# Vitiligo Universalis: Case Report and Management Options

***Ayanlowo OO[1], Akinkugbe AO[1], Odeniyi OA[2], Otrofanowei E[2].**

[1]Department of Medicine
Faculty of Clinical Sciences
College of Medicine, University of Lagos.

[2]Department of Medicine,
Lagos University Teaching Hospital.

**** Corresponding author**
Dr Olusola Ayanlowo
Department of Medicine
Faculty of Clinical Sciences
College of Medicine, University of Lagos
**Email:** solayan05@yahoo.com
**Phone:** +234 8034721690

## ABSTRACT

Vitiligo is an acquired pigmentary disorder of the skin and mucous membranes, and it is characterized by circumscribed, depigmented macules and patches. Vitiligo is a progressive disorder in which some, or all of the melanocytes in the affected skin are selectively destroyed. It affects 0.5-2% of the world's population, and the average age of onset is 20 years. The diagnosis of vitiligo is mostly clinical and has significant effect on the quality of life of patients in view of the striking colour contrast from surrounding skin, especially in the dark skinned population. It may carry similar stigma with Hansen's disease. Types of vitiligo documented include acral, peri-orificial, localised, lip-tip, segmental and generalised. We present an unusual case of vitiligo (vitiligo universalis) in a 30 year old Nigerian lady, which started as acrofacial vitiligo and later progressed to affect all body surfaces including the oral mucosa and hair. Her pregnancy appeared to have precipitated the progression from the acrofacial vitiligo to vitiligo universalis. The management for vitiligo universalis involves the use of total depigmenting agents, rather than conventional repigmentation agents. This modality of treatment will be highlighted.

**Keywords:** vitiligo universalis, total depigmentation, depigmenting agents, monobenzyl ether of hydroquinone (MBEH)

## INTRODUCTION

Vitiligo is an acquired depigmenting disorder of the skin and mucous membranes of unknown origin. Vitiligo results from absence of functional melanocytes in skin and loss of histochemically recognized melanocytes, owing to their destruction[1,2]. The process of melanocyte destruction is slow with progressive decrease in number of melanocytes. Theories of melanocyte destruction include the autoimmune, biochemical, oxidative stress, autocytotoxic and neural mechanisms[3]. The autoimmune mechanism is the most widely accepted as evidenced by the presence of autoantibodies in the skin which correlates with disease activities, and associations with autoimmune disorders such as Hashimoto's thyroiditis, Grave's disease, pernicious anaemia and diabetes mellitus[4,5].

Vitiligo is relatively common, with a worldwide prevalence of 1-2%, a third of which occur with familial clustering[4]. Hospital based studies carried out in different regions of Nigeria report that vitiligo accounted for 2.8 to 5.7% of dermatology consultations[6-10]. Female preponderance reported for vitiligo was attributed to increased cosmetic concerns by female patients[4,10]. Vitiligo can occur at all ages and was found to be most prevalent in the 3rd and 4th decades of life in studies in Nigeria[6,10].

Clinical types of vitiligo that have been described include focal, segmental and generalized types. Vitiligo universalis presents with almost total depigmentation of the skin leaving few normal pigmented macules[4].

We report a case of vitiligo universalis (VU), a rare and unusual presentation, the only case of near total depigmentation of the skin seen at our centre in the last ten years. We will be highlighting the goal and mode of management which is total depigmentation, rather than repigmentation as in other types of vitiligo.

## CASE REPORT

A 30 year old lady presented to the dermatology outpatient clinic of the Lagos University Teaching Hospital (LUTH) with 20 years history of progressive loss of her skin colour. She was first seen 6 years earlier with discolouration of the skin which started on the lips, and progressed to involve oral mucosa, chin, face, and the extremities after some months. There was no

associated itching or pain. There was no history suggestive of thyroid disorders, diabetes and pernicious anaemia prior to the onset of change in skin colour. She was subsequently commenced on systemic psoralen (meladinin, 20mg) and phototherapy thrice weekly.

There was initial repigmentation; however, this was halted when she discontinued the medication during pregnancy and lactation. She also defaulted from the clinic at the same time. The loss of pigmentation continued over the next 6 years and became generalized to involve the lower part of the scalp and pubic hairs. A month prior to her re-presentation at the dermatology clinic of LUTH, she recommenced meladinin herself and developed lentigine-like repigmentation on the face, trunk and hands. She had no significant past medical or surgical history. There was no personal or family history of thyroid disease or diabetes mellitus. No prior history of fetal loss.

Examination revealed depigmentation of the whole body surface including the oral mucosa, areola, body hair (leukotrichia) and the roots of the scalp and pubic hairs; the eyebrows and axillary hairs were spared. There were hyperpigmented lentigine-like macules on the face and extremities. No other skin disorders were noted. Other systems did not reveal any abnormalities.

Investigations revealed normal free T4 (14pmol/L, normal range is 9 – 21) and TSH (1.5mUl/L, normal range is 0.2 – 4.5). Fasting blood sugar was 80mg/dl. Complete blood count result showed haematocrit – 33.9%, white cell count – 4.79 x $10^9$, platelets – 357 x $10^9$, the differential counts were within normal range. The erythrocyte sedimentation rate was 20mm/hr.

An assessment of vitiligo universalis (VU) was made. She was counselled on the nature of the disease and the fact that repigmentation is unlikely in view of the extensive nature of depigmentation and the long duration. She was advised on the modality of treatment which is total depigmentation with monobenzyl ether of hydroquinone if the residual pigmentation persists after six month of stopping meladinine, which she consented to. She was also educated on photoprotection (sun avoidance, use of umbrella, wearing of long sleeve clothing and the use of sunscreens with SPF 30 and above). Patient was subsequently seen at the clinic only once after her consent to total depigmentation and she had since defaulted.

**DISCUSSION:**

The diagnosis of vitiligo is mostly clinical and can be quite distressing to the patient. In view of the contrast between patients with vitiligo and areas of normal skin colour, quality of life is more affected in dark-skinned individuals than the light-skinned[3,11]. In dark-skinned population, vitiligo affects the individuals racial identity; having vitiligo can perceived as a consequence of wrong doing and can be confused with leprosy (a stigmatized condition), making it more psychologically distressing[12]. Vitiligo patients have psychosocial issues such as poor self image, feeling of distress, social isolation, financial loss, interference with employment opportunities, reduced marital prospects, which all result in severe depression and suicide attempts[11].

Vitiligo universalis is complete or near total depigmentation of the total body surface; authors place body surface affectation at between 50-70%[13]. In a report on vitiligo from Senegal, 8% of cases had vitiligo universalis[14]. Vitiligo universalis vitiligo has been associated with polyendocrinopathy, neurofibromatosis type 1, alopecia universalis, Graves' disease, Evans syndrome and antiphospholipid syndrome[13-17]. None of these associated disorder was noted in the patient presented. The patient had features associated with progression and poor prognosis such as delayed presentation, acrofacial affectation, mucosal vitiligo and non segmental disease[17].

Specifically, pregnancy and stoppage of repigmenting drugs appear to have precipitated progression from acrofacial variant to universalis in the index patient. A variable course of viitiligo was noted with pregnancy in a series; majority (greater than 60%), had stable vitiligo in pregnancy and within six months postpartum[18]. The Danish study on childbirth and autoimmunity revealed increased risk of some autoimmune condition such as Hashimoto's thyroiditis, Grave's disease and sarcoidosis during pregnancy and in the first one year postpartum[19]. Pregnancy may likely have an additive effect on the physical, psychological and emotional stress implicated in the precipitation and worsening of vitiligo[17]. Positive family history, the isomorphic Koebner's phenomenon, leukotrichia, stress, sunburn and emotional disturbance have also been implicated in progression of vitiligo[12,17].

While the goal of management of other types of vitiligo is repigmentation, the goal for vitiligo universalis and generalised vitiligo affecting exposed areas (face and arms) is depigmentation of residual pigmented skin[12]. Depigmenting agents used include p-(benzyloxy) phenol (monobenzyl ether of hydroquinone), monomethyl ether of hydroquinone, 88% phenol, 4-methoxyphenol, imatinib, imiquimod and diphencyprone. Physical agents used in depigmenting are lasers and cryotherapy[20,21]. Other potential depigmenting substances undergoing trials for management of VU are 4-ethoxyphenol, 4-methylcatechol, interferon-gamma, busulphan and vaccines using melanoma associated antigens[20,21].

**Figure 1:** Patient's Old Picture before total body depigmentation showing acral depigmentation

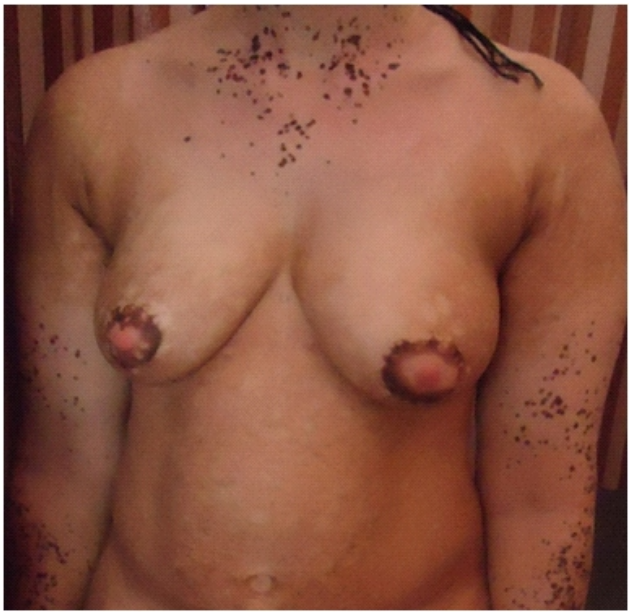

**Figure 2:** total depigmentation of the skin and development of lentiginous macules following recommencement of meladinin, 6 years after the first presentation (front)

Although there are no large trials to determine the ideal depigmenting agent, the best known and perhaps most widely used is monobenzyl ether of hydroquinone (Synonyms: MBEH, monobenzone, p-(benzyloxy) phenol). It undergoes enzymatic conversion to quinine, which reacts with proteins and DNA of melanocytes to induce cell death[20-22]. Monobenzyl ether of hydroquinone (20-40%) is applied topically for 3-12 months[20-22]. The effect of MBEH can be potentiated by the use of topical all trans retinoic acid, a vitamin A derivative which enhances its absorption. Side effects

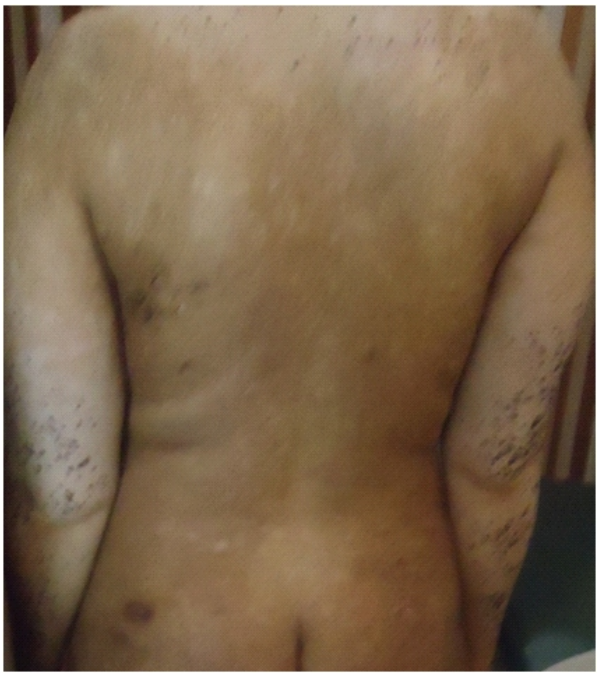

**Figure 3:** total depigmentation of the skin and development of lentiginous macules following recommencement of meladinin, 6 years after the first presentation (back)

noted include: skin irritation, contact dermatitis, ocular side effects, exogenous ochronosis and permanent skin depigmentation[21,22].

When MBEH is not available or successful, 88% phenol is recommended as a cheaper alternative. It works by inhibiting melanin production by the melanocytes, as opposed to MBEH which destroys the melanocytes[23]. Where a large surface area is to be depigmented, use of 88% phenol is not advocated because of its toxicity to the liver, kidney, cardiovascular and respiratory systems[20,21]. In experienced hands, 88% phenol was found to be effective and it has successfully been combined with cryotherapy without adverse effects[21,23].

Physical therapies used in depigmentation of normal skin include cryotherapy and lasers, alone or in combination with other modalities. Lasers cause selective destruction of melanocytes by photothermolysis; while cryotherapy is melanotoxic[23-26]. Types of lasers used are Q-switched ruby, Q-switched Nd: YAG and Q-switched alexandrite. Lasers are however expensive requiring skill and experience; painful and needs anaesthesia, while aggressive cryotherapy leads to permanent scarring[24-26]. These other modalities of treatment are costly and have significant side effects when compared with MBEH.

In conclusion, vitiligo universalis represents an irreversible progression of vitiligo and the goal of management is total depigmentation of residual pigmented skin rather than conventional

repigmentation. Pregnancy and stopping medication appear to be the factors which precipitated progression to vitiligo universalis in the patient presented. Management modalities for VU include total depigmentation, photoprotection and psychological treatment.

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