

# Local Procedural Approaches for Axillary Hyperhidrosis



Dee Anna Glaser, MD\*, Timur A. Galperin, DO

## KEYWORDS

• Hyperhidrosis • Liposuction-curettage • Microwave thermolysis • Minimally invasive • Surgery

## KEY POINTS

- Surgical procedures can provide long-lasting relief from axillary hyperhidrosis.
- Local or tumescent anesthesia is most commonly used for local procedures of the axilla.
- Most of these procedures are limited to treating the axillary region of the body.
- Starch-iodine testing is valuable to identify the area of treatment, but the hair-bearing skin can be used as a landmark for treatment as well.
- Downtime is minimal, typically 2 to 6 days, depending on the procedure.

## INTRODUCTION

When topical options for axillary hyperhidrosis (HH) have failed, botulinum toxin is an effective, safe, and well-tolerated, although temporary, treatment option. For long-lasting or permanent efficacy, some patients turn to local procedures, such as superficial liposuction or manual curettage, or more invasive local surgery. Local surgical treatment is divided into 3 categories: (1) excision of skin and glandular tissue, (2) curettage or liposuction procedures to remove the subcutaneous sweat glands, or (3) a combination of limited skin excision with glandular tissue removal.<sup>1</sup> Complete skin excision is performed infrequently, because improved minimally invasive surgical techniques have become effective with fewer long-term complications.<sup>2</sup> The nonresponder rate varies from 2% to 20% with minimally invasive surgery

and is likely the result of inadequate mapping of the hyperhidrotic area or inadequate surgical technique.<sup>2</sup> Newer, minimally invasive treatments have become available, such as microwave energy thermolysis.

## PATIENT EVALUATION OVERVIEW

A thorough HH history should be obtained from the patient, including age of onset of HH, location and symmetry of sweating, aggravating/alleviating factors, previous treatments for HH, family history of HH, and current medications that may exacerbate the condition. A physical examination should be performed to rule out a possible secondary cause of HH that needs to be treated. A starch-iodine test is then performed to identify the dimensions of the involved area for treatment. The Minor starch-iodine test is a cheap and

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Department of Dermatology, Saint Louis University School of Medicine, 1402 South Grand Boulevard-ABI, St Louis, MO 63104, USA

\* Corresponding author.

E-mail address: glasermd@slu.edu

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simple procedure commonly used to detect focal areas of sweating. The affected area is first dried, then an iodine solution is brushed onto the skin and allowed to dry. A starch powder, such as corn starch, is peppered on top, and the area is observed for a few minutes. Purple-black dots develop when sweat interacts with the starch and iodine. If a positive starch-iodine test cannot be obtained, the hair-bearing portion of the axilla should be treated.

The amount of axillary sweating can be assessed using the patient-reported Hyperhidrosis Disease Severity Scale (HDSS) (Table 1). The HDSS can also be obtained during the postoperative period to assess treatment success. Gravitric (weight-based) assessment is an objective measurement typically performed in research studies but is not practical for routine clinical use.

In addition, surgical risks need to be ascertained before considering which procedure may be best suited for the patient. Antiplatelet therapies and bleeding diathesis are relative contraindications. Patients with significant arthritis or previous injury to the shoulder area may limit access to the axillary vault for certain procedures, and pain in the area may limit the patient's ability to maintain proper arm position during surgery, even if good range of motion is present.

## MANAGEMENT GOALS

The goals of therapy are to provide a permanent or long-lasting solution for axillary HH, with a minimally invasive procedure that is cost-effective, easily accessible, and has minimal side effects and downtime.

## SURGICAL TREATMENT OPTIONS AND PROCEDURE

### Excision

Surgical excision can either be a radical excision of the skin and glandular tissue (RSE) (ie, en bloc

resection), or a limited skin excision with glandular tissue removal (LSE), such as the modified Shelley procedure. Surgical complication rates from RSE are high, and the procedure is rarely performed.<sup>1</sup> The relapse rate can vary. A study of 125 patients<sup>3</sup> undergoing LSE found a 12.8% relapse rate.

RSE can be performed via several different surgical techniques, each differing in the method of axillary skin removal and type of wound closure.<sup>4</sup> RSE can be performed under tumescent anesthesia, and the wounds sutured, generally requiring a subcutaneous drain for 1 to 2 days after treatment.<sup>4</sup>

Excessive sweating, as measured by gravimetric assessment, at 12 months after treatment is reduced by about 65%.<sup>4</sup> In studies, the average aesthetic outcome reported by patients was graded as moderate. Side effects of treatment include hematoma formation (20%), paresthesia (33.3%), focal alopecia (100%), and skin infection (13%).<sup>4</sup> Poor aesthetic outcomes, with scarring and skin retraction, which can lead to a decreased range of motion of the shoulder,<sup>5</sup> and long recovery times are 2 reasons that en bloc resections are rarely, if ever, performed.

With the skin-sparing technique (LSE), surgeons can perform the procedure on 1 axilla at a treatment session,<sup>1,3</sup> or both axillae can be treated simultaneously.<sup>4</sup> Antibiotic prophylaxis can be given an hour before the procedure, if deemed necessary. The area of maximal sweating is identified via the Minor starch-iodine test, and then, the axilla is anesthetized with lidocaine 1% and epinephrine 1:100,000<sup>1</sup> or tumescent anesthesia.<sup>4</sup> The elliptical area of maximal sweating, approximately 4 cm × 1 cm in diameter (horizontally), is excised down to the subcutaneous fat. The adjacent hair-bearing area of excessive sweating is undermined with Metzenbaum scissors to the affected edges, and the wound edges are everted to expose the 1-mm to 2-mm pink, papular sweat glands adhering to the dermis.<sup>1</sup> Sweat glands are cut out with curved scissors to defat the dermis, and the wound is closed with sutures. A subcutaneous drain is required for 1 to 2 days after treatment. A figure-of-eight dressing is applied for 10 days,<sup>4</sup> or a compression dressing for 24 hours.<sup>3</sup>

Excessive sweating, as measured by gravimetric assessment, at 12 months after treatment was reduced by a mean of 63% in 1 case series.<sup>4</sup> An early case series,<sup>1</sup> using a subjective, patient-assessed measure of sweat reduction after treatment, found a mean sweat reduction of 65%. The average aesthetic outcome reported by patients was graded as good,<sup>4</sup> 58.4% of patients

**Table 1**  
HDSS

### How Would You Rate the Severity of Your Hyperhidrosis?

HDSS Score	Definition
1	Never noticeable, never interferes
2	Tolerable, sometimes interferes
3	Barely tolerable, frequently interferes
4	Intolerable and always interferes

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