

[Research Report]

A case that had been diagnosed as halitosis

----- Nasal Secretion Deficiency Syndrome (new concept of ozena) -----

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[Summary]

An example in which a patient was referred to a psychiatric referral by the otolaryngologist for halitosis due to a nasal smell is shown below. The case actually had a strong nasal smell. Maybe, otorhinolaryngology has ruled out to halitosis such as similar to atrophic rhinitis or ozena.

If you look over the Internet, many people suffer from similar illness. Almost all complain of an abnormally dry nose. Staphylococcus aureus grows abnormally in the devastated nasal mucosa, and in the warm season, pseudomonas aeruginosa abnormally grows in the nasopharynx. It was not possible, and it was considered that he had a strong nasal smell.

It was also considered that staphylococcus lugdunensis, which produces a substance that prevents the growth of staphylococcus aureus, was not present. However, it is thought that pseudomonas aeruginosa abnormally grows in the warm season because blue mucus comes out when they wake up in the morning and spit in the washroom.

Although the frequency of this disease is high, it has been diagnosed as halitosis by neglect by psychiatry. I named Nasal Secretion Deficiency Syndrome . This is a new concept of ozena. There was no crusting and atrophy of the proper nasal cavity, and only nasal mucosa was found to be degraded by an endoscope. Because it was hidden by a veil of atrophic rhinitis and ozena, it was not noticed or noticed. Not considered a serious illness.

Many people say that it gets worse during the cold and dry season. However, a small crust is formed near the posterior part of the middle turbinate, and it is also conceivable that the odor is giving off the odor.

It can be said that all women at least have halitosis.

[Key words]

new concept of ozena, Nasal Secretion Deficiency Syndrome , staphylococcus aureus, pseudomonas aeruginosa, halitosis

[Introduction]

The devastation of the nasal mucosa of the proper nasal cavity, the nasal glands and goblet cells that produce nasal secretions are damaged, the secretion of nasal secretions is strongly reduced.

During the dry season, due to the abnormal growth of staphylococcus aureus in the nasal mucosa or small crust is formed in the posterior part of the middle turbinate, and In the warm season, pseudomonas aeruginosa grows abnormally in the nasopharynx without forming a crust, the odor is weaker than ozena, the most severe form of atrophic rhinitis.

Patients referred to psychiatry as halitosis because they do not apply to the concept of ozena, which is the most serious of atrophic rhinitis, even if they consult a otolaryngologist who complains of nasal odor.

The causes are presumed to be diverse. The most presumed cause is that “nasal glands and goblet cells that produce nasal discharge are gradually destroyed by rhinosinusitis” . People who think that chronic rhinosinusitis from childhood has cured may have simply destroyed the nasal glands and goblet cells that produce nasal secretions.

Although the frequency of this disease is high, almost all have been diagnosed with halitosis. However, the stench can be so strong that more and more people refuse to stay in the same room.

At the moment when “bullying” has increased dramatically, “bullying” is very common. There are also many people who have fallen into refuge or withdrawal from society.

Ozena, the most severe form of atrophic rhinitis, has been described as a mysterious disease in ancient Egyptian documents. B. Frankel proposed that ozena, the most severe form of atrophic rhinitis, was accompanied by the three main signs of “odor, atrophy, and crusting” , and it was said to have established a foothold as a disease⁷).

Previously, ozena, the most severe form of atrophic rhinitis, was high in the world, and various debates have been made on its etiology. The empirical knowledge of the effects of female hormones was found to be effective, that spontaneous healing was often observed in old age, that the morbidity of women was more than twice that of

men, ozena often increased and decreased in accordance with the menstrual cycle, and when combined, it was suggested that sex hormones had a large effect on ozena, the most severe form of atrophic rhinitis. 3,7).

In addition, there was a strong hypothesis that the number of nervous patients was so large that bacterial infections were secondary, and that autonomic nervous disorders were 7).

Ozena, atrophic rhinitis and chronic rhinosinusitis have been decreasing since 1950, and at present almost no outbreaks have occurred in at least developed countries^{3,7}). I think this is because it is normal to administer large amounts of female hormones in modern livestock farming and aquaculture. Ozena and atrophic rhinitis still occur relatively frequently in rural areas where modern livestock farming and farming do not have access to milk and meat.

On the Internet, there is “Friends with a nasal smell” , the number of registrants is over 200, there are many women in general, and their ages range from teens to fifties. People who suffer from various odors such as bad breath, nasal odor, body odor, and irritable bowel syndrome (IBS) gas type are registered. Since the organizers were worried about nasal smells, the “Friends with a nasal smell” was the name until several years ago. It is thought that there are many people who have a nasal odor but do not notice it among bad breath and body odor.

Many of the participants of this SNS were said to be “smelling” , and the experience of being criticized as “smelling” was traumatic, causing halitosis. Does not actually smell or does not smell in off-party (meeting where people who are suffering from their own smell gather to confirm “smell”) that is the most.

It was extremely difficult and almost impossible to convince people of this SNS that they had halitosis that they were concerned about responding, that is, worrying about “coughing” and “snipping” .

In addition Case 1, he has middle turbinate honeycomb, which is noted (Fig. 1). It is considered that the middle turbinate honeycomb was greatly involved in case 1 chronic rhinosinusitis.

【Case】

(Case 1) 56 years old, male

Family history: nervous with father/sister (sister and two siblings)

Personality: stiff, heat-neutral, noxious, gentle, nervous and obsessive

Life history: Excellent results since childhood (Privacy protection, thereafter abbreviated)

History: At the age of 28, he developed depressive disorder, and his condition has continued to be mild and severe.

At the age of 32, he developed psychogenic pollakiuria and is still continuing.

Current medical history: In the first year of elementary school, he developed chronic rhinosinusitis. Since then, during class, he have suffered very much from the nasal discharge that came out. In the second year of junior high school, he notices that his left nose is bulging. Although it was a middle turbinate honeycomb (Fig. 1), the case was released without concern.

From the spring of his second year in high school, he did not have to worry about nasal discharge coming out during class, whether his Chronic rhinosinusitis had become milder or his secretions had decreased.

He has been worried about bad breath for many years since he graduated from high school. He have thought that bad breath was caused by chronic gastritis.

Several years ago, self-diagnosis of was due to gastroesophageal reflux disease, and gastroscopy and 24-hour esophageal pH monitoring were performed at a university hospital, etc., but gastroesophageal reflux disease was denied in any case.

He began to think that his odor was nasal instead of gastroesophageal reflux disease. He was denied gastroesophageal reflux disease through 24-hour esophageal pH monitoring, and where did his odor originate? When he was worried about it, he read the online “Friends with a nasal smell” .

In addition, at this time, in the spring of high school, a senior physician named otolaryngologist was consulted with a strong recommendation from a parent and diagnosed as “atrophic rhinitis” (diagnosis was made only with a rhinoscopy). He wrote, but he know the meaning of the disease name for the first time. However, in atrophic rhinitis, atrophy of the nasal turbinate is not clear by MRI, and it is difficult to distinguish.

The severe acne that had been a problem since the sixth grade of elementary school in the spring of high school was remissioned dramatically. This is exactly the same as the time when he no longer struggled with the nasal discharge during class. In this case, the diet was changed to a vegetable-oriented diet due to the severe acne of his sister, and this affected the intestinal microflora, which is thought to have changed the microflora of the skin and the nasal cavity.

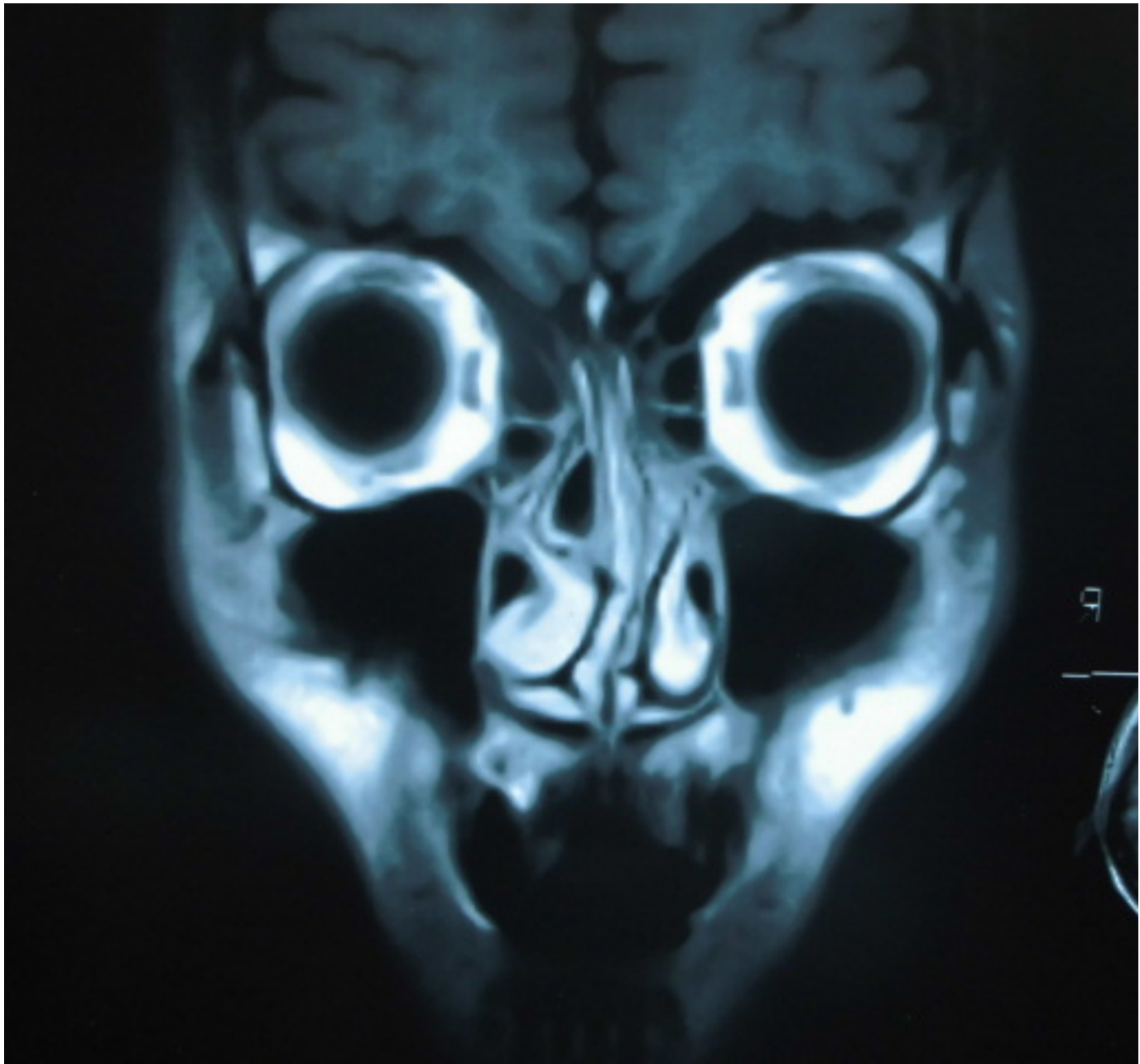
From the second year of high school when nasal discharge came out and he did not have any difficulties during class, he remember that, according to his memories, he had a strong nasal smell at least in the third year of high school (he studied at the library in the third year of high school in the library) There is a memory that was avoided.)

In his further memory, when he was in his third year of junior high school, he started eating lots of meat and started to smell bad. The flesh was covered with antibiotics, and he began to think that staphylococcus lugdunensis in the nasal cavity had died, and that staphylococcus aureus was able to grow abnormally in the nasal cavity. Mupirocin^{4,12}), which is widely used around the world at the operating site to selectively kill Staphylococcus aureus and other Staphylococcus aureus, was imported and used personally, but the dryness of the nasal cavity did not diminish (smell is unknown).

He noticed a nasal smell and started to inject a lactic acid bacterium solution into the nasal cavity, but since the effect was found to be about 1 hour, he currently surpasses horse oil by intranasal inhalation. Horse oil is not very effective in cleaning, but has a long duration of effect. He also reads horse oil books and inhales horse oil into the nasal cavity in hopes of regenerating the abolished nasal mucosa.

He always wears a mask and tries to reduce the thirst of the nasal cavity. However, the nasal cavity has a strong dry feeling and occasionally a little watery nasal discharge. If he touches the nasal mucosa with a cotton swab, he can see that it is rough. From the Internet, he thought he had fungal rhinosinusitis and went to an otolaryngology department, where he was denied fungal rhinosinusitis by CT examination and was referred to a psychiatrist. No medical illness. He does not know the reaction of the surroundings, that is, coughing or nose sipping.

Middle turbinate honeycomb in case 1 (Fig. 1)



(Case 2 and below are six cases of "Nasal Secretion Deficiency Syndrome ". For reference, I not only read the notes but also actively exchanged e-mails. I chose those that seemed to have a high possibility of Nasal Secretion Deficiency Syndrome .)

(Case 2) 31 years old, male

Current medical history: Claims that he began to work in the freezer at the age of 19 and naturally developed odor nose.

He consulted an otolaryngologist, but was diagnosed with fear of self-odor that is halitosis. No history of psychiatric consultation.

He go to work without a break. He often work in the freezer now. He rarely get close to people on business. He have never been bullied.

If he put a person in your own car, he will not be able to put it on because he think it smells. When he go to play in a person's house, be sure to put a saline solution etc. in the car and wash the nasal cavity with a device before entering the person's house like that.

There is writing a “and the like tired day not sleeping mask, is endlessly nosebleed out when that happened too dry” .

Personality is serious and honest. He always wear a mask, but occasionally only a small amount of a viscous, watery nasal discharge. Nose hair not grows. No medical illness. He do not know the reaction of the surroundings, that is, coughing or nose sipping.

(Case 3) 37 years old, male

Current medical history: In high school, winter, sleeping in front of a warm-air stove, inhaling warm air for a long time, claiming to form a cough in the proper nasal cavity and emit a nasal smell, consulting multiple otolaryngologists did. He was diagnosed with a fear of self-odor that is halitosis by a certain otolaryngologist and was recommended to consult a psychosomatic medicine department. Psychosomatic medicine is attending because he want a sleeping pill.

He work for the Y-station, that is post office and have never been bullied. This is presumed to be due to the fact that the case work at the Y station rarely comes in close contact with people. The department Y-station in a department that has many night shifts. When he joined the Y-station, he was concerned about nasal smell, so ordinary people chose the current department to avoid.

He writes, “I have a problem with the dry winter season, the smell gets worse when it is dry” .

Personality is serious and honest. He always wear a mask, but occasionally only a little watery nasal discharge. No medical illness. He do not know the reaction of the surroundings, that is, coughing or nose sipping.

(Case 4) 56 years old, male

Current medical history: He had a bad ear and nose since he was in elementary school. In junior high and high school he had a lot of nasal discharge and struggled during class.

After graduating from high school, join the Tokyo branch of company A. Work on a floor with nearly 200 people. The employee of the company says “smell” .

However, he did not care much.

Moved to Osaka branch at the age of 30. Here, too, he works on the floor with nearly 200 people. Rumors of being in the Tokyo branch have come across, and employees of the company say the same, “Smell” . It often happened that young employees came near the case and smelled it and said “smell” . The case suffered from surgery for Chronic rhinosinusitis at a university hospital. It is presumed that such bullying could have occurred because the workplace had ample time.

On the Internet, he found “Friends with a nasal smell” and here he think he seem to have a bad nose. A certain otolaryngologist said, “There is no crust formation or atrophy of the nasal cavity, but it may be called atrophic rhinitis” , and “the mucous membrane is severely damaged” .

A letter of introduction to psychiatry was written at a certain otolaryngology department, and he have consulted a psychiatrist. The psychiatrist was diagnosed with a fear of self-odor, that is halitosis and was prescribed alprazolam and sulpiride. He has a good personality and high sociality. He has three children and his home is in good shape. No medical illness. he do not know the reaction of the surroundings, that is, coughing or nose sipping.

(Case 5) 29 years old, female

Current medical history: From the lower grades of elementary school, she had been treated for Chronic rhinosinusitis until recently in ENT. She has been taking antibiotics since elementary school.

“It seems that it had been stinking since junior high school, but it is unclear, it may have been stinking since elementary school” .

The following is a self-introduction of “Friends with a nasal smell” .

“I haven't laughed sincerely for years.

When I laugh, it smells bad, so I learned how to laugh with my mouth closed.

Every conversation I learned was short and vocabulary.

Every breath you exhale is trying to inhale a little.

The people do not make this effort.

So I will give you breath care

Give out Fabry's.

The actions you take for kindness make me suffer more.

She like children and want to get married.

But she felt like she couldn't fall in love because of this smell and shut everything down.

I'm doing my job. Lol

I am waiting on customers for annoyance.

Smell, dark and unable to work, more

A guy who can work with energy

I guess what I came to aim for recently.

I went to a famous dentist. I also did a medical checkup. I drank even a stomach camera. I also tried chinese medicine therapy. But I didn't know where or what was emitting this smell. Six months ago I noticed a nasal smell.

When can you really laugh? ”

Claims that nasal odor often increases or almost disappears in response to the cycle of menstruation.

“In a few otolaryngology departments, it was said that the mucous membrane of the nose was very rough.” I could hardly feel the smell, and in the otolaryngology department, “the olfactory nerve cells are abolished. Why? this is impossible.” In summer, “the rotten smell of fish” and in autumn and winter, “the smell of fart ” are pointed out.

Personality is serious and honest. Watery nasal discharge occasionally appears only slightly. No medical illness. Extremely sensitive to surrounding reactions, such as coughing and nose licking.

(Case 6) 48 years old, female

Current medical history: In the fourth year of elementary school, she had rhinosinusitis. Since she was in junior high school, her nose clogged frequently and nasal breathing became difficult at night. At the same time, she knows that a bad smell is coming from her nose. She went to the ENT for a nasal smell, but was treated lightly. Around this time, her classmates said that she smelled, and she was intensely bullied by female guardians and others. In the second year of junior high school, she started taking commercial chinese medicine, which is said to be effective for rhinosinusitis and ozena, and relieved in about three months. Relapsed annually. She checked it at the library and thought her condition seemed to be stinking. In junior high school, it was said that smell of fart” and “smell of stool” occurred.

When she was in her 20's, she was told by an otolaryngologist that "the inside of your nose is black! You smoking cigarettes like Godzilla! Around this time, rhinosinusitis had become so bad that a lot of green nasal discharge had appeared, pointing to the place where the case was in the workplace, and it was made a big fuss, saying, "That squid smells-fresh smell" . This was immediately after taking the antibiotic for 7 days, and it is estimated that pseudomonas aeruginosa had grown abnormally¹¹). It was a warm season.

She has consulted many otolaryngologists, but one otolaryngologist said, "There is weak atrophy of the nasal cavity, which is not atrophic rhinitis, and the nasal mucosa is very rough."

Mupirocin was imported and used personally, but came to the stomach (the stomach became rough) and was discontinued within a few days if the effect was not felt.

Claim that the nasal odor becomes stronger or weaker depending on the menstrual cycle, especially during menstruation (it does not smell on my own, so I judge it from the surrounding reactions).

It says, "If I take a drug (etizolam), there will be no reaction such as coughing and nose rubbing" . "My son has a nasal smell" . etizolam was imported individually from the Internet.

Recently, it is often said that "smell of fart" and "smell of stool" are pointed out. At work, etc., She strongly care about people who have bad breath. Very sensitive to smell. At home, ask the child to check for the smell, and say "no smell" and accuse him of crying, "Say the truth."

"No pus or nasal discharge when odor is severe (nose dries).

When the smell becomes lighter, pus appears and the nose feels moist.

The point is that if she can excrete even if the pus comes out, the smell is not bad.

If pus accumulates in the maxillary sinus etc. due to delayed excretion, a bad smell will occur!

I think it's like this."

With writing.

She strongly dislike being said to be "halitosis" and "too mindful" . No medical illness. Extremely sensitive to surrounding reactions, such as coughing and nose licking.

(Case 7) 28 years old, female

Current medical history: It is not certain when the foul-smelling began. At least she said that she had begun to emit nasal smells after becoming a member of society.

When she goes to work, she says that she does not seem to stink in the morning by inhaling horse oil intranasally at home. However, she says that it emits a bad smell in the afternoon, disturbs the people around her, and dislikes "smell" from the people around her. The fact that horse oil suppresses nasal odor is known and practiced at "Friends with a nasal smell".

She said that her nasal irrigation with saline solution had only been effective for about two hours.

She avoids romance because she thinks she smells.

Personality is honest and serious. It seems that self-odor fear, that is, halitosis, is also mixed.

(Thus, from the above seven cases, men seem to be insensitive to surrounding reactions, that is, coughing and nose slurping, but many men are hypersensitive to surrounding reactions and diagnosed with halitosis in this SNS (All three of the women listed halitosis))

[Discussion]

It is thought that the toxin produced by *Staphylococcus aureus* or *Pseudomonas aeruginosa* existing in the proper nasal cavity destroys the nasal mucosa, including the nasal glands and goblet cells that produce nasal secretions. It is unlikely that *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis*, etc., which are the causative bacteria of rhinosinusitis, produce strong toxins that destroy the nasal mucosa.

About 30% of *Staphylococcus aureus* is a resident bacterium in the nasal cavity, but 70% does not. The reason has recently been elucidated¹⁶). *Staphylococcus lugdunensis*, an indigenous bacterium in the nasal cavity, produces a substance that inhibits the growth of *Staphylococcus aureus*, but does not carry about 30% of *Staphylococcus lugdunensis*. The reason why *Staphylococcus lugdunensis* is not harbored is whether it is genetically born or caused by taking antibiotics.

The latest paper in Japan states that 8.1% of children with rhinosinusitis have staphylococcus aureus in the nasal cavity⁵). According to statistics in Europe, adults are taking antibiotics until they become adults, so it is estimated that the use of antibiotics killed *Staphylococcus lugdunensis*, one of the indigenous bacteria in the proper nasal cavity. The prevalence of staphylococcus aureus in the nasal cavity has a similar tendency in many other articles.

Currently, antibiotics are generally administered to rhinosinusitis and allergic rhinitis, and the mechanism by which *staphylococcus lugdunensis* is extinguished and staphylococcus aureus becomes an abnormally growing bacterium is assumed.

Many people complain of nasal odors, taking common antibiotics for only a few days, but claiming that odors are dramatically reduced. Even if taken for a week, the odor is reduced only in the first few days. This suggests that the stench is staphylococcus aureus. At least in the case of staphylococcus aureus, bacteria that have acquired resistance to the drug have obtained the drug resistance at the expense of their ability to live, and therefore have a lower viability than ordinary staphylococcus aureus⁴). Normally, drug-sensitive ordinary staphylococcus aureus occupies the nasal vestibule and the proper nasal cavity, and a very small number of drug-resistant staphylococcus aureus inhabit the pores of the nasal vestibule, etc. It is considered that normal staphylococcus aureus is killed by the administration, and drug-resistant staphylococcus aureus multiplies not only in the nasal vestibule but also in the adjacent proper nasal cavity at a stretch. However, antibiotics should not work for *pseudomonas aeruginosa*. Many of those who complain of nasal odor complain of strong dryness with occasional slight discharge of nasal discharge. It is considered that the nasal mucosa was severely damaged and nasal glands and goblet cells that produce nasal secretions have died. Staphylococcus aureus is resistant to drying, but in a wet state, other bacteria are easy to grow, and staphylococcus aureus does not grow much.

In the warm season, it is considered that *pseudomonas aeruginosa* abnormally grows in the nasopharynx.

When “fat smell” and “fecal smell” are pointed out by humans, it is presumed that staphylococcus aureus is abnormally growing, and when “fish smells like rotten fish” , *pseudomonas aeruginosa* is abnormally growing. 11).

For women, argue that “the nasal odor increases or almost disappears in response to the menstrual cycle” and “the nasal odor increases during menstruation” . This is presumed to be due to changes in the microflora of the nasal cavity in response to the menstrual cycle¹⁰). Since ancient times, there is a hormonal theory as the etiology of atrophic rhinitis and ozena, which coincides with the fact that the odor of atrophic rhinitis and ozena increases during menstruation. Some women participating in this “ Friends with a nasal smell” are guessing by their surrounding reactions because they do not know the stench themselves, but their sensitivity to the surrounding reactions is extremely high, Seem. Most of the women who participated in this SNS have halitosis or nasal discharge deficiency syndrome and a combination of halitosis.

Even after returning home at night, even if the nasal cavity is washed with physiological saline, etc., it can be said that all cases emit a bad smell from the specific nasal cavity or nasopharynx in the morning of the next day. Nasal irrigation with saline or the like works temporarily, but its effect duration is not long. Many say about two hours.

Many SNSs claim that taking benzodiazepine anxiolytics dramatically eliminates the surrounding reactions, such as coughing and nose rubbing. This is because hypersensitivity is temporarily lost, and it is considered to be halitosis. However, nasal secretion is parasympathetic innervation, and taking benzodiazepine-based anxiolytics releases sympathetic hypertonia and ramp up parasympathetic nerve activity. The mechanism by which the nasal secretion is eliminated and the nasal smell is weakened may be considered as a possibility.

In DSM-5, halitosis is classified as “other identified obsessive-compulsive disorders and related disorders / other identified obsessive-compulsive disorders and related disorders” . Some people say that the crow flies and says “kaakaa (smell smell)” and that “the car behind is following a large distance,” said the group of “schizophrenia spectrum disorders and other psychotic disorders.” are categorized.

【Finally】

This condition was present before 1955, when there was a lot of Chronic rhinosinusitis, because there was so much Chronic rhinosinusitis, but there was no crust formation in the nasal vestibule and at least the middle turbinate rear part

is difficult to see with a rhinoscopy and has a weaker odor than ozena, so it is thought that it was hidden by a veil of ozena.

At least in the case of nasal smell, many people are misdiagnosed for self-odor fear, that is halitosis.

Many people who complain of nasal odors perform nasal lavage several times a day with physiological saline or the like. Many argue that bad odors are only noted in the dry and autumn air.

Some people who complain of nasal smell and have halitosis include Nasal Secretion Deficiency Syndrome . Since nasal odor cannot be perceived by oneself, it is considered that Nasal Secretion Deficiency Syndrome is also included in those who complain of halitosis and body odor and are regarded as having a fear of self-odor.

[Literature]

- 1) Satoshi Asakura: A clinical study of self-odor fear—comparison with cases 25 years ago ——. *Clinical Psychiatry* 29, 313–320, 2000.
- 2) Begum M, McKenna PJ: Olfactory reference syndrome: A systematic review of the world literature. *Psychological Medicine* 41: 453–461, 2011.
- 3) Ichiro Furuuchi: Atrophic rhinitis. *Clinical allergy* 9 (3): 172–175, 1989.
- 4) Konvalinka A, Errett L, Fong IW: Impact of treating *Staphylococcus aureus* nasal carriers on wound infections in cardiac surgery, *Journal of Hospital Infection* 64: 162–168, 2006.
- 5) Kudo, N., Arimoto, Y., Nakano, A .: Detection of bacteria detected in nasal secretion of children, *Journal of the Japanese Society of Hinnas* 47 (2): 115–119, 2008.
- 6) Ryotaro Ishimitsu: Experience of treatment of rhinosinus sinus mycosis in our department. *Journal of Japanese Society of Otolaryngology Infectious Diseases*. Vol.17. No.1: 143–147, 1999.
- 7) J. Mutoh: Atrophic rhinitis. *JOHNS* 8: 1015–1019, 1992.
- 8) Murakami, Y .: Self-odor delusion. *Psychiatry* 53 (9): 919–921, 2011.
- 9) Osumi Kensaku: Bacteriological study of atrophic rhinitis: Changes in the nasal microbiota before and after Kubo atrophic rhinitis surgery. *The Journal of Chiba Medical Society* 32 (6): 937–952, 1957 .
- 10) Hirohashi Ohashi: Changes in vaginal bacteria during menstrual cycle. *Journal of Infectious Diseases* 54 (7): 321–330, 1970.

- 11) Takao Tachibana: Treatment and treatment of pressure ulcers. Diagnosis and treatment 90: 1601-1607, 2002.
- 12) T. Tanaka, H. Shimada, T. Chino, et al .: Usefulness of Mupirocin Ointment in Esophageal Cancer Surgery.
- 13) Hideya Yokoi: Clinical statistics of atrophic rhinitis and experience of using glynpol for this disease. Otolaryngology 49 (6): 39-49, 1956.
- 14) Yoshikawa Mae: Diagnosis and Treatment of Sinusoid Mycosis. Otomi No. 118: 629-635, 2015.
- 15) Udagawa Yuko: Bacteriological study of pediatric rhinosinusitis. Pediatric ear 17 (1): 48-51, 1996.
- 16) Zipperer A, Konnerth MC, Martin C; Human commensals producing a novel antibiotic impair pathogen colonization. Nature 535 (7613): 511-516, 2016.

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Toshiro Takami: 1 case suffering from nose smell, which are misdiagnosed as halitosis.

---- Nasal mucosal insufficiency syndrome (ozena of a new concept) ----