

# Control of Diabetic Gustatory Hyperhidrosis With Topical 20% Aluminum Chloride Hexahydrate

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## INTRODUCTION

Diabetic gustatory hyperhidrosis is a late sequela of diabetes and can have profound consequences. We report a case of diabetic gustatory hyperhidrosis controlled with topical aluminum chloride hexahydrate and support this as a first-line treatment. Aluminum chloride hexahydrate is a safe, effective, inexpensive and commercially available treatment.

## CASE REPORT

A 62-year-old woman with a 25-year history of type-2 diabetes mellitus complicated by peripheral neuropathy presented with 20-lb weight loss over six months with coincident development of sweating and flushing of the bilateral preauricular and temporal skin. She had developed inexorable anxiety and embarrassment about the sweating and had begun to avoid eating. Comprehensive workup for other etiologies of her weight loss was negative and she was diagnosed with diabetic gustatory hyperhidrosis.

The patient was treated with topical 20% aluminum chloride hexahydrate in anhydrous ethanol applied at night to the areas of sweating using a roll-on applicator. After two weeks of nightly application, she reported dramatic improvement of the sweating, with no local or systemic side-effects. She was able to maintain control of her gustatory hyperhidrosis with application every third night. Over the next two months she gained 13 lbs. She reported normalization of food intake along with improved mood and resolution of anxiety associated with eating.

## DISCUSSION

Prandial head and neck sweating and flushing in patients with long-standing diabetes suggests diabetic gustatory hyperhidrosis. Prevalence among type-2 diabetics is estimated to be 13%.<sup>1</sup> It was once believed to be caused by aberrant autonomic innervation, similar to the postulated mechanism of Frey syndrome. However, the observation that gustatory hyperhidrosis either disappears completely or improves significantly in diabetics after renal transplantation, has led to the suspicion of a metabolic etiology.<sup>2</sup>

There is a paucity of treatment options described in the literature which relieve sweating in diabetics with gustatory

hyperhidrosis (Table 1). Topical glycopyrrolate preparations have been reported to be successful outside of the United States.<sup>3</sup> Isolated cases have reported use of oxybutynin with success, however, the associated systemic anticholinergic side effects make it less than ideal.<sup>4,5</sup> Injections of botulinum toxin-A are effective, but may be painful, have insurance coverage barriers, or be cost-prohibitive.<sup>6</sup> Topical aluminum chloride has been used successfully in treating gustatory hyperhidrosis in Frey syndrome, and but there is a scarcity of literature describing the successful use of aluminum chloride to treat diabetic gustatory hyperhidrosis.<sup>7,8</sup>

Aluminum chloride is an inexpensive medication used to reduce focal sweating. Aluminum ions form a precipitate with mucopolysaccharides in the sweat ducts, physically obstructing the flow of sweat and damaging epithelial cells along the lumen of the duct.<sup>9</sup> This obstruction is temporary however, and normal sweat gland function returns with epidermal renewal, thus necessitating continued therapy. In our patient, application

TABLE 1.

Common Treatments for Gustatory Hyperhidrosis			
Medications	Efficacy	Low Cost/ Easy Insurance Approval	Common Side Effects
Topical 20% aluminum chloride hexahydrate	✓	✓	irritation, erythema, itching, redness
Topical anticholinergics (e.g. glycopyrrolate formulations)	✓	--	self-contamination to areas such as eyes and mouth
Botulinum toxin injections	✓	--	pain, focal muscle weakness
Oral anticholinergics (e.g. oxybutynin)	✓	✓	dry mouth, dry eyes, urinary retention, constipation

every third night adequately maintained control of symptoms. Most common side effects include irritation, stinging, burning, and dermatitis, especially on sensitive skin such as the face. It is important to counsel patients that aluminum chloride forms hydrochloric acid in the presence of water or active sweating.<sup>10</sup> Pre-washing the face or application before prandial sweating can lead to highly irritated skin and treatment discontinuation. We recommend patients apply aluminum chloride at night to thoroughly dried skin, and to completely wash it off in the morning.

Proper application enhances efficacy and reduces the incidence of adverse effects commonly seen with aluminum chloride. Our case supports the use of aluminum chloride hexahydrate for diabetic gustatory hyperhidrosis based on its efficacy, availability, favorable side-effect profile and low cost.

## DISCLOSURES

Dr. Glaser received research/grants from Allergan, Galderma, Revance, Evolus, Dermira, Atacama and served on the advisory position or speaker from Allergan, Galderma, Dermira, Candasant, and is President of International Hyperhidrosis Society. Jordan Tanner and Dr. Daniel Tinker report no conflicts of interest.

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