APOCRINE CHROMHIDROSIS

Apocrine chromhidrosis is a rare condition characterized by the secretion of colored sweat. Two variants of apocrine chromhidrosis are recognized: axillary and facial. Involvement of the mammary areola has also been described. Yonge first recognized facial chromhidrosis in 1709. Shelley and Hurley described this entity in 1954 and associated it with an increased number of lipofuscin granules in apocrine glands.

Epidemiololgy

Apocrine chromhidrosis is a rare disease. The prevalence worldwide is unknown. Onset of apocrine chromhidrosis is usually at puberty, at the time of increased apocrine gland activity. Disease persists throughout life, improving in the aged. Disease is reported most commonly in African Americans. Geographic predilections have never been described. Most of the cases reported in the literature involve women; however, there is a lack of sound scientific evidence supporting a female preponderance.

Etiology and Pathogenesis

The pigment responsible for causing apocrine chromhidrosis is lipofuscins that are produced in the apocrine secretory cells and excreted to the skin surface. Lipofuscin is a golden-colored pigment that is not specific to apocrine glands. In apocrine chromhidrosis, the lipofuscin granules are in a higher state of oxidation, thereby imparting various colors of pigment, such as yellow, green, blue, or black. Higher states of oxidation produce darker colors. It is uncertain why this develops in some individuals and not others.

One case of facial chromhidrosis was successfully treated with capsaicin. Nerve endings with receptors for substance P have been found around eccrine sweat glands, suggesting that substance P, a potent vasodilator, may play a role in sweat production and apocrine chromhidrosis. Successful treatment of facial chromhidrosis with capsaicin also implicates a role for substance P.

APOCRINE CHROMHIDROSIS AT A GLANCE

- Rare, chronic condition characterized by the secretion of colored sweat.

- Axillary and facial involvement is most common. Areola involvement has been reported.

- Caused by an increased number of lipofuscin granules in the luminal secretory cells of the apocrine glands.

- Secretions may be yellow, blue, green, brown, or black.

- Wood's light examination may demonstrate fluorescence of secretions and stained clothes.

- Adequate therapy is lacking. Reports of efficacy with manual expression, capsaicin, and botulinum toxin.

Clinical Findings

HISTORY

Individuals with apocrine chromhidrosis often describe a sensation of warmth, a prickling sensation, or tingling feeling before apocrine gland secretion. Triggers for colored sweating are usually emotional or physical stimuli. The morbidity associated with apocrine chromhidrosis stems from the emotional distress experienced by affected individuals. Staining of undershirts and handkerchiefs are common complaints.

CUTANEOUS LESIONS

Individuals with apocrine chromhidrosis develop colored sweat in the axillae or face. Mammary areolar involvement has also been described. The pigment produced ranges in color from yellow, blue, green, brown, to even black. The quantity of pigmented sweat produced is usually quite small (approximately 0.001 mL at each follicular orifice). The droplets are odorless and dry quickly. Dried secretions appear as dark flecks within affected areas. Axillary involvement

causes staining of shirts and undergarments. Facial chromhidrosis commonly develops

close to the lower eyelid, including the malar cheeks, and occasionally the forehead. Colored sweat can also be manually expressed by squeezing in the affected area. Such a maneuver may also be therapeutic.

SPECIAL TESTS

An examination of yellow, blue, or green secretions using a Wood's light (360 nm) produces a characteristic yellow fluorescence. Black or brown pigment rarely autofluoresces. Secretions can be manually expressed if not present at the time of examination. Stained clothing may also fluoresce with Wood's lamp examination. Apocrine glands can be stimulated to produce colored secretions by the injection of epinephrine or oxytocin.

LABORATORY TESTS

It is reasonable to check a complete blood cell count to exclude a bleeding diathesis, homogentisic levels in urine to exclude alkaptonuria, and bacterial and fungal cultures of affected areas to exclude pseudo-eccrine chromhidrosis.

Pathology

Under normal circumstances, the apocrine secretory glands are located in the subcutaneous fat or deep dermis and are lined by one layer of luminal cells and one layer of myoepithelial cells. The luminal cells have an eosinophilic cytoplasm, a large nucleus, and may contain lipofuscin, iron, lipid, or periodic acid-Schiff-positive and diastase-resistant granules. Under light microscopy using hematoxylin-eosin staining, an increased number of (yellow-brown) lipofuscin granules may be present in the apical portion of luminal secretory cells of the apocrine glands. The number of granules varies. Additionally, autofluorescence of paraffin-embedded non-stained sections can be demonstrated using a 360-nm wavelength. The granules are positive on periodic acid-Schiff stains. Schmorl stains may also be weakly positive.

Differential Diagnosis of Apocrine Chromhidrosis

- Eccrine chromhidrosis
  - Extrinsic dyes, paints
- Alkaptonuria (ochronosis)
- Hyperbilirubinemia
- Hematohidrosis (bleeding diathesis)
- Chromogenic bacteria (e.g., Corynebacterium species), pseudomonas

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Differential Diagnosis

Apocrine chromhidrosis must be distinguished from eccrine chromhidrosis . True eccrine chromhidrosis is very rare and occurs when water-soluble pigments are excreted from eccrine glands after the ingestion of certain drugs, such as quinines. Pseudo-eccrine chromhidrosis refers to the development of colored sweat when surface compounds or molecules mix with sweat to produce pigment. A classic example of this type is the formation of blue sweat in copper workers. Extrinsic dyes, paints, fungi, and chromogenic bacteria (e.g., Corynebacterium species) are other causes of pseudochromhidrosis.

Treatment

Adequate therapy for chromhidrosis is lacking. Manual expression of colored secretions may result in a temporary improvement in symptoms for the following 48 to 72 hours. Botulinum toxin type A has reported to be successful in one patient with facial chromhidrosis. This patient experienced a substantial reduction in pigmented sweat and the results were sustained for 4 months. Capsaicin is a topical cream that depletes and prevents re-accumulation of substance P levels in unmyelinated, slow-conducting type C sensory fibers. Case reports have demonstrated efficacy of capsaicin in the treatment of facial chromhidrosis.