

Multiple Use of a Microwave Device for the Treatment of Compensatory Hyperhidrosis

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Abstract

This study describes the use of a microwave thermoablation system used to treat severe compensatory hyperhidrosis. While this system was proven to be safe and effective in the long-term treatment of axillary hyperhidrosis with approval from the Food and Drug Administration, we have shown that it is equally effective in treating other affected areas of the body.

Keywords: Compensatory; Hyperhidrosis; Microwave; Sweat; Sympathectomy

Abbreviations

CH: Compensatory Hyperhidrosis; MTS: Microwave Thermoablation System

Thoracic sympathectomy is an effective and viable treatment for palmar hyperhidrosis. However, severe compensatory hyperhidrosis (CH) affects the patient to the point that their quality of life is greatly diminished. Moreover, thoracic sympathectomies are permanent as reversal operations have not yet been established. Various pharmacological and surgical trials were performed in an attempt to reduce sweating. However, resolving CH has been disappointing for patients. Botulinum toxin injections are reliable, but have short-term effects [1]. Recently, a microwave device has been developed as a new treatment solution for the nonsurgical and sustained subsidence of sweating through sweat gland thermoablation. Additionally, this procedure is expected to achieve long-lasting results. A Microwave Thermoablation System (MTS) was proven to be safe and effective in the long-term treatment of axillary hyperhidrosis with approval from the Food and Drug Administration [2].

This case report describes the multiple use of an MTS for CH of the chest, back, groin, and buttock of a patient.

Case Presentation

A 28-year-old male visited a hyperhidrosis clinic for evaluation and treatment. He had no specific disease but had palmar, plantar, and axillary hyperhidrosis. Thoracic sympathectomy was performed to reduce hand sweating 11 years prior. His right hand was dry, but his left hand was sweaty despite the previous surgery. Severe CH sweating appeared on his chest, back, groin, and buttock. The skin of his groin was soggy, pigmented, and changed to dark brown due to frequent and massive sweating and irritation (Figure 1), and his pants were soaked due to the sweating of his buttocks (Figure 2). He was severely distressed by the psychological and social impact of CH, and his quality of life had gradually worsened. Anticholinergic drugs did not relieve his heavy sweating. Botulinum toxin injections were not administered because of limited time effects and the cost. The patient did not consider a restoration operation because of fear of surgery and no guarantee of success.

The MTS was used on the sweat glands of his axilla, chest, back (upper and lower), groin, and buttocks using Mira Dry® (Miramar Labs, Sunnyvale, CA). Each affected region was treated in an individual session to prevent lidocaine overdose and overloading of the tumescent solution. During the procedure, (1) a line was drawn to approximate the target area depending on the patient's hyperhidrotic area, which was then restricted to an area approximating A4 size on his chest and back, (2) a tumescent anesthetic was applied to the entire affected area using a new technique (Figure 3) with the benefit of shortening the anesthetic procedure time and skin cooling, and (3) the maximum energy setting (level 5) was applied to all locations except for his groin and buttocks (level 4) and delineated in a grid-like pattern with overlapping edges (Figure 4). The patient tolerated microwave thermoablation well in areas that were successfully anesthetized. Post-procedure

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Figure 1: Shaved groin area with staining due to compensatory sweating.



Figure 2: Compensatory hyperhidrosis on a patient's buttocks with heavy sweat running down the anal valley.



Figure 3: Tumescence anesthesia on the patient's back using the new guideline protocols.

complications included transient altered sensations, discomfort, erythema, and stiffness. The patient described an 80% reduction of his axilla sweating on his right side, a 50% reduction on his left side, and moderate chest and back reduction with high satisfaction. His groin and buttocks maintained a moderate reduction in sweating after the MTS. Rebound or secondary CH was not observed.

Additionally, two more patients underwent the MTS with similar results: one underwent thoracic sympathectomy and reconstructive operation for CH and lumbar sympathectomy for plantar



Figure 4: The microwave thermoablation system treatment on the affected buttocks of a patient.

hyperhidrosis, and the other underwent thoracic sympathectomy and axillary liposuction-curettage for osmidrosis. The affected CH regions were the axilla, chest, back, buttocks, and thighs. The MTS (level 5) was used in separate sessions with no serious side effects except for small bullae on the thigh and back.

Conclusion

Although the Food and Drug Administration approved the MTS only for the treatment of axillary hyperhidrosis, its availability can be applied to various regions of the body to overcome CH [3-5]. Concurrently, specific and specialized additions to the MTS that fit the affected areas are anticipated to be developed. In these cases, patients tolerated the procedure well and had promising reductions of uncontrolled sweating with minimal complications and were satisfied. More clinical experience and successful results utilizing the MTS are needed for patients with severe CH. This study might be able to provide data for planning large and well-structured studies.

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