

ANATOMY AND DISEASES OF PARANASAL SINUSES IN MEDICINE

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Annotation

Paranasal sinuses are cavities in the skull located near the nasal cavity. Humans have four paranasal sinuses: frontal, sphenoid, maxillary, and ethmoid. They play an important role in humidifying and cleaning the air we breathe, as well as mitigating the effects of falling and other head injuries. In this article, we will examine the anatomy of the paranasal sinuses, their functions, the causes of diseases, the main types of diseases, symptoms, diagnosis, treatment, and prevention.

Keywords

Paranasal sinuses, holes, air, infection, respiration, microbes.

Paranasal sinuses are cavities in the skull located near the nasal cavity. Humans have four pairs of paranasal sinuses: frontal, sphenoid, maxillary, and ethmoid. These cavities are filled with air and connected to the nasal cavity through narrow openings.[4]

The functions of the paranasal sinuses include:

1. Humidification of inhaled air: the paranasal sinuses help humidify and warm the air before it enters the lungs. This is important when breathing cold or dry air.

2. Air purification: The mucous membrane of cavities releases mucus that retains dust, microbes, and other particles, helping to purify the air we breathe.

3. Softening of impacts: cavities also serve to receive impacts and reduce the impact of head injuries. They are a kind of "pillow" for the skull.

Thus, the paranasal sinuses play an important role in maintaining a healthy respiratory system, protecting sensations, and ensuring comfortable breathing.

Anatomy of the paranasal sinuses: description of each of the sinuses (frontal, sphenoid, maxillary, ethmoid).

1. Frontal cavities (frontal cavities):

The frontal cavities are located in the frontal region, above the eyes.

- The shape of the cavity is similar to a triangle.

The frontal sinuses are connected to the nasal cavity by a narrow canal called the frontal canal. [2].

- These cavities play an important role in the filtration and humidification of inhaled air.

2. Sphenoid spaces (sphenoid spaces):

The sphenoid sinuses are located in the nasal region, above the upper jaw.

- The shape of the cavity resembles a tacon.

The sphenoid sinuses are also connected to the nasal cavity through a narrow canal.

- These cavities help reduce the weight of the skull and create resonance for sound.

3. Maxillary spaces (maxillary spaces):

Maxillary sinuses are located in the upper jaw, on the nasal side.

The shape of the cavity is a rectangle or a triangle.

Maxillary sinuses also connect to the nasal cavity through a narrow canal.

- These spaces help to reduce the weight of the skull and participate in the regulation of head pressure.

4. Ethmoid spaces (ethmoid spaces):

The ethmoid spaces are located in the orbital region, between the frontal and sphenoid spaces.

The shape of the cavity resembles a lattice or a recess.

In ethmoid spaces, there are many compartments and sections.

- These cavities play a role in humidifying and purifying the inhaled air, and also participate in temperature regulation.[1].

Each of these paranasal sinuses has its own characteristics and functions that contribute to the normal functioning of the respiratory system and the overall health of the body.

Cavity disease can be caused by various reasons, including:

1. Infections:

Viral or bacterial infections, such as rhinitis, sinusitis, etc., can cause inflammation and filling of cavities with purulent or mucous contents.

- Infections can be caused by pathogens that enter through the nasal passages or bloodstream.

2. Allergy:

Allergic rhinitis and allergic sinus can cause inflammation and swelling of the paranasal sinuses when exposed to allergens such as pollen, dust, mold, etc.

Chronic exposure to allergens can lead to chronic inflammation and sinus disease.

3. Anatomical features:

Deformation or narrowing of the nasal passages, curvature of the nasal septum, or other anatomical features can create conditions for obstruction and the development of diseases of the paranasal sinuses.

For example, deformation of the frontal canal can prevent drainage of the frontal cavities and contribute to the development of the frontal cavity.

4. Injuries:

- Facial injuries, skull or nose fractures, surgical interventions on the face and nose can lead to the development of diseases of the paranasal sinuses.

- Injuries can disrupt normal cavity drainage and cause inflammation.

5. Other factors:

Smoking, air pollution, changes in ambient humidity and temperature, immune system disorders, and other factors also contribute to the development of sinus diseases [5].

Treatment of cavity disease depends on the specific diagnosis and may include antibiotics, painkillers, anti-inflammatory drugs, cavity flushing, correction of anatomical defects, or other methods depending on the cause and severity of the disease.

There are several major cavity disorders that cause different symptoms and require appropriate treatment. Below are the main types of sinus diseases:

1. Cavity:

Cavity - inflammation of the mucous membrane of the paranasal sinuses.

- Symptoms may include nasal congestion, runny nose, headache, nasal discharge, and reduced sense of smell.

Treatment includes the use of antibiotics, anti-inflammatory drugs, cavity flushing, and other methods.

2. Nasal polyps:

- Nasal polyps are tumors of the mucous membrane that make breathing difficult and lead to nasal congestion.

Symptoms include difficulty breathing through the nose, loss of smell, and frequent sinusitis.

Treatment may include drug therapy and surgical removal of polyps.

3. Cavity atelectasis:

- Cavity atelectasis - compression or narrowing of the paranasal sinuses.
- Symptoms may include nasal congestion, poor cavity drainage, and increased sensitivity to infections.

Treatment may include cavity flushing, correction of anatomical defects, and drug therapy.

4. Edema:

Tumors of the paranasal sinuses can be benign (for example, a polyp) or malignant.

- Symptoms may include nasal congestion, nosebleeds, facial pain, and altered sense of smell.

- Treatment of tumors depends on their nature and may include surgical removal, radiation, or chemotherapy.

These are just a few examples of common sinus diseases. For a correct diagnosis, it is important to see a doctor and determine the best treatment method in each case.

Prevention of sinus diseases includes a number of measures that help reduce the risk of their occurrence. Some recommendations for the prevention of sinus diseases:

1. Observe nasal hygiene: regularly rinse your nose with a soft cloth or cotton shells to remove mucus and debris.

2. Humidification of the air: use a humidifier indoors to prevent drying of the nasal mucosa, especially during the heating season.

3. Avoid hypothermia and overheating: maintain comfortable room temperature, use a scarf or hat in cold weather.

4. Quitting smoking: active and passive smoking can worsen the condition of the nasal mucosa and contribute to the development of diseases.

5. Proper nutrition: consuming nutritious foods rich in vitamins and minerals that strengthen immunity and help fight infections.

6. Physical activity: Regular sports or physical exercises help strengthen the body and improve its protective functions.

7. Avoid contact with patients with ARVI: protection from airborne infections helps prevent the development of respiratory diseases.

8. Regular examinations with a doctor: timely detection and treatment of diseases of the paranasal sinuses will help prevent their complications and chronicity[3].

Conclusion

In general, the prevention of sinus diseases plays an important role in maintaining the health of the nasal mucosa and preventing possible complications. Following recommendations on nasal hygiene, humidifying the air, quitting smoking, proper nutrition, physical activity, avoiding contact with sick people, and regular check-ups with a doctor helps strengthen immunity and protect against infections. It should be remembered that prophylaxis is the key to maintaining cavity health and overall well-being.

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