent improvement, so that he was referred to Hasan Sadikin Hospital, Bandung. Twelve years ago, the patient went to Hasan Sadikin Hospital and was diagnosed with vitiligo. The patient is also treated with liquid Delsoralen® once a day and asked to bask after applying the drug. He was treated at Hasan Sadikin Hospital for about one year. White patches had not expanded, and there were no new white spots nor improvement. Eleven years ago, the patient returned to dermatovenereologist in Cianjur. He seeks treatment in about five of different dermatovenereologist. Various drugs given by these doctors, the patient does not remember the details of what drugs each doctor gave and the duration of treatment for each doctor. The patient treated for about three years and received various drugs such as ointment applied twice a day, pills taken 1–2 times a day, and liquid Delsoralen®. Feeling tired and hopeless because the vitiligo hasn't healed, the patient didn't continue treatment for about eight years. Finally, the patient went to dermatovenereologist of Tarakan General Hospital on the advice of the patient's relatives and because the spots grew wider and added thick scales on red spots.

Three years ago, the patient complained of reddish-scaly patches on several white spots almost the entire body. Initially, small red spots appear on the lower back, left and right elbows and left and right thighs. Sometimes red patches feel an itch. By the time, the red spots are more widespread and white scales thicker than before and also appear in other areas of the body.

The patient has a history of uncontrolled hypertension since 1.5 years ago. He denies contact with chemicals before spots appear. A history of reddish spots shaped like butterflies on both cheeks when exposed to the sun, fever, migrating joint pain, swelling or stiffness in the joints, fatigue, thirst, hunger, weight loss, natural sweating, palpitation, trembling in both hands is also denied by the patient. There is no history of steroid use or long-term drugs, drug, and food allergies. There is no history of blood transfusion. The patient also has no history of anemia and diabetes mellitus. There were complaints of white spots on other family members, namely the patient's mother and sister. The patient is married, lives with his wife and four children in Cianjur, West Java. He is a teacher who works indoors every day and rarely exposed to the sun.

Physical examination revealed hypertension (180/110 mmHg) and the presence of multiple

depigmented macules, lenticular-plaque in size, irregular, circumscribed, discrete-confluent with several erythematous plaque, nummular-plaque in size, irregular, circumscribed, silvery-white thick scales with positive Auspitz sign on the top of depigmented macules on the scalp, face, bilateral earlobe, abdomen, back and buttocks, and also bilateral upper and lower limbs. (Figure 1) There were also pitting nails in the entire finger of both hands. Body Surface Area (BSA) of vitiligo was 28% while that of psoriasis was 25% with Psoriasis Area and Severity Index (PASI) score was 9.5. Laboratory examination including complete blood counts, differential leukocyte counts, liver function test, renal function test, and thyroid function test was within normal limits, except hyperglycemia (324 mg/dL) and positive antinuclear antibody with the titer of 1:320.

Based on the history and physical examination, a clinical diagnosis of coexisting vitiligo Vulgaris and psoriasis Vulgaris was made. He was treated with systemic corticosteroids, a combination of topical therapy and narrowband UVB phototherapy. Methylprednisolone 8 mg twice a day was given as systemic therapy for two days per week. He applied a combination of 3% ichthyol and 10% zinc oxide in 0.025% fluocinolone acetonide cream twice a day on white patches, and a combination of 3% salicylic acid, 5% liquor carbonic detergent, and 0.25% desoximetasone ointment twice a day on erythematous plaques. Patients also underwent whole-body narrowband UVB phototherapy twice a week with an initial dose of 200 mg/cm² and increased by 10% per visit. He subsequently consulted the internist to control his blood pressure and to evaluate his blood glucose.



Figure 1. Presence of multiple depigmented macules, lenticular-plaque in size, irregular, circumscribed, discrete-confluent with several erythematous plaques, nummular-plaque in size, irregular, circumscribed, thick silvery-white scales with positive Auspitz sign on the top of depigmented macules.

3 DISCUSSION

The coexistence of psoriasis and vitiligo is rare. Relatively few reports of concomitant and colocalized psoriasis and vitiligo are available. In this case, diagnosis vitiligo Vulgaris and psoriasis Vulgaris were established based on history and physical examination. The location of the patient's depigmented lesions was almost the entire body's area which is categorized in general vitiligo or vitiligo Vulgaris. Vitiligo Vulgaris is characterized by lesions in the form of multiple homogeneous milky white macules which are clearly demarcated, scattered, and less symmetrical. (Jacobs et al 2017). Vitiligo Vulgaris is associated with a number of conditions and autoimmune diseases. Genetic factors are thought to play a role in the onset of vitiligo lesions, the percentage ranges from 6.25%–38% and the genetic pattern is still debated. (Ezzedine K et al., 2015). In this patient, genetic predisposition was found where the older siblings of the patient's mother suffered from vitiligo.

The clinical variants of psoriasis include psoriasis Vulgaris, guttate psoriasis, pustular psoriasis, nail psoriasis, arthritis psoriasis, and erythroderma. (Jacobs TJA et al., 2017) Psoriasis Vulgaris is found in about 90% of psoriasis patients. Lesions generally begin with an erythematous macula less than one centimeter in size or in the form of a papule that extends, and several lesions

coalesce so that the size can reach several centimeters. Lesions are usually found in the scalp, elbow, knee, back, lumbar, and retro auricular. (Jacoeb TJA et al., 2017). The clinical manifestation and predilection sites on this patient are categorized in psoriasis Vulgaris. Determination of psoriasis severity is vital to determine the treatment given to patients. It measures the severity of psoriasis, including BSA, PASI, dermatology life quality index (DLQI). Mild psoriasis is categorized with BSA of less than 3%, and severe psoriasis with BSA more than 10%.⁵ In this case, psoriasis BSA is about 25% which is categorized in severe psoriasis.

Topical corticosteroid has been used for vitiligo as monotherapy or combination with other modalities, such as fluocinonide cream, betamethasone cream, and clobetasol propionate cream. Systemic corticosteroid was given for progressive vitiligo. It helps to halt the progression of the disease and inducing repigmentation. There are only several studies published the efficacy and safety of corticosteroid in vitiligo. The available reports are case series and lack of well-validated randomized controlled trials. Systemic corticosteroid in vitiligo can be administered by oral mini pulse therapy, daily corticosteroid, and intravenous pulse therapy. (Lahiri K et al., 2014; Lee J et al., 2016). reported that oral mini pulse therapy of methylprednisolone 0.5mg/kg body weight on 2 consecutive days per week with narrowband UVB phototherapy for 3 months is useful in arresting vitiligo progression and rapidly inducing repigmentation with minimal side effect. In this case, we administered 8 mg oral methylprednisolone twice a day for two days per week, which combination with narrowband UVB phototherapy twice a week, as well as topical corticosteroid.

Several theories have been proposed to explain the co-occurrence of vitiligo and psoriasis. Reports of the concomitant disease often describe underlying autoimmune conditions, suggesting that these diseases may develop through similar autoimmune mechanisms. (Puri N et al., 2013). reported that the presence of psoriasis lesions above the vitiligo lesions showed an association with increased production of IL-17A produced by Th17 cells and an increase in the number of regulatory T cells in the two entities. Several genetic locus vulnerabilities in psoriasis and vitiligo have been mapped. The genetic locus for vitiligo, namely AIS1 found on the IP 31 chromosome, is located close to the genetic susceptibility locus for psoriasis, PSORS7.

A recent case-control study of 463 vitiligo patients, 27 with concomitant psoriasis (2 cases of

colocalized disease), was conducted to investigate possible associations between vitiligo and psoriasis. (Bassiouny DA, 2010). The strongest predictors of concomitant psoriasis were inflammatory-type vitiligo and a positive family history of cardiovascular disease. (Arunachalam M et al., 2014). The authors suggest that common inflammatory pathways and genetic susceptibility may explain this association of psoriasis, vitiligo, and cardiovascular risk factors.

The coexistence of psoriasis Vulgaris limited to the area of vitiligo lesions can be produced from the Koebner phenomenon. Occurrence of lesions of both these diseases at same sites predominantly over the extensors of joints is probably due to chronic minor friction/ trauma over these sites. (Chakraborty D et al., 2017). Coexistence of both vitiligo and psoriasis lesions over the extensors of joints and his extremities in the present case can be explained by this Koebner's phenomenon.

Other factors that are thought to be for coexistence vitiligo with psoriasis, namely cytokines. Cytokines such as TNF- α may have played a vital role in the pathogenesis of the coexistent diseases. (Shaeque KE et al., 2017). TNF- α is the main cytokine whose levels are elevated in psoriasis lesions, where the increase is also found to increase in the lesion of vitiligo patients, so TNF- α is thought to be associated with the condition of both diseases. (Park JM et al., 2009).

4 CONCLUSION

Coexistence of vitiligo and psoriasis in a single patient furthermore at the same location is a rare occurrence. An underlying autoimmune condition has to be thought for when such coexistence is seen. Pathogenesis of the coexistence between psoriasis and vitiligo, are still not well understood. The pathogenic factors for each disease, includes cytokines, autoimmunity, and the Koebner phenomenon have been studied, but further evaluation is needed regarding the mechanism of its pathogenesis. Coexistence vitiligo and psoriasis is a red flag signaling the need to dig deeper, looking for potentially associated diseases, including cardiovascular, autoimmune, or psychiatric diagnoses.

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