PLASTIC RECONSTRUCTIVE & REGENERATIVE SURGERY

2024;3:94-97
DOI: 10.57604/PRRS-780

A UNILATERAL HYPERHIDROSIS ON THE ULNAR NERVE DISTRIBUTION: A CASE REPORT AND REVIEW OF THE LITERATURE

Abdulrahman Alhadlaq[1], Nawaf Aljehani[2], Alanoud Alhammad[1], Abdulaziz Abaalkhail[1]

[1] Plastic Surgery Department, Security Force Hospital, Riyadh, Saudi Arabia; [2] King Saud Medical City, Riyadh, Saudi Arabia

Summary

Hyperhidrosis is a recurring autonomic condition characterized by excessive sweating surpassing the physiological need for thermoregulation mainly due to hyperstimulation of cholinergic receptors on the eccrine glands. It has been reported that hyperhidrosis affects 1 to 3% of the U.S population but only one-third of them seek medical attention [1,2]. Thus, significantly impairing a patients' psychosocial well-being and becoming a long-term source of detrimental emotional and physical distress [3]. The condition can be primary which is observed for at least six months in common sweat gland areas such as the axilla, palms, soles, or can be secondary hyperhidrosis related to an endocrine disorder or a systemic febrile illness. In our paper, we present a rare case of hyperhidrosis manifesting along the ulnar nerve distribution of the left hand. We aim to bring light to a rare entity of hyperhidrosis to advocate for early management and for psychosocial prevention of distress.

Key words: hyperhidrosis, ulnar nerve, botulinum toxin, sympathectomy, sweating disorder

Received: November 9, 2024
Accepted: January 22, 2025

Correspondence
Nawaf Aljehani
E-mail: aljehanind@gmail.com

How to cite this article: Alhadlaq A, Aljehani N, Alhammad A, et al. A unilateral hyperhidrosis on the ulnar nerve distribution: a case report and review of the literature. PRRS 2024;3:94-97. https://doi.org/10.57604/PRRS-780

INTRODUCTION

Hyperhidrosis is a recurring autonomic condition characterized by excessive sweating surpassing the physiological need for thermoregulation mainly due to hyperstimulation of cholinergic receptors on the eccrine glands. It has been reported that hyperhidrosis affects 1 to 3% of the U.S population but only one-third of them seek medical attention [1,2]. Thus, significantly impairing a patients' psychosocial well-being and becoming a long-term source of detrimental emotional and physical distress [3]. The condition can be primary which is observed for at least six months in common sweat gland areas such as the axilla, palms, soles, or can be secondary hyperhidrosis related to an endocrine disorder or a systemic febrile illness [4,5]. The presentation of hyperhidrosis in some cases can be complex, thus facilitating progression and requiring a combination of multiple therapies. Management of excessive sweating can include aluminium salts, botulinum toxin injections, topical anticholinergics, and a more invasive surgery [6]. In our paper, we present a rare case of hyperhidrosis

manifesting along the ulnar nerve distribution of the left hand. We aim to bring light to a rare entity of hyperhidrosis to advocate for early management and for psychosocial prevention of distress.

CASE PRESENTATION

This is a 34-Year-old medically free patient Referred 18 years ago to Plastic Surgery Outpatient Clinic for profuse sweating on the left hand. On Examination, the patient's perspiration was noticed to be on the Ulnar Distribution of the left hand. The Excessive Sweating was specifically found on the Palmer Cutaneous Branch and the superficial terminal branch of the Ulnar nerve while sparing the rest of the hand. His condition was challenging mostly for work-related reasons, a job that requires hand involvement and social gathering was stressful enough for him to seek medical attention. Before seeking modern medicine, the patient tried herbal medicine and moxibustion with no overall benefit. In our clinic, the patient started treatment on Botox injections, he was given 5 Botox injections each one was 6 months apart, a slight improvement was stated by the patient. Although the last Botox injection contained 100 units, he was referred to thoracic surgery for surgical consultation. Their evaluation of such case concluded a left thoracic Sympathectomy for the patient. Despite the surgical intervention, the patient did not improve on the contrary the patient complained of excessive dryness over the axilla and the palmer surface of the hand with on-going sweating on the ulnar nerve pathway. A Nerve Conduction Study (NCS) was ordered to assess left hand peripheral nerve function; however, the results were within normal limits. In addition, a starch-iodine test was performed to confirm hyperhidrosis along the ulnar nerve as seen in Figure 1. The patient's recent Botox injection didn't wear of yet as a result only a mild blue-dark discoloration was present during this test.
After the surgery our patient continued with twice yearly Botox injections reaching up to 22 Botox injections since the day of diagnosis until recently. Over the course of multiple injections following the surgery, improvement was brought to light by the patient. He noticed a decrease in sweating frequency and amount which enhanced his psychological well-being and social performance. In Figure 2, a sketch to display the nerve distribution of the hand.
The patient's condition in comparison to the normal physiology is considered rare. To demonstrate better understanding of hyperhidrosis along the Ulnar nerve trajectory, the sketch below represents the site as seen in our patient (Fig. 3).

DISCUSSION

Patients with hyperhidrosis are characterized by excessive sweating more commonly in eccrine gland concentrated areas such as the axilla, palms, and face. Primary hyperhidrosis is commonly found early in life manifesting among

Figure 1. **A**) a tincture of Iodine solution is placed on the affected hand; **B**): starch applied on the hand after the iodine dried; **C**) mild blue-black discoloration noticed on ulnar nerve distribution.

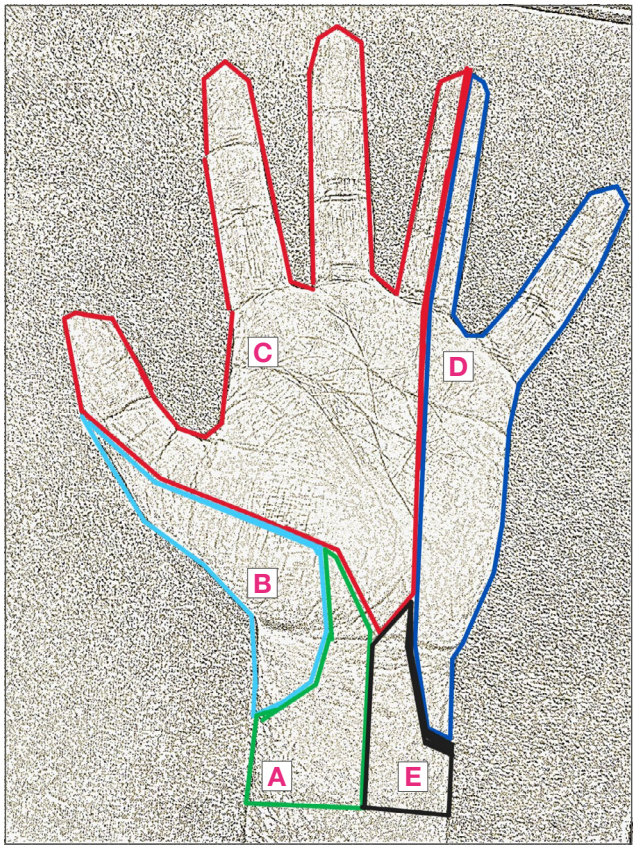

Figure 2. **A**) lateral cutaneous nerve; **B**) radial nerve; **C**) median nerve; **D**) ulnar nerve; **E**) medial cutaneous nerve.

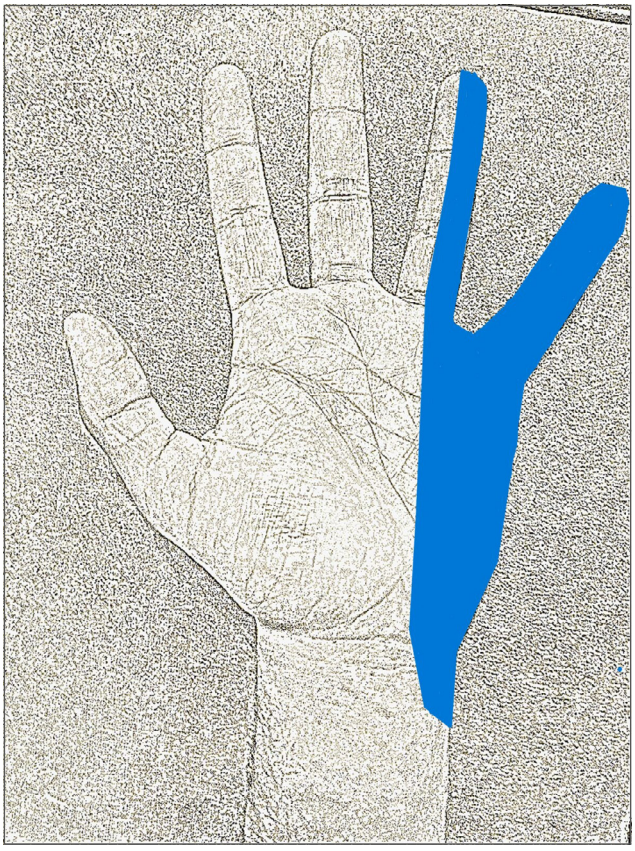

Figure 3. Hyperhidrosis along the ulnar nerve trajectory.

the young population, patients with bilateral involvement, family history, or when symptoms continue for more than six months [7]. A more belated onset of hyperhidrosis is found in a secondary cause which is mostly concerning requiring further work-up to rule out a systemic disease [8]. Based on common high-density sites for excessive sweating, our patient was treated with the usual initial therapy. Botulinum toxin plus lidocaine was injected multiple of times on his left hand with no response raising suspicion for a rare form of presentation. The Starch-iodine test illustrated the site of sweating, however, through visual assessment he was found to have noticeable sweating along the ulnar distribution of his left hand. As described in one study, the unaided eye is sufficient to make the diagnosis [9]. A sympathectomy was done for our patient, last resort invasive procedure, which did not improve his symptoms. In contrast to other studies, where invasive procedures were considered the best permanent treatment [10]. However, continuous Botox injections after the surgery has lessened the patients' psychosocial complaints and excessive sweating along the ulnar pathway. Up to our knowledge, hyperhidrosis along the ulnar nerve trajectory has not been reported yet. Unusual presentations can manifest in patients with hyperhidrosis. Thus, a combination of clinical and visual assessments is important for a more comprehensive diagnosis and management.

CONCLUSIONS

Hyperhidrosis along the ulnar nerve sparing the rest of the palm is a rare entity of the disorder. A high index of suspicion is required to narrow down the aetiology of such presentation in order to establish the appropriate diagnosis and initiate the proper management.

Conflict of interest statement
The authors declare no conflict of interest.

Funding
This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Author contributions
NA: A, D, DT, S, W
AbA: A, D, DT, S

AlA: A, S
AbdA: A, S

Abbreviations

A: conceived and designed the analysis
D: collected the data
DT: contributed data or analysis tool
S: performed the analysis
W: wrote the paper

Ethical consideration

Not applicable

Reference

1 McConaghy JR, Fosselman D. Hyperhidrosis: management options. Am Fam Physician 2018;97:729-734.

2 Sammons JE, Khachemoune A. Axillary hyperhidrosis: a focused review. J Dermatolog Treat 2017;28:582-590.

3 Obed D, Salim M, Bingoel AS, et al. Botulinum Toxin versus placebo: a meta-analysis of treatment and quality-of-life outcomes for hyperhidrosis. Aesth Plast Surg 2021;45:1783-1791. https://doi.org/10.1007/s00266-021-02140-7

4 Rzany B, Bechara FG, Feise K, et al. Update of the S1 guidelines on the definition and treatment of primary hyperhidrosis. J Dtsch Dermatol Ges 2018;16:945-952. https://doi.org/10.1111/ddg.13579

5 Stolman LP. Hyperhidrosis: medical and surgical treatment. Eplasty 2008;8:E22.

6 Henning MAS, Bouazzi D, Jemec GBE. Treatment of hyperhidrosis: an update. Am J Clin Dermatol 2022;23:635-646. https://doi.org/10.1007/s40257-022-00707-x

7 Menzinger S, Quenan S. Evaluation and management of hyperhidrosis. Rev Med Suisse 2017;13:710-714.

8 Romero FR, Haddad GR, Miot HA, et al. Palmar hyperhidrosis: clinical, pathophysiological, diagnostic and therapeutic aspects. An Bras Dermatol 2016;91:716-725.

9 Romero FR, Haddad GR, Miot HA, et al. Palmar hyperhidrosis: clinical, pathophysiological, diagnostic and therapeutic aspects. An Bras Dermatol 2016;91:716-725.

10 Hosp C, Hamm H. Safety of available and emerging drug therapies for hyperhidrosis. Expert Opin Drug Saf 2017;16:1039-1049.