

## Chromhidrosis – Colored Sweat in a Toddler

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**Background:** Chromhidrosis means production of coloured sweat. **Case characteristics:** A toddler who presented with colored sweat was diagnosed to have chromhidrosis based on skin biopsy. No treatment was attempted considering the young age. **Outcome:** Parents were counselled about the benign nature of this disorder. **Message:** Identification of causes of colored sweat requires appropriate investigations.

**Keywords:** Child, Chromhidrosis, Sweat glands.

Chromhidrosis is the production of colored sweat by eccrine or apocrine sweat glands. There have been very few reports of chromhidrosis in the pediatric age group. We report a 3½-year-old girl with this rare dermatological disorder.

### CASE REPORT

A 3½-year-old girl, the only child of non-consanguineous parents presented with frequent bluish discoloration of pillow covers after overnight sleep, noted by parents for last one month. This was more obvious after sleeping in the day time in summer in a non-air-conditioned bedroom. Her hat which was used by her during a recent summer holiday was also noted to stain blue. There was no history of drug intake or use of any topical coloring agents for the skin or hair. Her urine and stools were normal. Clinical examination was completely normal, and she did not have any specific odor. Investigations suggested mild anemia (hemoglobin 10 g/dL), normal renal and liver function, and normal metabolic screen. Skin biopsy from scalp was sent for histopathological examination (HPE) with a specific request to look for the presence of lipofuscin granules using periodic acid-Schiff (PAS) staining. HPE was suggestive of Chromhidrosis and parents were counselled about benign nature of this condition. We did not consider any topical medication because of the young age, and also because she was completely asymptomatic otherwise.

### DISCUSSION

Chromhidrosis refers to secretion of colored sweat and was first reported in 1709 by Yonge of Plymouth [1]. It has been classified into apocrine, pseudo-eccrine, and true eccrine chromhidrosis [2]. Apocrine chromhidrosis is production of brown, black, blue, green, or yellow colored sweat seen in axilla, face, and areolar region. It is postulated to be occurring due to oxidized lipofuscins.

These show auto-fluorescence at 360 nm on skin and stained clothes, and are also detectable by using auto fluorescence microscope on skin biopsy specimen [3]. Pseudo-eccrine chromhidrosis is production of colorless sweat that becomes colored when it reaches the skin and reacts with agents such as chromogenic bacterial products, chemicals, paints, or dyes [4]. True eccrine chromhidrosis is a very rare condition, occurring through eccrine excretion of water-soluble agents like dyes and drugs [2]. It is not associated with any known systemic disorders.

The disorder is chronic and may slowly regress as the secretion of apocrine glands decreases with age [5]. Our patient represents the second youngest reported case of apocrine chromhidrosis, the youngest so far reported from Turkey [6]. Apocrine chromhidrosis is postulated to result from an increased production of tyrosine, heme and melanin [7]. Color of sweat varies with the oxidation status of the lipofuscin granules and may vary from yellow, green, blue, brown, to black. Higher states of oxidation result in a darker color [8].



**FIG. 1** Pillow cover with dark stain of the patient's sweat. (See color image at website).

## CASE REPORTS

Diagnosis is confirmed by increased number of lipofuscin granules within chromhidrotic apocrine cells [6]. Emotional or physical excitation may precede the onset of colored sweat. Differentials include hyperbilirubinemia, *Pseudomonas* infection, bleeding diathesis (red sweat, hematohidrosis), alkaptonuria (ochronosis), and poisoning [8]. Successful treatment of apocrine chromhidrosis with capsaicin cream 0.025% (mainly due to its topical counter-irritant properties) has been reported. Relapse can occur within a few days of discontinuing the medication [9]. There have been a few reports of botulinum toxin being used for this condition.

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