

## Treatment of Gustatory Sweating With Botulinumtoxin A

**Language:** English

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### Educational Objective

At the conclusion of this presentation, the participant should be able to identify the benefit of the treatment with Botulinumtoxin A in patients suffering from gustatory sweating.

### Introduction

Frey's Syndrome is present in almost all patients after parotid gland surgery [2,4,8]. Affected skin area can be made visible by Minor's starch iodine test [9]. Prior studies have proven that Gustatory Sweating decreases quality of life [5]. Botulinumtoxin A has been recently described to be an effective treatment [1,3,6,7]. This prospective clinical study was designed to evaluate the efficacy of the therapy.



Fig. 1                      Fig. 2                      Fig. 3

Fig. 1-3: Minor's starch iodine test was performed to make the area of Gustatory Sweating visible. In Fig. 1 a iodine solution was applied on the cheek of a patient with Frey's Syndrome. When the thinned evaporated starch powder was sprinkled on (Fig. 2) and after eating an apple the affected area was visible as a dark-blue coloration (Fig. 3).

### Material and Methods

20 patients, 7 male and 13 female, with severe Gustatory Sweating following superficial parotidectomy due to adenoma of the parotid gland were included. Surgery was performed by average of 6 years before at a median age of 45 years. A median area of 41 cm<sup>2</sup> was affected by Gustatory Sweating. Botulinumtoxin A was injected intracutaneously once at a dosage of 1 U Botox per cm<sup>2</sup>. Minor's starch iodine test was performed one week after treatment to prove the efficacy of the therapy. To evaluate the long-term results of intracutaneous injections of Botulinumtoxin A in treatment of Frey's Syndrome the patients were examined every 2 month. Quality of life was evaluated by SF-36 before and 4 weeks after treatment.



Fig. 4                      Fig. 5



Fig. 6

Fig. 7

Fig. 4-7: Expression of gustatory sweating varies much. Neither size of affected area nor intensity of sweating was correlated to surgical procedure.

## Results

In 20 patients a median dosage of 40 U Botulinumtoxin A was intracutaneously injected (range from 18 to 70 U). The treatment was well tolerated and no side effects could be observed. Minor's starch iodine test showed the total absence of Gustatory Sweating within one week after treatment in all patients. Quality of life was increased significantly in FS-36 evaluation. After a median follow-up of 8 month a slight recurrence of Frey's Syndrome could be proven by Minor's starch iodine test in 9 patients. All of those had a subclinical manifestation especially in the hair-line area. All patients treated with Botulinumtoxin declared to be very satisfied with the therapy and they would like to get repeated injections in case of clinical relevant Gustatory Sweating.



Fig. 8a

Fig. 8b

Fig. 8c

Fig. 8 a-c: A 36 years old woman who underwent surgery 8 years ago, before treatment (8a), after marking the affected area (8b), and 1 week after treatment with Botulinumtoxin A.



Fig. 9a

Fig. 9b

Fig. 9c

Fig. 9a-c: A 64 years old patient, 9 years after superficial parotidectomy due to pleomorphic adenoma. One week after treatment no gustatory sweating was detectable by Minor's test.

## Discussion and Conclusions

Botulinumtoxin A is highly effective and save in the treatment of gustatory sweating. Intracutaneous injections of Botulinumtoxin A are the treatment of choice in severe cases of Frey's Syndrome.

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This poster was submitted by Dr. Christian Küttner.

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**Poster Faksimile:**

## TREATMENT OF GUSTATORY SWEATING WITH BOTULINUMTOXIN A

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### Introduction

Frey's syndrome is present in almost all patients after parotid gland surgery [2,4,8]. Affected skin areas can be made visible by Minor's starch iodine test [9]. Prior studies have proven that Gustatory Sweating decreases quality of life [5].



Fig. 1-3 Starch iodine test and skin color before to make the area of Gustatory Sweating visible. In Fig. 1 a starch iodine test was applied on the cheek of a patient with Frey's Syndrome. When the starch was suspended, dark purple was observed in Fig. 2 and after being water an area for affected area was visible as a red line (red line) in Fig. 3.

Botulinumtoxin A has been recently described to be an effective treatment [1,3,6,7]. This prospective clinical study was designed to evaluate the efficacy of the therapy.

### Material and Methods

20 patients, 7 male and 13 female, with severe Gustatory Sweating following superficial parotidectomy due to adenomas of the parotid gland were included. Surgery was performed by average of 8 years before at an median age of 45 years. A median area of 41 cm<sup>2</sup> was affected by Gustatory Sweating. Botulinumtoxin A was intracutaneously injected once at a dosage of 0,5 U Botox per cm<sup>2</sup>. Minor's starch iodine test was performed one week after treatment to prove the efficacy of the therapy. To evaluate the long term results of intracutaneous injections of Botulinumtoxin A in treatment of Frey's Syndrome the patients were examined every 2 months. Quality of life was evaluated by SF-36 before and 4 weeks after treatment.



Fig. 4-7 Starch iodine test and skin color before to make the area of Gustatory Sweating visible. In Fig. 4 a starch iodine test was applied on the cheek of a patient with Frey's Syndrome. When the starch was suspended, dark purple was observed in Fig. 5 and after being water an area for affected area was visible as a red line (red line) in Fig. 6 and after being water an area for affected area was visible as a red line (red line) in Fig. 7.

### Results

In 20 patients a median dosage of 20 U Botulinumtoxin A was intracutaneously injected (range from 8 to 40 U). The treatment was well tolerated and no side effects could be observed. Minor's starch iodine test showed the total absence of Gustatory Sweating within one week after treatment in all patients. Quality of life was increased significantly in SF-36 evaluation.

After a median follow-up of 8 months a slight recurrence of Frey's Syndrome could be proven by Minor's starch iodine test in 9 patients. All of these had a subclinical manifestation especially in the hair-line area. All patients treated with Botulinumtoxin A declared to be very satisfied with the therapy and they would like to get repeated injections in case of clinical relevant Gustatory Sweating.



Fig. 8-10 A 36 years old woman who underwent surgery 8 years ago. Before treatment she was unable to attend eye (8), and 7 week after treatment with Botulinumtoxin A.



Fig. 10-12 A 44 years old patient, 7 years after superficial parotidectomy due to pleomorphic adenoma. One week after treatment by gustatory sweating was observed by Minor's test.

### Conclusion

Botulinumtoxin A is highly effective and safe in the treatment of gustatory sweating. Intracutaneous injections of Botulinumtoxin A are the treatment of choice in severe cases of Frey's Syndrome.

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