

Yellow pseudochromhidrosis in a young female

Abstract

Chromhidrosis is a rare disorder in which there is pigmentation of sweat in a variety of colors. It can be classified into apocrine, pseudoecrine, and true eccrine chromhidrosis. Pseudochromhidrosis is a condition in which the excreted sweat is colorless, but later acquires color due to contact with chromogenic chemicals. Systemic and topical antibiotics are the mainstay of treatment. Although it does not constitute a major health issue, it causes psychological stress and social embarrassment. A 20-year-old female presented to us with yellow-colored sweat and discoloration of clothes since 1 month. Routine laboratory investigations were normal. Skin scrapings were negative for fungus and bacteria. Skin biopsy was also normal. She was labelled as a case of pseudochromhidrosis, and oral and topical antibiotics were prescribed, to which she responded well.

Key Words: *Chromhidrosis, pseudochromhidrosis, yellow discoloration*

Introduction

Chromhidrosis is a rare disorder in which there is pigmentation of sweat in a variety of colors. Most commonly reported colors are blue, black, green, brown, yellow, and red. This condition was first described by Yonge in 1709.^[1] It was classified into apocrine, pseudoecrine, and true eccrine chromhidrosis by Cilliers and de Beer.^[1] Pseudochromhidrosis is a condition where normal colorless sweat is excreted, which later acquires color following contact with chromogenic microbial products or extrinsic chemicals.^[2] Although pseudochromhidrosis does not constitute a health issue, it may cause psychological stress and social embarrassment. Here, we describe a case of a 20-year-old female with pseudochromhidrosis.

Case Report

A 20-year-old female presented with complaints of yellowish discoloration of skin over the face, forearms, palms, and soles due to yellow colored sweat since 1 month. She also complained of yellowish staining of the clothes. This discoloration was aggravated with exertion. There was no history of ingestion of any drugs, foods rich in carotene such as carrots, citrus fruits, and sweet potatoes. She denied contact with

yellow colored products in the form of any chemicals, dyes, deodorants, and colored clothes. She also denied using any type of cosmetics over her body. There was no history of specific odour and she had no underlying psychiatric ailment. There were no similar complaints in the past or in the family. On dermatological examination, skin appeared yellowish over the palms and forearm, toe webs, and face [Figure 1a-c]. Axillae and groins were normal. Wood's lamp examination showed yellowish florescence over face and palms. [Figure 2a-b] Blotting sweat with a white cloth showed yellow stain. [Figure 3a] There was an odourless yellowish discoloration on her clothes. [Figure 3b]. The color of her tears, saliva, and urine was unchanged. Routine laboratory investigations were normal. Microscopy and culture of skin scrapings were negative for fungus and bacteria. Skin biopsy was negative for lipofuscin granules, which excluded chromhidrosis. Therefore, this was labelled as a case of pseudochromhidrosis. Patient was started on empiric treatment with oral erythromycin and antiseptic soap for 15 days, to which patient responded well. [Figure 4a-b].

Discussion

Pseudochromhidrosis, also known as extrinsic chromhidrosis, is a condition in

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Figure 1: Yellow discoloration over (a) palms and forearms, (b) toe webs, and (c) face



Figure 3: (a) Blotting sweat with a white cloth showing yellow stain. (b) Yellowish discoloration on her clothes

which normal colorless sweat becomes colored because of the presence of chromogens, such as chromogenic bacterial products (e.g., those of *Corynebacterium* species), chemicals, heavy metal paints, or clothing dyes, and self-tanning products when it reaches the skin.^[3] Fungal and bacterial cultures of the skin should be performed to eliminate the cause of mere pseudochromhidrosis.^[4]

Corynebacteria are responsible for red pseudochromhidrosis, whereas *Malassezia furfur* and *Bacillus* species are the agents involved in the blue pseudochromhidrosis. The ecological stability of these commensal bacteria in different body sites rely on environmental factors such as hydration, oxygen, growth substrates, and the pH of the stratum corneum. Pseudochromhidrosis needs to be differentiated from apocrine and eccrine chromhidrosis because it is important for the prognosis [Table 1]. Although the presentations of apocrine and eccrine chromhidrosis are similar, the pathophysiology is quite different. There are case reports of pseudochromhidrosis with reddish pigmentation where no organism was isolated in the culture but were successfully treated with oral and topical antibiotics.^[3,6] Our case, which showed yellowish discoloration of the skin, was also negative for organisms on culture, but improvement with oral erythromycin and topical antiseptic soap shows bacterial etiology.

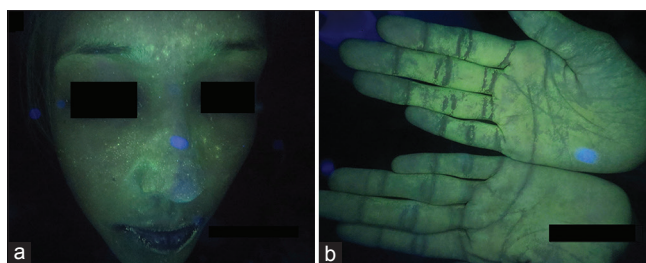


Figure 2: Wood's lamp showing yellowish fluorescence over (a) face and (b) palms



Figure 4: Clearing of yellowish discoloration in follow up over (a) face and (b) palms

The initial assessment of a patient who presents with pigmented sweat should include detailed history with careful attention toward any new medications started close to the onset of the symptoms, including herbal medications, vitamins, and other supplements, the history of which was denied by our patient. A thorough psychiatric evaluation was done by a psychiatrist to rule out any psychiatric ailment. The production of colored sweat has an impact on psychological and social functioning.^[7]

The differential diagnosis for skin and sweat pigmentation includes hyperbilirubinemia, hematohidrosis, alkaptonuria, copper exposure, Addison disease, and hemochromatosis.^[8] Hematohidrosis is a very rare condition in which patient sweats blood.^[9] Because there is no known treatment that targets the accumulation of lipofuscin, apocrine chromhidrosis is usually recurrent. The treatment is usually targeted toward reducing sweat secretion by topical capsaicin cream, which is inexpensive and effective if continued; however, it has side effects such as intolerable pain, pruritus, soreness, and itching. Capsaicin stimulates afferent unmyelinated nerve fibers causing release of substance *P* stored in synaptic vesicles, and prolonged use leads to depletion of substance *P* in the unmyelinated, slow-conducting, type C sensory fibers.^[8] Injections of botulinum toxin is effective for focal chromhidrosis, such as in the axillae, although the treatment of large areas is costly.^[10] Because of the natural regression of the apocrine sweat glands with age, it is likely that symptoms may diminish, although there is no long-term follow up of patients.^[10] Treatment

Table 1: Differentiating features of various chromhidrosis

Variable	Apocrine chromhidrosis	True eccrine chromhidrosis	Pseudo eccrine chromhidrosis
Definition	Condition where colored sweat is secreted by the apocrine glands. Color varies depending on the level of oxidation of lipofuscin ^[3]	Exceedingly rare condition. Water-soluble pigments are excreted via the eccrine glands. ^[3]	Condition where normal colorless sweat is excreted, which later becomes colored following contact with chromogenic microbial products or extrinsic chemicals ^[2]
Etiology	Intrinsic process, due to mixing or deposition of oxidized lipofuscin pigment with sweat inside the sweat gland, which is then expressed to the surface. ^[5]	It is result of water soluble dyes or drugs that mix with sweat within the gland and then are expressed to the surface ^[4]	It is due to extrinsic chromogens such as chromogenic bacterial products, paints, chemicals, dyes ^[3]
Glands involved	Apocrine glands	Eccrine glands	Eccrine and apocrine glands
Site	Axilla, groin, Areola, facial skin	All over the body	All over the body
Histopathology	Lipofuscin granules in biopsy specimens	Normal	Normal
Diagnosis	Autofluorescence at 360 nm on skin, stained clothes and biopsy specimens. ^[1] Histopathology findings	History of ingestion of any water-soluble pigment or dye	Bacterial or fungal cultures. Improvement with antibiotics and antiseptic scrubs. Diagnosis of exclusion
Treatment	Topical capsaicin cream, 20% Aluminium chloride hexahydrate solution, Botulinum A toxin ^[10]	Ceasing consumption of soluble pigment	Oral and topical antibiotics, antiseptic scrub
Prognosis	Usually recurrent. Diminishes with age due to natural regression of the apocrine glands ^[10]	Variable	Good

of eccrine chromhidrosis consists of only ceasing the consumption of soluble pigment.

Although treatment for pseudo chromhidrosis has been successful with antibiotics and cessation of the offending agent, it can be a cause of embarrassment for patients and can be frustrating for healthcare provider and patients both.

Conclusion

This is a rare case of pseudo chromhidrosis leading to yellowish discoloration of skin with no specific cause, but which responded to oral antibiotic and use of antiseptic soap.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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