Medical Reports and Case Studies
ISSN: 2572-5130

Michael, Med Rep Case Stud 2018, 3:1
DOI: 10.4172/2572-5130.1000152

Case Report Open Access

An Unusual Presentation of a Unilateral Asymptomatic Riehl's Melanosis in a 45 Year Old Male

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Received Date: Feb 12, 2018; **Accepted Date:** Mar 12, 2018; **Published Date:** Mar 21, 2018

Introduction

Pigmented contact dermatitis (PCD), also known as Riehl's melanosis, is a rare facial hyperpigmentation usually secondary to cosmetics. There are few documented reports in the literature, and many cases without proven diagnosis may have been treated with pigment lasers, especially in beauty parlour settings. We report a case referred from a private practitioner who has a special interest in dermatology. The patient was diagnosed subsequently as having Riehl's melanosis and treated with non-tyrosinase inhibitor bleaching agents, sun avoidance and mandatory abstinence from over-the-counter cosmetic products.

Case Report

A 45 year old male patient was referred to our specialist skin clinic on 9 January 2018 with a worsening, progressive hyperpigmentation on the left side of his face. The history suggested the pigmentation started in September 2017 as a small pigmented patch. He did not notice any symptoms and denied any itchiness, pain, swelling and erythema. He worked as a support service manager and often has to perform outdoor activities. Due to the pigmentation, his wife provided him with sunscreen applied over the face. The patient failed to recall the sunscreen's name, basic ingredients and expiry date so the brand and constituents of the sunscreen cannot be retrieved. Without any symptoms, the pigmentation progressed and developed into an intense greyish brown color with a bizarre configuration. The right side of the face was not affected. The patient also complained that the pigmentation started to develop on the lower left side of the face after he shaved his beard and put on some aftershave. The patient enjoyed good health and, apart from taking Ginseng as health supplements, no systemic or topical drug-induced pigmentary medication was taken. He had been prescribed topical medications by the practitioners consisted of 4% hydroquinone and topical steroids for the eruption with no improvement He denied using any hair dye or fragrance, but he occasionally used aftershave and the sunscreen provided by his wife.

When he was initially seen in early January, he did not complain of any symptoms. Because of this, the patient himself was quite apathetic. He told us that the pigmentary eruption did not bother him. However, his wife was very worried about the bizarre look of the hyperpigmentation and requested exclusion of skin malignancy. After a detailed explanation and counselling, photographic documentation of the asymptomatic facial hyperpigmentation was taken (Figure 1) apart from a detailed history including drug, family and past medical history. Woods light examination showed dermal pigmentation. After some persuasion, the patient finally agreed to perform a diagnostic skin biopsy over the lesion with written consent. The differential diagnosis at this juncture was not so much of neoplastic skin condition but of post-inflammatory hyperpigmentation, Acquired unilateral Nevus (Hori's Nevus), Riehl's melanosis, Drug-induced hyperpigmentation, Lichenoid dermatitis; as well as Melasma and Ochronosis.

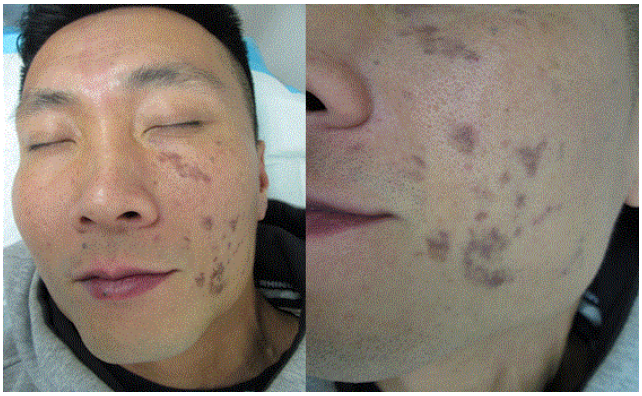

Figure 1: Photographic documentation of the asymptomatic facial hyperpigmentation.

A 3 mm punch skin biopsy over the affected area of the face was performed, and skin histology showed the skin thin keratosis with mild hypergranulosis. There was focal vacuolar change at the interface, accompanied by pigmentary incontinence in the superficial papillary dermis. Mild to moderate perivascular lymphocytic infiltrate is noted around the superficial vascular plexuses. There is no vasculitis, no hemosiderin deposits and no proliferation of melanocyte.

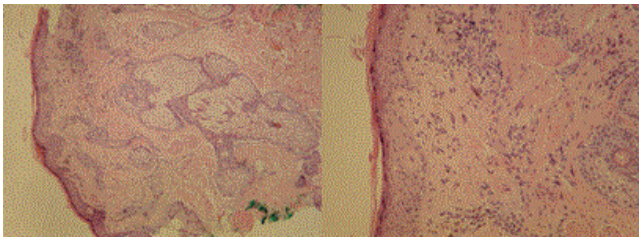

Figure 2A: Low power view of the skin showing the relationship of the layers of the skin: hyperkeratosis and slight hypergranulosis can be seen in the epidermis, and perivascular infiltrate is noted.

No dysplastic cells are noted. The overall features are compatible with Riehl's melanosis (pigmented contact dermatitis) (Figures 2A-2D).

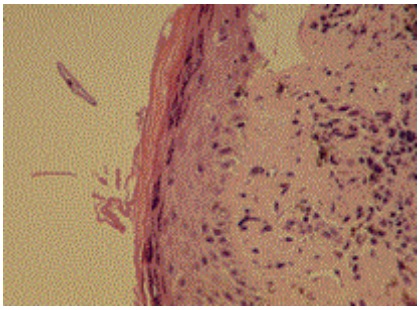

Figure 2B: Medium power view with detail of the hyperkeratosis, hypergranulosis and vacuolar change at the interface. Pigmentary incontinence is noted.

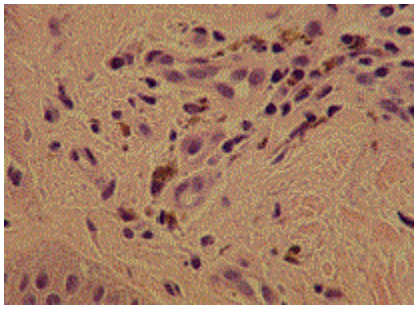

Figure 2C: High power view where pigmentary incontinence and melanophages are noted in the superficial part of the dermis.

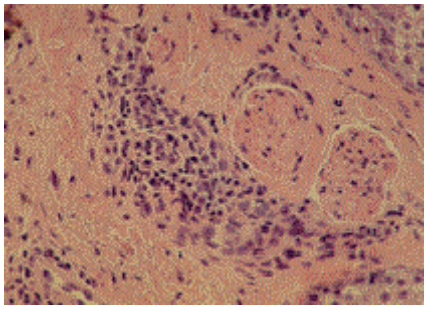

Figure 2D: High power view showing the perivascular lymphocytic infiltrate, note that eosinophil is not a feature.

The nature of the diagnosis was carefully explained to the patient and a further detailed cosmetics history was taken but not enough information was obtained. The standard patch testing and routine blood test were negative. The suspected sunscreen and aftershave were not available. The patient after counselling agreed to avoid applying any unidentified topical cosmetics over the face, particularly sunscreen and aftershave. He was prescribed topical Lignin peroxidase over the affected area twice a day for four weeks. The pigmentation improved and lightened (Figure 3). He did not complain of any side effects of the prescribed bleaching cream. He was advised to continue the same regime and was followed up every month.

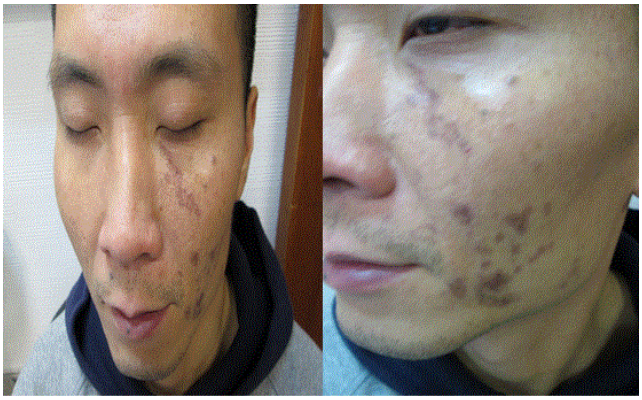

Figure 3: Pigmentation improved and lightened after 4 weeks.

Riehl's melanosis, often referred to as PCD, is an uncommon but important facial hyperpigmentation presented in mostly pigmented skin types. It is thought to be due to repeated, frequent contacts with certain specific allergens with very mild or unnoticeable signs and symptoms of allergic contact dermatitis. First described by Riehl during Second World War, poor nutrition and scarcity of food supply during war conditions were thought by Riehl's to be the major contributory factors of the diseases [1]. Subsequently, more cases were reported in the literature with similar presentation of PDC, but they were associated with contacts of hydrocarbons, oils, cosmetics and additives like aniline dye (orange II) and toiletries Tinopal CH 3566 in washing powder as clothes whiteners and textiles [2-4].

Nakayama introduced the term pigmented cosmetic contact dermatitis (PCCD) for cases of PCD caused by using certain cosmetics (Table 1) [5,6]. Most authorities agreed that PCD is caused by an allergic contact dermatitis due to a variety of topical and airborne allergens with a mild immune reaction characterized with significant pigmented incontinence, lichenoid vacuolar interface dermatitis and a mild perivascular lymphocytic infiltration [7]. This led to the confusion as to whether the skin pigmentation conditions originally described by Riehl are equivalent to the disease described by subsequent authors. Nonetheless, PCD and PCCD are the preferred disease entity practical to dermatologists faced with bizarre facial hyperpigmentation in a clinical setting.

Fragrance allergens	Jasmine
	Benzyl salicylate
	Hydroxycitronellal
	Ylang-ylang oil
	Cinnamic alcohol
	Musk ambrette
	Cananga oil
	Sandalwood oil
	Synthetic sandalwood
	Bornyl methoxy cyclohexanol
	Geraniol oil
	Eugenol

	Isoeugenol
	Balsam of Peru
	Lavender oil
	Lemon oil
	Methoxycitronellal
	Benzyl alcohol
	Cinnamic derivatives
Cosmetic allergens	D&C Red 31 Pigment
	Brilliant Lake Red R Pigment
	D&C Yellow No 11 and 10 Pigment
	Phenyl-azo-2-napthol
	Chromium hydroxide Pigment
	Carbanilides
	Aniline dyes Pigment
	Hair dyes
	Castor oil acid
	Deodorants, lipstick contained Bactericide
	Kumkum(red) Cosmetic powder
Textile allergens	Tinopal CH3566
	Napthol AS
	Biocheck 60
	PPP-HB Textile finish
	Mercury compounds
	Formaldehyde
	Azo dyes
	Disperse Blue 106 dye
	Disperse blue 124 dye
	CI Blue 19 dye
	Rubber components
Other allergens	Chromate and dichromate
	Nickel; component products and jewellery
	Paratertiary butyl-phenol formaldehyde resin – Neoprene adhesive
	Wood dust
	5% Minoxidil

Table 1: Adapted from Medscape Dermatology [8].

PCD and PCCD should always come into the differential diagnosis of the working dermatologist in unexplained worsening pigmentation over sun exposed areas in patients. A detailed medical, drug and clinical history, including lifestyle habits and especially toiletries and cosmetics used, are mandates in the management of these conditions. Unfortunately, patients usually forgot or denied applications or contacted suspected allergens. Among other reasons, the initial mild inflammatory signs and symptoms like erythema, itch, pain and swellings of the skin affected may make the patients unaware of the condition and the possible serious consequences.

Patch testing, photo patch testing and extended patch testing with the suspected allergens, if available, should be performed. However, this is not always useful as the culprit allergens may not be available. In our case, the patient was unable to remember and provide the sunscreen and aftershave that have been used. Allergic testing may fail to provide additional aid to confirm the diagnosis. Diagnostic skin biopsy, though suggested by many experts as not essential in confirming PCD, is a useful, convenient, cost-effective and informative adjuvant investigation with minimal invasion [9]. Full written consent must be obtained from the patient, especially as most of the affected area may, after biopsy, be complicated by post inflammatory changes and scarring resulting in further disfigurement. From our experience, a two- to three-millimetre punch biopsy is sufficient. In our case, a detailed discussion with the pathologist on both the clinical and histological pictures with a clinical correlation and follow up provided the clinical diagnosis of PCD. The important differential diagnoses that have to be excluded are Drug induced hyperpigmentation, Acquired nevus of Ota (Hori's nevus); Lichenoid pigmentosa, Maturational hyperpigmentation, Post-inflammatory hyperpigmentation, Melasma and Ochronsis [10].

Once the pigmentary diagnosis is elucidated, the patient should be fully informed, counselled, educated and followed up. Sun avoidance and proper sunscreen applications with well-documented sun protective factor and hypoallergenic constituents are a priority. All over the counter, self-purchased and suspicious cosmetics must be requested to stop. Due to the potential irritancy and adverse effects of tyrosinase inhibitors, hydroquinone was not prescribed. In our case, Lignin peroxidase was prescribed and applied over the affected area twice daily. The patient was followed once a week and after one week did not complain of any side effects. After a four week application, the pigmentation was decreased and the patient subjectively felt improved. The lesion was documented and shown in Figure 3. Subsequent follow-up will be carried out. The use of energy based pigment laser like Nd:YAG laser has been reported in the literature to treat Riehl's melanosis, but we opine that topical therapy and conservative management should be considered as first-line [11,12].

Conclusion

We report a case of an enlarging bizarre unilateral facial pigmentary skin eruption in a male patient with a pathological diagnosis compatible with a clinical diagnosis of PCD. We advocate the importance of considering a minimally invasive diagnostic skin biopsy to aid diagnosis. Allergy contact skin testing may not be useful in some circumstances. Tyrosinase inhibitors are not recommended as part of the treatment. Patient education and counselling, proper use of skin care products, including sunscreens, and early detection are important parts of the management. The local health authority should inform and report to the general public those chemicals frequently used in cosmetics, toiletries and hair dyes that were proven to cause this distressing facial eruption.

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