

How I Do It
 A Targeted Problem and Its Solution

Endoscopic Diagnosis of Rhino-Parotid Fistula and Successful Treatment with Botulinum Toxin

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INTRODUCTION

Gustatory rhinorrhea (GR) consists of free thin discharge of mucus from the nose during meals or after a gustatory stimulus. Gustatory rhinorrhea has been reported after maxillectomy, parotidectomy, septoplasty, facial fractures, or trauma and also after the ingestion of spicy foods.

Gustatory rhinorrhea may be due to misdirection of parasympathetic secretory fibers or to the opening of a parotid fistula in the nose or maxillary sinus, especially after facial fractures.

Diagnostic workup in a case of GR following a maxillectomy with late reconstruction with cheek flap is reported. The GR was successfully treated with botulinum toxin A (BTX-A) injection on the parotid gland. The authors describe their therapeutic approach.

CASE REPORT

A 48-year-old Caucasian man had been referred at the age of 30 for a 1 cm painless mass extending at the junction between the hard and soft left-side palate. A biopsy revealed a low-grade mucopapillary carcinoma (MEC). Under general anaesthesia, tumor excision had been performed. Two years later, the patient had experienced MEC local recurrence in the initial site also involving the maxillary bone. A left partial maxillectomy had been performed via an endo-oral approach. The left maxilla had been resected from the first premolar to the tuberosity of the maxilla and the oral-antral defect was closed with a surgical obturator.

Seven years later, the oral-antral communication had been closed with a local peduncled left cheek flap. After 7 days, a unilateral (left) GR occurred at every meal. The patient had to frequently blow his nose during meals and this complication was described as socially disturbing. Several otorhinolaryngologic examinations did not reveal any cause and no oro-nasal fistulas were identified. Sialography had not been performed because left Stensen's duct orifice was not recognizable.

In June 2002, for the persistence of symptoms, the patient was referred to the ENT Department of Padova University. On clinical examination, no oral antral fistula was detected and normal postmaxillectomy reconstruction was evident (Fig. 1). The video-assisted nasal endoscopy revealed a normal anatomy of lateral wall of left nasal cavity, and a partially reconstructed nasal floor.

The nasal endoscopy was repeated after gustatory stimulus (Fig. 2). A profuse, watery rhinorrhea from a parotid fistula opening in the middle of nasal left floor was evoked by chewing a lemon slice (Fig. 3). A MR-sialography identified the course of left Stensen's duct from the parotid gland to the left nasal floor (Figs. 4 and 5).

The major secretomotor fibers to the salivary gland are cholinergic parasympathetic and are susceptible to inhibition by the botulinum toxin (BTX). The substance of left parotid gland was treated with a total of 20 UI of BTX-A (Botox, Allergan, Inc., Irvine, CA) under electromyographic (EMG) control in 3 injection spots. A tuberculin syringe with a 27-gauge monopolar Teflon-coated hollow EMG recording needle connected to an EMG recorder was used for the injection. The botulinum toxin injection was performed on an ambulatory basis with little discomfort for the patient. The GR disappeared within 48 to 72 hours and the clinical effect lasted for 8 months. A second treatment was necessary for GR recurrence nine months after first treatment.

To date, the patient has refused any surgical option and prefers periodic treatment with BTX.

DISCUSSION

Gustatory rhinorrhea is a rare condition with limited literature. GR after parotidectomy,¹⁻³ septoplasty,⁴ max-

Presented in part at the 13th Italian Congress of Maxillofacial Surgery, Vicenza, Italy, May 28-31, 2003.

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Editor's Note: This Manuscript was accepted for publication April 15, 2005.

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Fig. 1. Regular postmaxillectomy reconstruction with left cheek flap.

illectomy,⁷⁻⁸ and skull trauma⁹⁻¹⁰ is hypothesized to be due to traumatic or surgical interruption of salivary parasympathetic secretory fibers and their abnormal regrowth inappropriately directed toward nasal mucosal glands.⁴ A parotid-antral fistula after facial fractures might be the cause of GR in others report.^{11 13}

Several therapies has been proposed for the treatment of GR. Six months after a posttraumatic parotid-antral fistula Bergstrom performed the obliteration of maxillary antrum with abdominal fat and 3 months later carried out a parotidectomy for GR recurrence.¹¹ Faussat treated a case of GR due to a posttraumatic parotid-antral salivary fistula with parotid duct marsupialization.¹² Scher solved a case of GR due to a parotid-antral commu-



Fig. 2. Nasal endoscopy during gustatory stimulus.

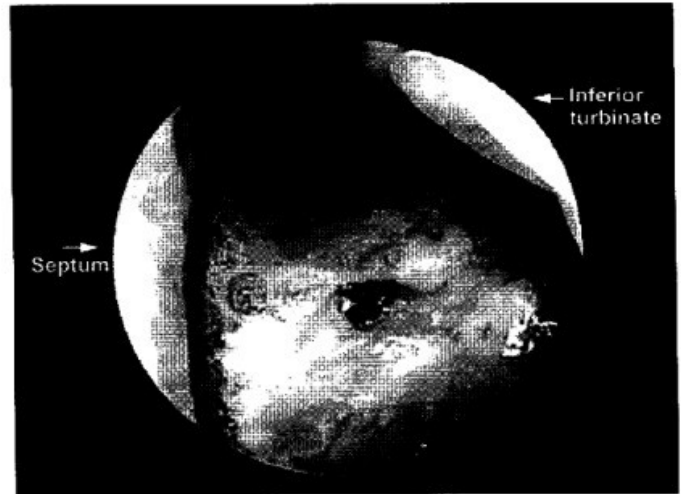


Fig. 3. Watery rhinorrhea from left nasal floor.

nication after a Le Fort III fracture with the transposition of parotid duct several months after trauma.¹³ In two cases of GR after maxillary resection, Clark identified the Stensen duct above maxillary prosthesis. The transposition of the parotid duct below the maxillary prosthesis stopped the GR in both cases.⁵

Our report is the first true parotid-nasal fistula described in literature and is the first report of the use of BTX in the treatment of GR.

The role of BTX as a safe and effective therapeutic agent is expanding rapidly in otolaryngology. Botulinum toxins prevent release of acetylcholine at the motor end plates, leading to a reversible partial or complete muscle paralysis. This chemical denervation is effective for both striated muscle and eccrine gland. Salivary glands are

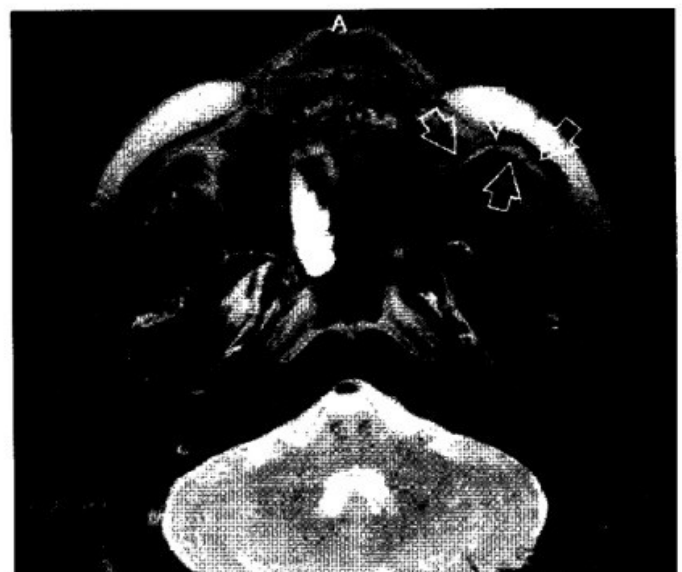


Fig. 4. Magnetic resonance imaging. T2 weighted scans (fat suppression sequences) showing the distal third of Stensen's duct (white arrows).

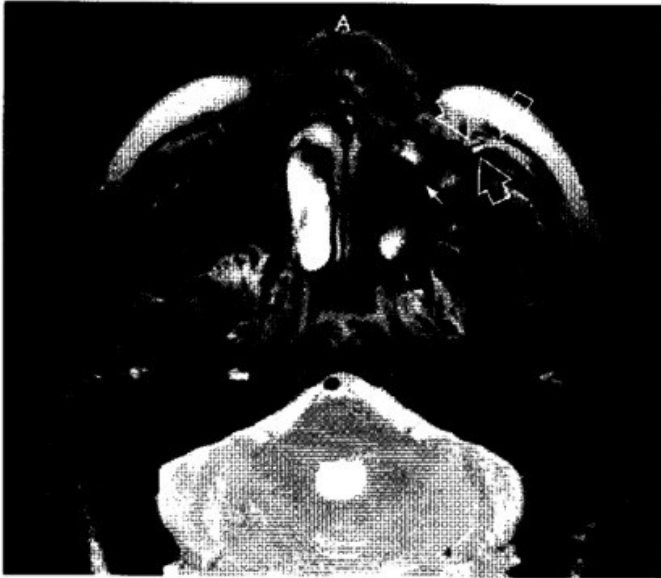


Fig. 5. Magnetic resonance imaging. T2 weighted scans (fat suppression sequences) showing the distal third and Stensen's duct opening in the nasal cavity (white arrows).

controlled by the autonomic nervous system, and are primarily under parasympathetic cholinergic control.¹⁴

CONCLUSION

Regardless of an eventual recurrence, in the considered case, the localized injection of botulinum toxin into the parotid gland has proved to be an effective and long-lasting treatment of GR.

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