

# Research Report

## Nasal insufficiency syndrome (a new concept of ozena)

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### Abstract

The patient complained of nasal odor and was referred to a psychiatrist by the Department of Otolaryngology as a case of olfactory reference syndrome. The patient had a strong nasal odor. The doctor denied the existence of atrophic rhinitis and ozena.

If you look around the internet, there are many who suffer from similar conditions. Almost all of them complain of an unusually dry nose. It was thought that *Pseudomonas aeruginosa* or some fungus grew abnormally in the devastated nasal mucosa of the endogenous nasal cavity, and due to inadequate nasal secretion, the bacterial metabolites could not be forced down the throat or other parts of the body, giving off a strong nasal odor. This disorder is often neglected or diagnosed by psychiatrists as olfactory reference syndrome. The term "nasal secretion insufficiency syndrome" is used to describe this condition. This is a new concept of ozena. It is a newer concept of atrophic rhinitis and ozena, which remains unnoticed, partly because there is no crusting or atrophy of the native nasal cavity, and partly because endoscopy reveals only the devastation of the nasal mucosa, and partly because it is hidden behind the veil of atrophic rhinitis and ozena.

In all 7 cases, salivary stimulants weakened the odor, albeit temporarily.

### Key words

new concept of ozena, nasal secretion deficiency syndrome, dry rhinitis, olfactory reference syndrome, drugs that stimulate saliva production

### Introduction

The odor is weaker than atrophic rhinitis and rhinosinusitis due to abnormal growth of *Pseudomonas aeruginosa* in nasal mucosa of intrinsic nasal cavity without forming a crust. When patients complain of nasal odor, they are not applicable to the concept of atrophic rhinitis or ozena, so most of them are referred to the psychiatry department olfactory reference syndrome.

The nasal secretion insufficiency syndrome is caused by the damage to the nasal mucosa of the nasal cavity that secrete the nasal juice, and the nasal secretion is decreased due to the abnormal growth of *Staphylococcus aureus* or *Pseudomonas aeruginosa* in the nasal mucosa of the nasal cavity.

The causes of the disease are thought to be diverse. The most common cause is the gradual or rapid damage to the nasal mucosa caused by rhinosinusitis. Other causes are more common in those working in freezers.

Although the frequency of this disorder is high, almost all have been diagnosed as olfactory reference syndrome. However, the stench can be so strong that many refuse to be in the same room.

"The number of tormentors has increased dramatically, and it is now very common for people to be tormented as "stinky" people. Many of them have become socially withdrawn or withdrawn.

Atrophic rhinitis/ozena is mentioned in ancient Egyptian documents as a mysterious disease. Atrophic rhinitis/odorism was proposed by B. Frankel to be accompanied by three main signs of "foul odor, atrophy, and crusting" and is believed to have laid the groundwork for a single disease.

Previously, the frequency of atrophic rhinitis and ozena was high worldwide, and the etiology of the disease has been the subject of much debate. It was known empirically that the administration of female hormones was effective, that the disease often resolved spontaneously in old age, that the incidence rate in females was twice as high as that in males, and that the odor in female patients often became stronger or weaker in accordance with their menstrual cycles. It was suggested that hormones had a significant effect on atrophic rhinitis and ozena. There was also a strong theory of autonomic neuropathy, which suggested that a very large number of patients were nervous and that the bacterial infection was secondary to the bacterial infection.

The incidence of atrophic rhinitis and ozena has continued to decline since 1950, and nowadays, at least in developed countries, the incidence of atrophic rhinitis and ozena is almost non-existent. This author believes that this is due to the fact that high doses of female hormones have become the norm in modern livestock farming and aquaculture. In the rural areas where people cannot eat milk and meat due to modern livestock farming and aquaculture, atrophic rhinitis and ozena still occur at a relatively high rate.

There is a social networking site for people suffering from odor, with more than 200 registered users, mostly women, ranging in age from 14 to 56 years old. People who suffer from a wide range of odors such as bad breath, nasal odor, body odor, and the gas form of irritable bowel syndrome (IBS) have registered on the site. Until a few years ago, the name "Friends of the Nasal Odor Sufferers" was used because the organizer suffers from nasal odor. It is believed that many people with bad breath and body odor have nasal odor but are not aware of it.

Many of the participants in this SNS are olfactory reference syndrome, but some of them can only think of it as really smelly. These were thought to be inadequate nasal secretion for a variety of reasons. The cases are described below.

In all seven cases below, the foul odor subsided, though only temporarily, when drugs to stimulate salivary secretion were administered.

## Case

(Case 1) 53 years old, male.

**Family history:** father and sister and nervousness (sister and two brothers)

**Personality:** Stubborn, enthusiastic, picky, gentle, nervous and obsessive tendencies

**Life history:** Good grades since childhood (for privacy reasons)

**History:** at the age of 28, he developed a depressive disorder that has continued to this day, with mild to severe symptoms.

At the age of 32, he developed psychogenic pollakiuria, which has continued to this day.

**Current medical history:** In the winter of the first year of elementary school, he developed rhinosinusitis. Since then, he suffered greatly from nasal discharge during classes. In the winter of the second year of junior high school, he noticed that the left nasal bone was swollen. Although the middle nasal cavity was forming (Figure 1 and Figure 2) the case was left alone without concern.

Since the spring of his sophomore year of high school, his rhinosinusitis has become milder or his secretions have decreased, and he is no longer bothered by the nasal discharge that comes out during class.

He has been suffering from bad breath for many years since he graduated from high school. He thought his bad breath was caused by chronic gastritis.

A few years ago, he self-diagnosed that his bad breath was caused by gastroesophageal reflux disease and underwent gastrointestinal contrast and 24-hour esophageal pH monitoring at a university hospital.

After 24-hour gastroesophageal pH monitoring, he began to think that her odor was nasal odor and not halitosis. It was around the time when he was agonizing over how to cure his

nasal odor, when he read about the "Friends Suffering from Nasal Odor" on the Internet. In the spring of his sophomore year of high school, he went to see a famous elderly ENT doctor at the urging of his parents and was diagnosed with atrophic rhinitis (no CT or endoscope was used). However, atrophic rhinitis was ruled out by MRI as there was no atrophy of the nasal gland.

In the spring of his sophomore year of high school, his severe acne, which had plagued him since sixth grade, went into dramatic remission. This coincided exactly with the period when he no longer struggled with the nasal discharge that came up during class. The case believes that around this time, due to his sister's severe acne, his diet changed to emphasize vegetables, and this altered his gut microbiota, which in turn altered the flora of his skin and intrinsic nasal cavity.

He believed that he had a strong nasal odor from his sophomore year of high school, or at least the winter of his junior year of high school, when he stopped struggling in class because of his nasal discharge, if memory serves (he remember avoiding it while studying in the library in the winter of his senior year of high school).

Further traversing the memory, the nasal odor started in his junior year of middle school when he started eating a lot of meat. He began to think that the meat was covered in antibiotics and that this killed off *Staphylococcus lugdunensis* in the endemic nasal cavity, allowing *Staphylococcus aureus* to grow abnormally in the endemic nasal cavity.

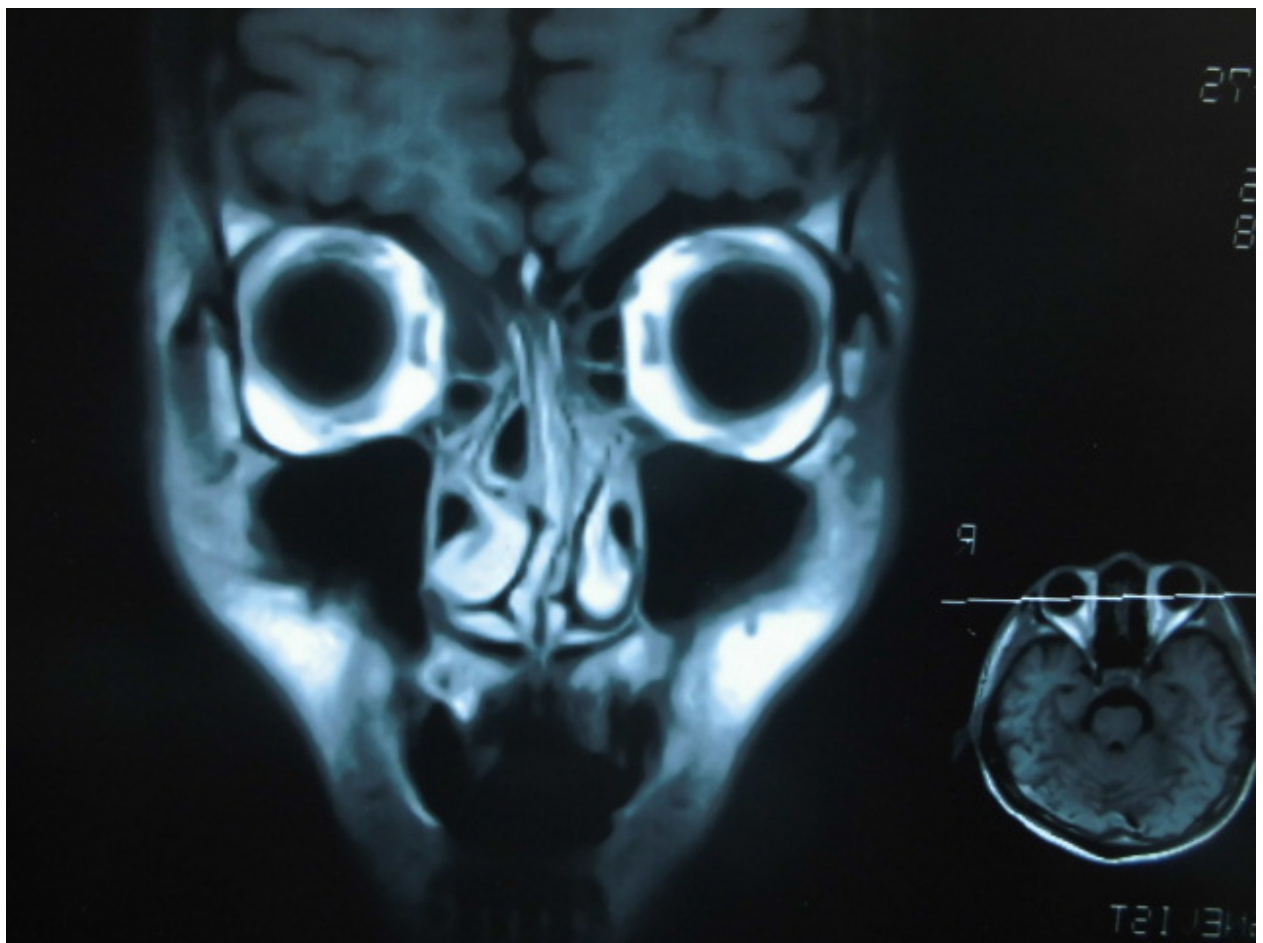
He imported mupirocin, which is widely used in surgery to selectively kill cocci such as *Staphylococcus aureus*, and used it privately, but the dryness of the intrinsic nasal cavity did not diminish (the smell was unknown).

When he noticed nasal odor, he injected lactobacillus solution into his nasal cavity, but he found out that it was effective for about one hour, so he now inhales horse oil in his nasal cavity. However, he found that the effect was about one hour, so he now use horse oil for intranasal inhalation, which is not as strong a cleansing agent, but the effect lasts a long time. He also reads books on horse oil and inhales horse oil into the nasal cavity in the hope that the oil will regenerate the devastated nasal mucosa.

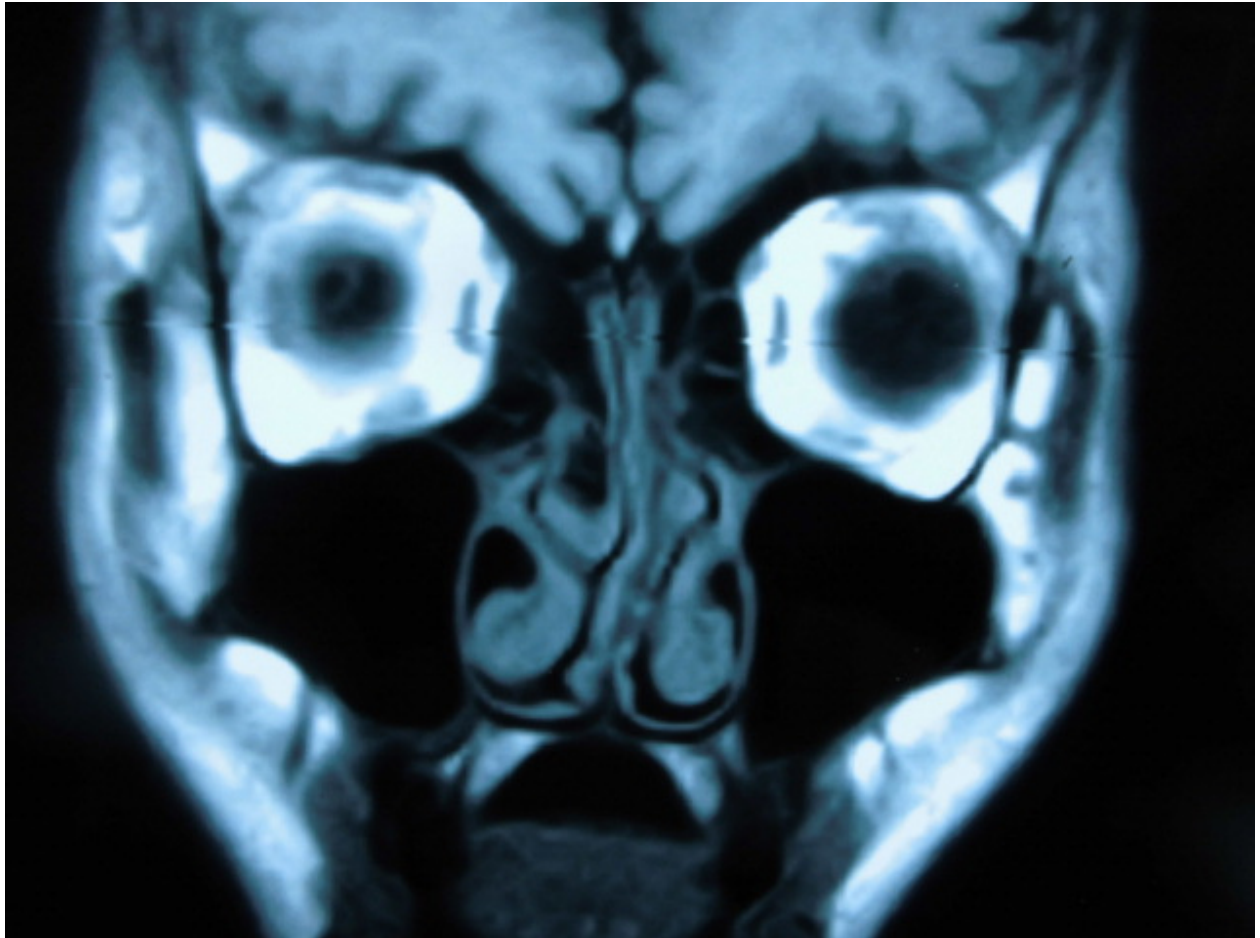
He always wears a mask to reduce the thirst of his nasal passages, but his nasal passages feel very dry, and only a little watery nasal secretions are occasionally emitted. When he touches the nasal mucosa of his nasal cavity with a cotton swab, he can see that it is rough.

He was referred to a psychiatrist because he thought he had fungal rhinosinusitis and was diagnosed as olfactory reference syndrome. There is no internal disease. There was no detectable peripheral reaction, i.e., coughing and sniffing.

(Figure 1)



(Figure 2)



The following is a list of six cases of "social networking sites for odor problems" for reference. In addition to reading the posts, he actively exchanged emails. (The one with a high possibility of nasal secretion insufficiency syndrome was selected.)

(Case 2) 31 years old, male.

**Current medical history:** claimed to have developed odorophobia spontaneously since the age of 19 years old when he started working in a freezer.

Visited an ENT clinic and was diagnosed with olfactory reference syndrome. No history of psychiatric consultations.

He works diligently at his job without a break. He still works in the freezer most of the time.

He is rarely in close contact with people at work. He has never been bullied.

he can't let people ride in his car because he think it smells bad, and when he go to people's houses to play, he always wash his nasal passages in the car with a device that was his them with saline solution or something else before he go into people's houses.

If he doesn't wear a mask to bed on a tired day, he gets nosebleeds when he wakes up because it's too dry.

He has a serious and honest personality. He always wears a mask, but he only occasionally has a small amount of watery nasal discharge that is not viscous. No nasal hair. There is no internal disease. There is no discernible reaction, i.e., coughing or sniffing.

(Case 3) 37 years old, male.

**Current medical history:** During high school, he had been to several ENT clinics, claiming that during the winter, he had fallen asleep in front of a hot air heater and inhaled hot air for a long time, which caused pressure ulcers to form on her nasal passages and gave off nasal odor. One of the ENT departments diagnosed his with olfactory reference syndrome and recommended that he see a psychosomatic physician, who referred his to a psychosomatic physician and he continues to see a psychosomatic physician. He still goes to a psychosomatic physician because he needs sleeping pills.

He works at the Y Department and has never been tormented. This is presumably due to the fact that his case work at the Y Department involves very little close contact with people; he works in a department at the Y Department that has a very high number of night shifts; when he joined the Y Department, he was concerned about nasal odor, so he chose his current department, which most people avoid.

He wrote: "Dry winter is the problem, the smell gets worse when it's dry" and "I've been applying Vaseline and wearing masks lately to prevent dryness."

His personality is serious and straightforward. He always wears a mask, but only occasionally has a small amount of watery nasal discharge. He has no medical problems. There was no discernible reaction, i.e., coughing and sniffing.

(Case 4) A 56 years old, male.

**Current medical history:** He had bad ears and nose since the early years of elementary school and had to go to an ENT clinic. When he was in junior high school and high school, he had a hard time in class because he had a lot of nasal discharge.

After graduating from high school, he joined the Tokyo branch of Company A. He worked on the floor with nearly 200 people. There, he is accused of "smelling" by the company's employees. However, he didn't pay much attention to it.

When he was 30 years old, he was transferred to the Osaka branch. Here too, he works on the floor with nearly 200 people. Rumors of his time in the Tokyo branch have spread, and the same employees have been talking behind his back about the "smell" of the office. It happened frequently that younger employees would come near the cases and smell them and say they "stunk". The case was distressed and underwent surgery for rhinosinusitis at a

university hospital. It is presumed that this kind of torment could have happened because the workplace had a lot of time on his hands.

He found a website called "Friends Suffering from Nasal Odor," where he thought he was suffering from rhinosinusitis. He wrote: "I have been told by an ENT specialist that there was no crusting or atrophy of the nasal cavity, but it could be atrophic rhinitis and that the mucous membrane was severely damaged."

One ENT clinic wrote a referral to a psychiatrist and he have seen a psychiatrist. The psychiatrist diagnosed him with olfactory reference syndrome and prescribed alprazolam and sulphuride. His personality is amicable and highly social. He has three children and his family is happy. He has no medical problems. There are no known reactions, i.e. coughing and sniffing.

(Case 5) 29 years old, female.

**Current medical history:** She had been treated by an ENT clinic for rhinosinusitis since her early elementary school years. She has been taking antibiotics since her early elementary school days.

It seems that she has been giving off a bad smell since her junior high school days, but it's not clear, maybe she has been giving off a bad smell since her elementary school days.

The self-introduction on the "Friends Suffering from Nasal Odor" reads as follows  
"I haven't laughed from my heart in years.

I've learned to laugh with my mouth closed because when I laugh, I give off a smell.

I've learned to keep conversations short and to use words as much as possible.

I make an effort to breathe in as much as I can on my own.

The people around me don't know about this effort.

And that's why they offer me breath-care.

He offers me a Fabreeze.

You're doing this out of kindness, and that action makes me suffer even more.

I love kids, and I want to be married.

But I've been shutting everything down because I feel like I shouldn't be in a relationship because of this smell.

I'm all about work. LOL.

I'm in the customer service industry, ready to be a nuisance.

The one that smells bad and is too dark to work, than the one that can't work.

I want a stinky, but energetic, workmanlike guy.

I think it's only recently that I've started to go for it.

I've been to a famous dentist. I had a physical exam. I even took a gastroscope. I've even tried herbal medicine. And yet, I couldn't figure out where or what was giving off this smell. It was six months ago that I realized it was nasal odor.



When will I ever be able to truly laugh?"

She claims that her nasal odor often becomes stronger and nasal odor almost disappears in response to her menstrual cycle.

A couple of ENTs told her that the mucous membranes in her nose were very rough, she says, "I could barely smell it, and the ENT said, The nerve cells in my sense of smell have been abolished. Why did you let it go? In summer I smelled rotten fish, and in autumn and winter I smelled a fart."

Her character is serious and straightforward. Watery nasal discharge is occasionally slight. There is no internal disease. She was extremely sensitive to the reactions of her surroundings, i.e., coughing and sniffing.

(Case 6) A 48 years old, female.

**Current medical history:** In the fourth grade of elementary school, she developed rhinosinusitis. After entering junior high school, she had frequent nasal congestion and difficulty breathing through her nose at night. At the same time, she found out that her nose was emitting a foul smell. She went to the ear, nose and throat clinic to complain about her nasal odor, but she was lightly treated. Around this time, she was told by her classmates that her nose smelled bad, and she was severely tormented by the female guard. In the second year of junior high school, she started taking an over-the-counter Chinese herbal medicine for rhinosinusitis and ozena, which was said to be effective. After researching in the library, she realized that her condition was probably due to her own odorous nose disorder. When she was in junior high school, she was told that she smelled "fart smell" and "feces smell". When she was in her twenties, she went to an ENT clinic and was told that "the inside of your nose is completely black! You must be puking on a cigarette like Godzilla! (Case does not smoke.)" At that time, her rhinosinusitis was so bad that she was emitting a lot of green nasal discharge, and she was fussed over at work, pointing to the place where the patient was, saying, "That area smells squidgy and fishy!" This was right after taking antibiotics for seven days, and it is assumed that *Pseudomonas aeruginosa* had been growing abnormally. She had seen many ENT doctors, but one ENT told her that she had "weak atrophy of the nasal cavity, not atrophic rhinitis, but weak atrophy of the nasal cavity, with very rough nasal mucosa."

She imported Mupirocin privately and used it, but stopped using it after a few days when it came to her stomach (stomach upset) and she didn't feel any effect.

She claims that her nasal odor becomes stronger or weaker depending on her menstrual cycle, especially during menstruation (she can't smell it herself, so she judges it from the reactions of others).

She writes: "After taking the medicine (note: etizolam in which benzodiazepine derivatives), the reactions of people around me, such as coughing and sniffing, disappear completely,"

"My son also has nasal odor," and When she catches a cold and has a runny nose, the odor gets weaker.

Recently, she said, she has been receiving many complaints about the "smell of farts" and "feces." She is severely concerned about people with strong breath odor at work and elsewhere. She is extremely sensitive to odors. At home, she makes her children check the smell, and when he say, "I don't have a smell," she criticizes him, telling him to tell the truth, until he cry.

She wrote.

"When the smell is bad, there's no pus or nasal discharge (my nose gets dry).

When the smell is lessened, it feels like pus is coming out and my nose is moist.

The point is, as long as you're able to excrete the pus, the smell isn't too bad.

If excretion is blocked and pus builds up in the maxillary sinuses, etc., a foul odor will ensue.

This is the kind of scheme I am thinking of."

She severely dislike being called "olfactory reference syndrome" and "overly concerned."

She doesn't have an internal disease. She is extremely sensitive to the reactions of her surroundings, i.e., coughing and sniffing.

(Case 7) 28 years old, female.

**Current medical history:** She was not sure when she started to smell bad. At least when she started working, she began to have a nasal odor.

When she goes to work, she inhales horse oil in her nasal passages at home, which is not stinky in the morning, but in the afternoon she emits a foul odor, which is annoying to those around her and disliked by those around her as "smelly". The fact that horse oil reduces nasal odor is a fact she learned about and practiced in "Friends Suffering from Nasal Odor".

She says that nasal rinsing with saline solution is only effective for about two hours.

She avoids romance because she thinks she's stinky.

Her personality is honest and serious. She also appears to have a mixture of nasal secretion insufficiency syndrome and olfactory reference syndrome.

From the above seven cases, it seems that males are insensitive to the reactions of their surroundings, i.e., coughing and sniffing, but there are many males on this SNS(Friends Suffering from Nasal Odor) who are also hypersensitive to the reactions of their surroundings and are diagnosed with olfactory reference syndrome. (All of the female cases listed here are complicated by olfactory reference syndrome.)

## Consideration

It is not clear what bacterium destroys the native nasal mucosa, which contains nasal glands and goblet cells that produce nasal secretions.

Many nasal odor sufferers claim that taking common antibiotics will dramatically reduce the odor for a few days.

Many nasal odor sufferers complain of slight nasal discharge and a strong dry feeling. It is thought that this is because of the strong desiccation of the nasal mucosa.

In women, nasal odor becomes strong in response to the menstrual cycle, and nasal odor becomes strong during menstruation. This is because the microbiota in the nasal cavity changes in response to the menstrual cycle. This is consistent with the ancient theory that hormones are the etiology of atrophic rhinitis and ozena, and that the odor of atrophic rhinitis and ozena increases during menstruation. Several women who participated in this "Friends Suffering from Nasal Odor" did not recognize the odor themselves, so they guessed it based on the reactions of their neighbors, but their sensitivity to the reactions of their neighbors was extremely high, so I believe they were correct in their judgment. Most of the participants in this social network had a combination of olfactory reference syndrome and nasal excretion insufficiency syndrome.

Even if the nasal cavity is rinsed with saline at night, the next morning the nasal cavity still emits a foul odor. Nasal rinsing with saline may be effective for a time, but the duration of the effect is not long, usually 2 hours.

There are a large number of people on this social networking site who claim that taking benzodiazepines dramatically eliminates the reactions around them, i.e. coughing and sniffing. However, nasal secretion is controlled by the parasympathetic nervous system, and taking benzodiazepines may relieve sympathetic nervous system overstimulation, so that parasympathetic nervous system activity is not inhibited and nasal secretion is promoted, which may lead to weak nasal odor.

In all seven cases above, the foul odor subsided temporarily after taking saliva-accelerating drugs. This is because the nasal secretion is also accelerated in all seven cases.

## Finally

This new condition was present in large numbers before 1955, when atrophic rhinitis and ozena was common, as rhinosinusitis was very common, but it did not form crusts, and its odor was generally weaker than atrophic rhinitis and ozena, so it may have been overlooked under the veil of atrophic rhinitis and ozena. It is also possible that the patient may have been diagnosed with a mild form of atrophic rhinitis and ozena.

At least in nasal odor, it is likely that many of them are misdiagnosed as having a real odor, at least in terms of nasal odor, but with olfactory reference syndrome. Most of the patients with nasal odor complain of nasal odor are rinsing their nasal passages with saline solution several

times a day, and almost all of them have weak odor. Many patients complain of nasal odor only in autumn and winter when the air is dry.

Among those who complain of nasal odor and have olfactory reference syndrome, nasal secretion insufficiency syndrome is thought to be involved. The nasal secretion insufficiency syndrome is thought to be present in the patients who complain of halitosis and body odor and are olfactory reference syndrome, because they cannot recognize nasal odor by themselves.

Conflict of interest: No conflict of interest to declare.

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