

HYPERHIDROSIS: AN APPROACH TO ASSESSMENT IN A PRIMARY CARE SETTING

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ABSTRACT

A 77-year-old woman presented with a complaint of persistent diarrhea. While eliciting the history, sweating was noted. This was further explored and on questioning, the patient also reported poor sleep with symptoms of profound heat intolerance and significant weight loss in the last 6 months despite a normal appetite. On examination, the patient was found to have generalised sweating. While this presentation highlights textbook symptoms of thyrotoxicosis, the question of diagnosis of conditions presenting with hyperhidrosis was raised. This in turn led to a search for criteria to improve the diagnosis of hyperhidrosis in the primary care setting. Other issues discussed include the differential diagnoses of hyperhidrosis, red flags that can present with hyperhidrosis and potential complications of hyperhidrosis as a chronic disease.

Keywords:

Focal hyperhidrosis, generalised hyperhidrosis, primary hyperhidrosis, secondary hyperhidrosis, sweating

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Patient's revelation: What happened?

XL, a 77-year-old Chinese woman presented at the polyclinic complaining of persistent diarrhea for the past 6 months. She had previously sought treatment for her diarrhea at the same polyclinic but had returned due to persistent symptoms.

The diarrhea was characterised by bowel movements of up to thrice daily; an increase from XL's normal bowel habit of 1 bowel motion every 1 to 2 days. The stool was soft and formed and the patient denied bloody stools or melena. She denied any pain, bloating, nausea and vomiting, changes in appetite, fevers, chills, rigors, as well as travel and known infectious contacts prior to symptom onset.

On closer questioning, she reported a weight loss of 5kg over the last 6 months as well as profuse sweating and heat intolerance. The sweating was generalised and she also reported a mild tremor in both hands accompanied by poor sleep.

Her past medical history was unremarkable except for bilateral osteoarthritic changes in the knees for which she was receiving topical non-steroidal anti-inflammatories.

On general examination, XL appeared well and alert with no cachexia, and generalised hyperhidrosis with no skin changes. She was afebrile, with a temperature of 37degC, a weight of 72kg, a regular pulse of 72/min and a blood pressure of 116/78.

Examination of the chest was unremarkable with dual heart sounds and clear lung fields.

Abdominal examination revealed the abdomen to be soft, non-tender with no distension or hepatosplenomegaly.

Examination of the limbs revealed no proximal myopathy, pretibial myxedema or peripheral edema. Distal pulses were present and a fine tremor of the upper extremities was noted.

Examination of the neck yielded no goiter and lymphadenopathy.

Eye signs of thyroid disease, namely lid retraction, lid lag, exophthalmos and periorbital edema were absent.

A provisional diagnosis of hyperthyroidism was given and thyroid function tests were performed indicating suppressed serum TSH and elevated free T4 levels. She was subsequently commenced on carbimazole 20mg OM to achieve a euthyroid state and advised to go for further investigations at a tertiary hospital for a radioactive iodine uptake thyroid scan and possible radioactive iodine therapy.

Gaining insight: What are the issues?

1. What is the prevalence of hyperhidrosis and why is this important?
2. What are the presenting signs and symptoms that could help differentiate primary from secondary hyperhidrosis in the primary care setting?
3. What are the differential diagnoses or causes of secondary hyperhidrosis?
4. What are the red flags presenting with hyperhidrosis that GPs should not miss?
5. What is the impact of hyperhidrosis on the patient?

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Study the management: How do we apply in our clinical practice?

1. Prevalence and importance of hyperhidrosis

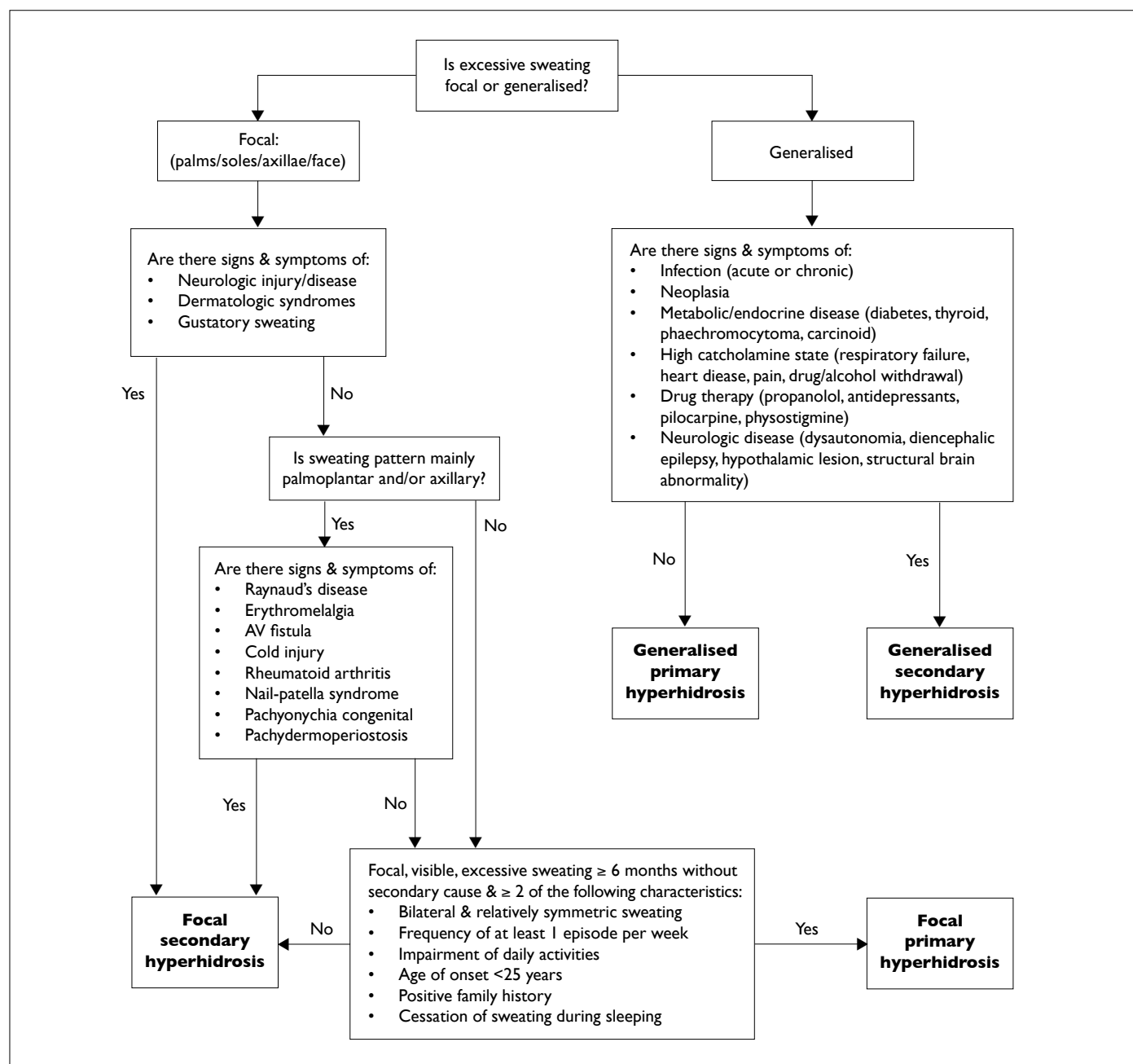
Hyperhidrosis has an estimated prevalence of nearly 3% of the population¹ and while this figure is not huge, patients with hyperhidrosis may experience physical discomfort, social embarrassment or psychological effects as well as impaired ability to perform occupation tasks or activities of daily living^{2,3}. Patients with hyperhidrosis also tend to have more emotional problems and poorer general coping abilities when compared with general dermatologic patients or normal controls⁴.

While identification of primary hyperhidrosis is often straightforward, differentiation between primary and secondary hyperhidrosis may be clinically challenging in some cases.

2. Differentiating between primary and secondary hyperhidrosis

Hyperhidrosis can be generalised or focal. Generalised hyperhidrosis may be primary or secondary to systemic disease. Focal hyperhidrosis is most commonly primary. The following algorithm in Figure 1 based on that proposed by the International Hyperhidrosis Society can be used in the primary care setting to aid in the classification and diagnosis of hyperhidrosis⁵.

Figure 1: Diagnostic algorithm for focal and generalised hyperhidrosis^{5,6}



Sources: International Hyperhidrosis Society. SweatHelp.org – Diagnosis Guidelines. Available at <http://www.sweathelp.org/en/about-hyperhidrosis/diagnosis-guidelines.html>

Hornberger J, Grimes K, Naumann M, et al. Recognition, diagnosis, and treatment of primary focal hyperhidrosis. *J Am Acad Dermatol* 2004;51:274–86.

Assessment of Hyperhidrosis

The Hyperhidrosis Disease Severity Scale (HDSS) has been used to measure disease severity. It is a disease-specific scale that provides a qualitative measure of the severity of the patient's condition based on how it affects daily activities⁷. Patients select statements that reflect their experience with sweating. A score of 3 or 4 indicates severe hyperhidrosis, whereas a score of 1 or 2 indicates mild or moderate hyperhidrosis⁸.

This tool enables the clinician in a primary care setting to swiftly gauge the effect of hyperhidrosis on the patient; the advantage being that it is a single-item instrument that can be rapidly administered in written or interview format, is easily understood, and requires no aids for completion.

Table 1: Hyperhidrosis Disease Severity Scale⁹

Scoring	Question
1	My (underarm) sweating is never noticeable and never interferes with my daily activities
2	My (underarm) sweating is tolerable but sometimes interferes with my daily activities
3	My (underarm) sweating is barely tolerable and frequently interferes with my daily activities
4	My (underarm) sweating is intolerable and always interferes with my daily activities

A score of 3 or 4 indicates severe hyperhidrosis, whereas a score of 1 or 2 indicates mild or moderate primary hyperhidrosis

Source: Solish N, Bertucci V, Dansereua A, et al. A comprehensive approach to the recognition, diagnosis, and severity-based treatment of focal hyperhidrosis: Recommendations of the Canadian Hyperhidrosis Advisory Committee. *Dermatol Surg* 2007;33:908–23.

Investigations for the assessment of the patient presenting with hyperhidrosis can also include quantitative measures such as gravimetry and evaporimetry which quantifies the amount of sweat secreted or Minor's starch-iodine test which maps out the location where hyperhidrosis has occurred⁷. However gravimetry and evaporimetry are used more in a research rather than clinical setting⁹. Also, for practical clinical purposes, any degree of sweating that interferes with activity of daily living should be viewed as abnormal⁷.

3. Differential diagnoses – Common causes of secondary hyperhidrosis

Table 2, while not exhaustive, reflects some of the more commonly occurring causes of secondary hyperhidrosis and should be used in conjunction with Table 3 which describes important conditions presenting as hyperhidrosis which should not be missed.

Table 2: Causes of secondary hyperhidrosis^{10,11}

Neurological disorders	- Cerebrovascular accident - Spinal cord injuries - Gustatory sweating - Parkinson's disease
Endocrine/metabolic disorders	- Thyrotoxicosis - Diabetes mellitus - Obesity - Menopause
Cardiovascular /respiratory disorders	- Congestive heart failure - Acute coronary syndrome - Arrhythmia - Respiratory failure
Infectious diseases	- TB - Malaria - HIV - Septic shock
Medications	- Anticholinergics - Antidepressants - Opioids - Antihypertensives
Psychological	- High emotional states - Anxiety
Malignancy	- Lymphoma - Myeloproliferative disorders - Carcinoid syndrome - Hodgkin's disease
Non-neural disorders	- AV fistula - Cold erythema - Local heat
Toxic	- Alcoholism - Substance abuse

Sources: Hurley HJ. Diseases of the eccrine sweat glands. *Dermatology*. Spain: Mosby; 2001 [Chapter 41].

Boni R. Generalized hyperhidrosis and its systemic treatment. *Current Problems in Dermatology*. 2002;30:44.

4. Red flags – Important conditions not to be missed

Table 3: Red Flags – Important conditions not to be missed

Condition	Features
Cancer - Lymphoma - Myeloproliferative disorders	- Night sweats - Weight loss - Symptoms related to mass effect
Cardiac - Congestive heart failure - Acute coronary syndrome - Rhythm disorders	- Chest pain - Pallor - Diaphoresis - Tachycardia - Palpitations - Dyspnea - Peripheral edema - Pulmonary congestion - Fatigue - Nocturia - Impending sense of doom - Acute ECG changes/ abnormal ECG

Endocrine	• Hypoglycemia	• Palpitations • Tachycardia • Diaphoresis • Mydriasis • Low blood sugar
Infections	• HIV • TB	• Fever • Chills • Night sweats • Anorexia • Weight loss • Fatigue • Opportunistic infection • Slow healing wounds • Hemoptysis • Positive serology • Positive blood/sputum culture
	• Sepsis	• Tachycardia • Tachypnea • Fever • Diaphoresis • Altered mental state • Positive blood cultures
Substances (Drugs)	• Opioid withdrawal	• Diaphoresis • Diarrhea • Tachycardia • Yawning • Tremor • Chills • Akathisia • Dysphoria • Anxiety • Paranoia • Insomnia
Neurological injuries	• Acute spinal cord injury • Cerebral or medullary infarct	• Hemiplegia • Loss of light touch sensation • Loss of vibration sense • Loss of proprioception • Vomiting • Vertigo • Nystagmus • Loss of pain or temperature sense • Horner's syndrome

5. Understanding the impact of hyperhidrosis

As mentioned earlier, about 3% of people suffer from hyperhidrosis¹. While secondary causes of hyperhidrosis carry with them complications inherent to their specific disease profiles, these complications are beyond the scope of this paper.

Physical impact

As mentioned earlier, physical discomfort is one of the complications of hyperhidrosis with patients reporting discomfort with wet clothing or shoes¹². Besides discomfort, sweat may also destroy clothing and shoes¹³ and patients may spend thousands of dollars yearly on dry-cleaning and clothing replacement as a result of their hyperhidrosis¹⁴. Excess sweating may also cause fungal overgrowth leading to intertrigo (inflammation in the

body folds), bromhidrosis (foul smelling sweat), pitted keratolysis (infection of plantar surface of feet) and Gram-negative bacterial macerative infection of the feet¹⁵.

Psychosocial impact

Hyperhidrosis can also have profound psychological effects: In an evaluation of patients with axillary hyperhidrosis, 90% reported their hyperhidrosis as having an effect on their emotional status¹⁶. In a US national survey, over half of patients with axillary hyperhidrosis reported feeling less confident, with 38% being frustrated by some daily activities, 34% feeling unhappy and 20% being depressed². Patients with palmar hyperhidrosis also reported increased social embarrassment¹⁷, constant wiping of hands on clothing or towels¹⁸, and avoidance of hand shaking^{18,19}. A survey of US households also revealed that 49.8% of people with axillary hyperhidrosis experience limitations in romantic/intimate situations and 44% of people experience limitation in sport¹. Patients have also reported changes in leisure activities as well as missing social gatherings as a result of their hyperhidrosis⁷.

Employment choices and work productivity

Patients with hyperhidrosis have reported increased frustration with activities of daily living⁷ with many noting an effect of their sweating on performance and productivity¹⁶. Hyperhidrosis also directly influenced career choices of patients with positions in sales and marketing being avoided because of the need for frequent handshaking or presentations before groups¹⁹. In patients with palmar hyperhidrosis, occupations involving contact with paper, metal, electric or electronic equipment are said to be “unattainable”²⁰.

Conclusion

The three main lessons learnt by the authors from this patient are:

1. Thorough history taking can identify a list of potential diagnoses for a given presentation and when combined with a targeted physical examination looking for corroborative signs, can lead to confirmation of the diagnosis. This case scenario also illustrates the fact that hyperthyroidism is one of the commonest causes of generalised hyperhidrosis.
2. Hyperhidrosis can be either focal or generalised with the latter reflecting an underlying cause warranting investigation. To adequately diagnose causes of secondary hyperhidrosis, the family physician should be familiar with the common conditions as well as red flags presenting with hyperhidrosis so as to lead a targeted history and examination.
3. Primary hyperhidrosis, while not very prevalent in the population, can significantly affect people suffering from it and cause physical discomfort, debilitating psychological restrictions and significant negative effects on occupational activities as well as activities of daily living.

REFERENCES

1. Strutton DR, Kowalski JW, Glaser DA, Stang PE. US prevalence of hyperhidrosis and impact on individuals with axillary hyperhidrosis: results from a national survey. *Journal of the American Academy of Dermatology*. 2004; 51: 241-8.
2. Strutton DR, Kowalski J, Glaser DA, Stang P. Impact of daily activities in the US for individuals with axillary hyperhidrosis: results from a national consumer panel. Poster presentation at the Annual Meeting of the American Academy of Dermatology; March 21-26, 2003; San Francisco, California. Poster abstract P363
3. Hamm H, Naumann MK, Kowalski JW, Kutt S, Kozma C, Teale C. Primary focal hyperhidrosis: disease characteristics and functional impairment. *Dermatology*. 2006; 212: 343-3.
4. Amir M, Arish A, Weinstein Y, et al. Impairment in quality of life among patients seeking surgery for hyperhidrosis (excess sweating): preliminary results. *Israel Journal of Psychiatry and Related Sciences*. 2000; 37(1):25-31.
5. International Hyperhidrosis Society. SweatHelp.org – Diagnosis Guidelines. Available at <http://www.sweathelp.org/en/about-hyperhidrosis/diagnosis-guidelines.html>
6. Hornberger J, Grimes K, Naumann M, et al. Recognition, diagnosis, and treatment of primary focal hyperhidrosis. *J Am Acad Dermatol* 2004;51:274-86.
7. Solish N, Haider A. Focal hyperhidrosis: diagnosis and management. *Canadian medical association journal*. 2005; 172: 69-75
8. Solish N, Benohanian A, Kowalski JW. Prospective open-label study of botulinum toxin type A in patients with axillary hyperhidrosis: effects on functional impairment and quality of life. *Dermatology Surgery*. 2005;31:405-13.
9. Solish N, Bertucci V, Dansereua A, et al. A comprehensive approach to the recognition, diagnosis, and severity-based treatment of focal hyperhidrosis: Recommendations of the Canadian Hyperhidrosis Advisory Committee. *Dermatol Surg* 2007;33:908-23.
10. Hurley HJ. Diseases of the eccrine sweat glands. *Dermatology*. Spain: Mosby; 2001 [Chapter 41].
11. Boni R. Generalized hyperhidrosis and its systemic treatment. *Current Problems in Dermatology*. 2002;30:44.
12. Atkins JL, Butler PE. Hyperhidrosis: A review of current management. *Plastic reconstructive surgery*. 2002; 110: 222-8.
13. Stolman LP. Treatment of hyperhidrosis. *Dermatology Clinic*. 1998; 16: 863-9.
14. Glogau RG. Botulinum A Neurotoxin for axillary hyperhidrosis. No sweat botox. *Dermatological Surgery*. 1998; 24: 817-9.
15. Holzle E. Pathophysiology of sweating. *Current Problems in Dermatology*. 2002; 30: 30-43.
16. Naumann MK, Hamm H, Lowe NJ. Effect of botulinum toxin type A on quality of life measures in patients with excessive axillary sweating: a randomized controlled trial. *British Journal of Dermatology*. 2002; 147: 1218-26.
17. Adar R, Kurchin A, Zweig A, Moses M. Palmar hyperhidrosis and its surgical treatment: a report of 100 cases. *Annals of surgery*. 1977; 186: 34-41.
18. Glogau RG. Treatment of palmar hyperhidrosis with botulinum toxin. *Seminar of Cutaneous Medicine and Surgery*. 2001; 20: 101-8.
19. Gossot D, Galetta D, Pascal A, et al. Long-term results of endoscopic thoracic sympathectomy for upper limb hyperhidrosis. *Annals of thoracic surgery*. 2003; 75: 1075-9.
20. Moraru E, Auff E, Schnider P. Hyperhidrosis of the palms and soles. *Current problems in dermatology*. 2002; 30:156-69.