

Is The Glycerol, Petroleum Jelly and Liquid Paraffin Mixture (Dexeryl®) an Adjunctive Therapy for Vitiligo of Autoimmune Origin? Toward a Novel Therapeutic Indication. About a Case

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ABSTRACT

Introduction: Vitiligo, considered to have an autoimmune basis, is an acquired, non-contagious disorder characterized by progressive, patchy loss of pigmentation from skin, overlying hair, and oral mucosa. The treatment of vitiligo includes medicines or medicated skin creams, such as corticosteroids or a calcineurin inhibitor, phototherapy, Depigmentation, or removing color from dark areas, surgical techniques. The results from treatments can vary from one part of the body to another, and new patches may appear in the meantime. Here, we report a case with complete remission of vitiligo of autoimmune origin under DMARDs and the glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®), of which we hypothesize that the glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®) would have played a role in rapid and complete vitiligo lesion regression.

Clinical Observation: An 18-year-old Malian female presented to the internal medicine outpatient clinic with 3-months history of pruritic achromic skin patches. Concomitantly, this was associated with Gottron's papules, polyarthralgia with arthritis and exertional dyspnea for which the diagnosis of mixed connective tissue disease (MCTD) based on the EULAR/ACR 2019 criteria for systemic lupus erythematosus, EULAR/ACR 2010 criteria for rheumatoid arthritis with subcutaneous rheumatoid nodule, EULAR/ACR 2013 criteria for systemic sclerosis, Bohan and Peter 1975 criteria for probable dermatomyositis and Kasukawa's criteria 1988 for MCTD itself; and autoimmune hemolytic anemia (AHA) with positivity of the direct coombs test and the context of hemolysis were made. Vitiligo of autoimmune origin was considered because of the clinical context and the immunological disorder in this case. She was treated only with Disease-Modifying Anti-rheumatic Drugs (DMARDs) and glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®). The vitiligo lesion had completely resolved on 1-year follow-up visit in our case without specific vitiligo treatment.

Discussion: The glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®) in our case was indicated for dry skin presentation. But we observed a rapid and complete vitiligo regression under this mixture associated with DMARDs. This is why, beside a controlled inflammation process by DMARDs, we suspected a role of glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®) in melanocyte regeneration.

Conclusion: This case would highlight a potential novel indication of glycerol, petroleum jelly and liquid paraffin mixtures (dexeryl®) in vitiligo of autoimmune origin. A clinical trial will be necessary to deeply appreciate this novel therapeutic property of glycerol, petroleum jelly and liquid paraffin mixtures (dexeryl®).

Keywords

Glycerol, Petroleum jelly and liquid paraffin mixture, Dexeryl®, Vitiligo, Internal medicine, Mali.

Introduction

Generalized vitiligo is an acquired, non-contagious disorder characterized by progressive, patchy loss of pigmentation from skin, overlying hair, and oral mucosa [1]. Vitiligo is widely considered to have an autoimmune basis [1-6]. Some patients manifest autoantibodies directed against melanocytes [1,7-13] or melanocyte proteins [1,14,15], although it remains unclear whether these are the cause or the effect of melanocyte destruction.

The treatment of vitiligo includes medicines or medicated skin creams, such as corticosteroids or a calcineurin inhibitor, phototherapy, Depigmentation, or removing color from dark areas, surgical techniques [16,17]. The results from treatments can vary from one part of the body to another, and new patches may appear in the meantime [17].

However, the glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®) have two known indications: i) adjunctive treatment of dry skin states of certain dermatoses such as atopic dermatitis, ichthyotic states, psoriasis and ii) adjunctive treatment of superficial burns of small extents [18].

But, here, we report a case with complete remission of vitiligo of autoimmune origin under Disease-Modifying Anti-rheumatic Drugs (DMARDs) and glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®) without other specific vitiligo treatments, of which we hypothesize that the glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®) would have played a role in rapid and complete vitiligo lesion regression.

Clinical Observation

An 18-year-old Malian female presented to the internal medicine outpatient clinic with 3-months history of pruritic achromic skin patches. Concomitantly, this was associated with Gottron's papules, polyarthralgia with arthritis and exertional dyspnea for which the diagnosis of MCTD based on the EULAR/ACR 2019 criteria [19] for systemic lupus erythematosus, EULAR/ACR 2010 criteria [20] for rheumatoid arthritis with subcutaneous rheumatoid nodule, EULAR/ACR 2013 criteria [21] for systemic sclerosis, Bohan and Peter 1975 criteria [22] for probable dermatomyositis and Kasukawa's criteria 1988 [23] for MCTD itself; and AHA with positivity of the direct coombs test and the context of hemolysis were made. She had no medical History. On admission the temperature was 38.1°C, the heart rate was 94 beats per minute, the respiratory rate was 28 cycles per minute, and the Body Index Mass (BMI) was 16.17 kilogram per square meter. The dermatological examination revealed bilateral and symmetrical achromic macular lesions over the forearms, trunk, neck, scalp and limbs (Figure 1). Others dermatological findings include: dry, thickening, and induration skin over the fingers, hands, forearms and arms with pudgy fingers; painless, ulcerated, firm and mobile subcutaneous nodules on the right elbow; heliotropic eruptions over the face, Gottron's papules opposite the interphalangeal joints; and alopecia. Rheumatologic, pulmonary digestive examinations were not unremarkable. The inflammatory workup showed that the erythrocyte sedimentation rate (ESR) was 99 mm at the first hour (normal range, 0 to 29 millimeter) and the blood C-reactive protein level was 56.5 mg per liter (normal value, < 6 mg per liter). Autoantibodies directed against melanocytes or melanocyte proteins were not performed as was the skin biopsy. Other laboratory tests were mentioned in table 1.



Figure 1: showing vitiligo lesions distribution on baseline visit and its complete regression on 1-year follow-up in our patient.

Table 1: Laboratory test findings on admission.

Variable	Value	Normal range or normal value
Hematological findings		
Hemoglobin level (g per deciliter)	8.1	12.1 - 15.1
Reticulocytes (per cubic millimeter)	128170	0.5% - 2.5%
Blood white-cell count (cells per cubic millimeter)	2888	4,500 - 10,500
Lymphocyte count (cells per cubic millimeter)	801	1,000 - 4,800
Hemolysis workup		
Unconjugated bilirubin level (μmol per liter)	82	3.4 - 12.0
Haptoglobin level (g per liter)	0.08	0.5 - 2.2 g
Blood lactate dehydrogenase (IU per liter)	840	105 - 333
Biochemical findings		
Blood creatinine phosphokinase level (U per liter)	4645	26 - 192
Immunological findings		
Antinuclear antibodies	1:1230	
Anti-Smith antibodies	positive	
rheumatoid factor (IU per milliliter)	100	
Anti-CCP antibody	negative	
Anti-native DNA antibody	negative	
Anti-Scl70 antibody	negative	
Anti-Jo1 antibody	negative	
Anti-U1-RNP antibody	positive	
Direct coombs test	positive	

Vitiligo of autoimmune origin was considered because of the clinical context and the immunological disorder in this case.

Treatment with prednisone at the dose of 1 mg per kilogram tapering courses was begun with adjuvant therapy and without contraindication, the hydroxychloroquine was added to corticoid.

The glycerol (0.15 g), petroleum jelly (0.08 g) and liquid paraffin (0.02 g) mixture (dexeryl®) creams was began because of dry skin and pruritic achromic skin patches. On three-month follow-up visit, systemic condition disappeared and the vitiligo lesion had completely resolved on 1-year follow-up visit (Figure 1).

Discussion

This case report describes the onset vitiligo of autoimmune origin associated with other autoimmune diseases revealed by a 3-months history of pruritic achromic skin patches. Vitiligo seems to be more common in people who have a family history of the disorder or who have certain autoimmune diseases, including: Addison's disease, pernicious anemia, psoriasis, rheumatoid arthritis, systemic lupus erythematosus, thyroid disease, Type 1 diabetes [1,17]. Our case is associated with autoimmune hemolytic anemia and mixed connective tissue disease including rheumatoid arthritis, systemic lupus erythematosus, systemic sclerosis, dermato-polymyositis.

Vitiligo is a chronic autoimmune disorder that causes patches of skin to lose pigment or color. This happens when melanocytes are attacked and destroyed, causing the skin to turn a milky-white color [17]. Several types of vitiligo are distinguished according to the distribution of the achromic lesions [24]. Vitiligo is the most common pigmentary disorder, with a reported frequency of 0.1–2% in various populations [25]. The frequency of vitiligo appeared approximately equal in males and females [1]. The mean age was 40.72 ± 17.31 years according to the same authors [1]. The present case is described in Malian young female.

The cause of depigmentation in vitiligo is clearly the loss of melanocytes from the skin, yet it was long debated whether this was through a degenerative or autoimmune process [16].

In vitiligo, the white patches usually appear symmetrically on both sides of your body, such as on both hands or both knees. It is known

that people with vitiligo may be more likely to develop other autoimmune disorders as well [17]. In our case, the dermatological examination revealed bilateral and symmetrical achromic macular lesions over the forearms, trunk, neck, scalp and limbs.

Diagnostic tools can include blood tests to check for other autoimmune diseases, an eye exam to check for uveitis, a skin biopsy for the missing melanocytes seen in the depigmented skin of a person with vitiligo [17]. Our patient did not perform specific auto-antibodies directed against melanocytes, skin biopsy but she performed ocular exam with unremarkable findings.

The goals of vitiligo treatment are to slow or stop the disease from progressing, to encourage the regrowth of melanocytes, and to restore color to the white patches of skin, which can help the skin color look more even [17]. The therapeutic means includes medicines or medicated skin creams, such as corticosteroids or a calcineurin inhibitor; use of light (phototherapy); Depigmentation, or removing color from dark areas of the skin so they match the white patches; surgical techniques for long-standing segmental vitiligo or vitiligo of any type for which other treatments do not work are some means against vitiligo [16,17]. Our patient did not benefit any of these therapeutic means. She was treated only with DMARDs and glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®).

It's important to remember that treatments may take time, and not everyone responds. The vitiligo lesion had completely resolved on 1-year follow-up visit in our case without specific vitiligo treatment. The glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®) in our case was indicated for dry skin presentation. But we observed a rapid and complete vitiligo regression under this mixture associated with DMARDs. This is why, beside a controlled inflammation process by DMARDs, we suspected a role of glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®) in melanocyte regrowth. Indeed, two main mechanism of action of glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®) are known, i) reduction of transepidermal water loss: petroleum jelly and paraffin form a lipid layer limiting water loss from the stratum corneum and allowing water-soluble and hygroscopic substances to be maintained within it and ii) increase in the hydration of the superficial layers of the skin due to the hygroscopic power of glycerol and its penetration into the epidermis [18].

In perspective, a clinical trial will allow to better appreciate this novel therapeutic property of glycerol, petroleum jelly and liquid paraffin mixture (dexeryl®). Then a pharmacodynamics study focusing of effect of glycerol, petroleum jelly and liquid paraffin mixtures (dexeryl®) on melanocyte regeneration could necessary.

Conclusion

This case would highlight a potential novel indication of glycerol, petroleum jelly and liquid paraffin mixtures (dexeryl®) in vitiligo of autoimmune origin. A clinical trial will be necessary to deeply appreciation this novel therapeutic property of glycerol, petroleum jelly and liquid paraffin mixtures (dexeryl®).

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