



Dripping Feet

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A 17-year-old male presents with a several year history of excessive wetness of his feet. He is especially bothered by the appearance of his condition in the summer, and by the odour that sometimes emanates from his feet. He is at an appropriate weight and in good health, with no personal or family history of thyroid disease or diabetes. His blood pressure is normal.



Figure 1: Excessive wetness of feet

1. What is the most likely diagnosis?

- Underlying diabetes mellitus
- Tinea pedis
- Hyperhidrosis
- Underlying viral infection
- Underlying pheochromocytoma

2. What areas of the body may be affected by this problem?

- Axillae
- Palms
- Soles
- Scalp
- All of the above

3. How could you manage this condition?

- Topical antiperspirants
- Topical aluminum chloride
- Oral oxybutynin
- Botulinum toxin A
- All of the above

Hyperhidrosis is sweating in excess of that needed for normal thermoregulation. It is a problem that often begins in childhood or

adolescence. The most commonly affected areas are the axillae, palms and soles, although any body site can be involved. In most cases, the condition is idiopathic, although it may be secondary to underlying disease (e.g., cancer), metabolic conditions, neurologic conditions, febrile illness or medications.


Three forms of hyperhidrosis have been described: emotionally induced (affecting palms, soles and axillae), localized and generalized. Although seemingly benign, hyperhidrosis is often significantly embarrassing and alters sociobehavioural patterns.

Focal hyperhidrosis affects approximately 2 to 3% of the population. Both genders appear to be similarly affected, and there appears to be an increased frequency of palmoplantar hyperhidrosis among the Japanese. On examination, visible signs of hyperhidrosis are evident. Occasionally, to verify the extent of affected

areas (*e.g.*, for treatment planning), the iodine starch test can be performed. Focal or localized hyperhidrosis may be emotionally induced and usually affects the palms, soles, and/or axillae. Palmoplantar sweating (unlike sweating on the remainder of the body), is responsive to emotional stimuli, and thus does not occur during sleep or sedation.

Topical and systemic agents, botulinum toxin injections, iontophoresis, and surgery have been employed for hyperhidrosis. Various topical agents have been used over the years, although the most common is aluminum chloride. Various systemic agents have been tried, with glycopyrrolate (*e.g.*, Robinul®; 1 to 2 mg p.o. up to t.i.d.) and oxybutynin (Ditropan®) being most commonly used and effective, because the pre-glandular neurotransmitter for sweat secretion is acetylcholine. The lowest effective dose should be used to minimize such

adverse effects as: blurry vision, dry mouth and eyes, urinary retention, and constipation. Other treatments include surgical sympathectomy, surgical excision of the affected areas (for axillary hyperhidrosis), and subcutaneous liposuction (for axillary hyperhidrosis). While surgical options do have high efficacy rates, they should be reserved for those failing medical therapy.

Hyperhidrosis is a common, under-treated condition with significant psychosocial distress for which many very good therapies are now available. Patients and physicians can obtain more information from the International Hyperhidrosis Society: <http://www.sweathelp.org> 

Answers: 1-c; 2-e; 3-e

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