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Insights into Maxillary Sinus: Fungal Sinusitis

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Abstract:

The delayed diagnosis of chronic odontogenic sinusitis and the consequent untreated osteomyelitis of the upper jaw manifest varied clinical courses, even post-surgery, in cases of mycotic sinusitis. Recognizing the significance of timely diagnosis and treatment of odontogenic sinusitis stands paramount in expediting the overall recovery of patients and averting complications like osteomyelitis of the upper jaw. This article delves into the intricacies of mycotic sinusitis, emphasizing the critical role of prompt identification and management of odontogenic sinusitis. Highlighting the implications for patient's general well-being and complications prevention, this document serves as a crucial resource for medical professionals and individuals seeking comprehensive insights into managing odontogenic sinusitis effectively.

Keywords: Odontogenic Sinusitis, Mycotic Sinusitis, Chronic Sinusitis, Osteomyelitis, Upper Jaw Infections, Maxillary Sinusitis, Dental Infections, Sinus Surgery, Fungal Sinusitis, Nasal Complications.

Introduction

Mycetoma of the maxillary (maxillary) sinus is one of the forms of mycosis, a fungal disease of a non-invasive nature. With this pathology, the mycelium of fungi of the genus Aspergillus simply grows inside the sinus cavity, but does not grow into the mucous membrane of the maxillary sinus [1,2,].

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You can also come across the terms “fungal ball”, “fungal body” or “fungal sinusitis”. Mycetoma can also occur in other sinuses but is predominantly localized in the maxillary sinus. Also, mycetomas make up the majority of all mycoses of the sinuses.

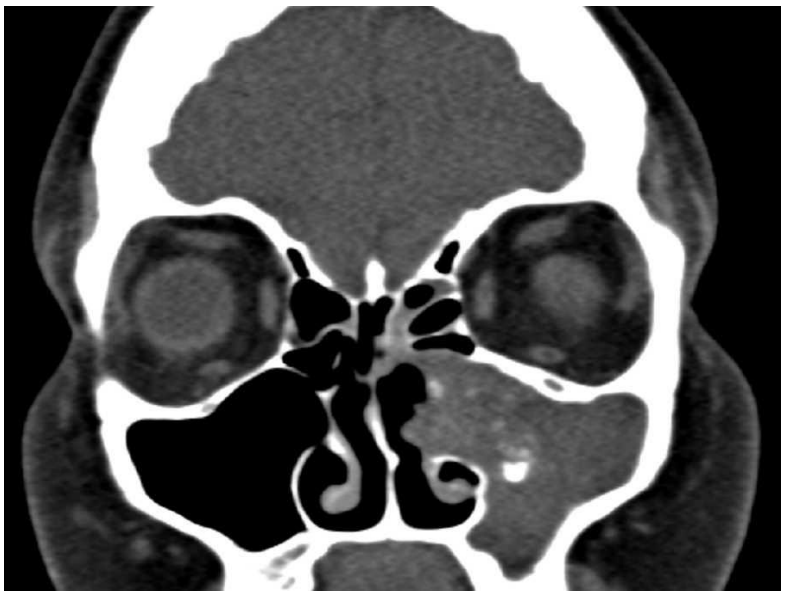

Fig. 1.

A variety of fungi are very common throughout the environment. They can easily enter the respiratory tract and can settle in the nasal cavity and maxillary sinuses. With a normally functioning immune system, the mushrooms do not manifest themselves in any way and will continue to remain in isolated quantities in the nose. However, under unfavourable circumstances, fungal colonies begin to increase, which leads to disease [3,4,5].

Reasons that contribute to the growth of fungal diseases:

– irrational use of antimicrobial drugs;
– use of pharmacological drugs that suppress the immune system;
– unfavourable environmental situation;
– increase in diseases such as malignant neoplasms, diabetes mellitus, HIV, AIDS, etc.

The Main Part

Another old and not entirely correct name for mycetoma is “odontogenic sinusitis.” It arose because a common cause of its occurrence in healthy people is dental manipulation (filling the root canals of the roots of the small and large molars of the upper jaw). The mechanism of development of the disease is quite simple. The fact is that the roots of the teeth of the upper jaw, especially the 5th and 6th, are often separated from the maxillary sinus by a thin bone wall, or even completely covered on its side only by the mucous membrane. Thus, a dentist, without any malicious intent, while performing endodontic manipulations in the root canals of tooth

roots, can pierce their tops and push the filling material into the sinus. The filling material itself is a completely harmless substance, but the zinc salts in its composition play a catalytic role (provoke) in the development of fungal flora. Over time, a so-called fungal body is formed, which can gradually fill the entire sinus [6,7,8].

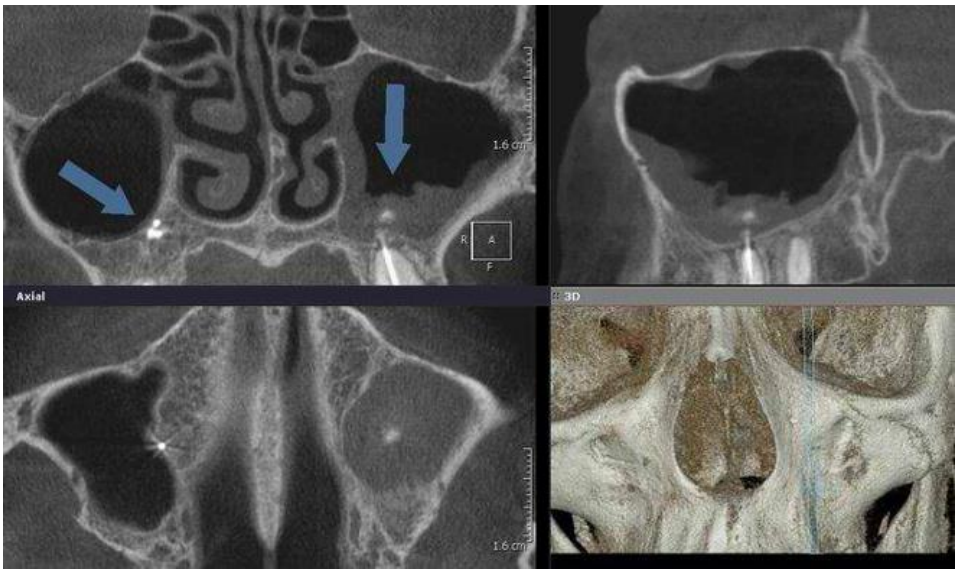

Fig. 2.

In most cases, mycetoma develops in one maxillary sinus, but occasionally it can occur in both. Often, from the very beginning, the pathology has a protracted development and people are unaware of its existence. Characterized by a long absence of pronounced clinical manifestations. A mycetoma may be accidentally discovered during an examination for a completely different disease (for example, dental). When the mycelium grows, symptoms such as:

– feeling of fullness, pain in the corresponding sinus;
– the appearance of white-yellow, white cheesy, thick discharge from the nose (because the cause of the pathology was the fungi Aspergillus fumigatus, Aspergillus niger);
– unpleasant odor from the nose;
– cyanosis of the nasal mucosa;
– difficulty in nasal breathing;
– nasal congestion that becomes permanent;
– recurrent headaches;
– pain in the teeth, in the upper jaw;
– loss of smell.

For diagnosis, the most informative is computed tomography of the sinuses. Conventional X-rays and MRIs provide a less informative picture.

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Treatment for mycetoma of the nasal cavity is only surgical. The operation is performed either through the nose or through the anterior wall of the maxillary sinus under the lip. Since with mycetoma, the fungal mycelium does not grow into the mucous membrane, removal gives a good result and relapses are rare. This operation can be performed under either general or local anaesthesia. With local anaesthesia, it is possible to leave the clinic on the day of surgery. The rehabilitation period is approximately 3-7 days.

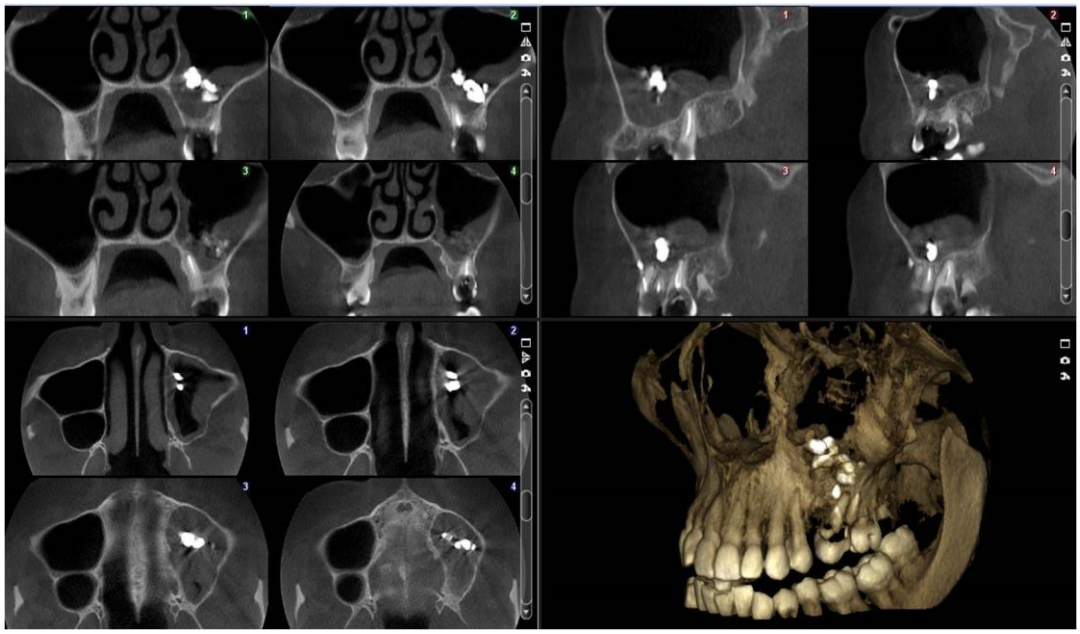

Fig. 3.

In the postoperative period, local antimycotic therapy is carried out by rinsing the sinus with a solution of antifungal drugs. To create high concentrations of drugs in the sinuses and nasal cavity, inhalation of solutions of antifungal agents through the nose is prescribed. Systemic antimycotic therapy is recommended in the presence of underlying diseases, such as bronchial asthma, diabetes mellitus, drug immunosuppression, and immunodeficiency. Immunocorrective therapy is indicated in the presence of local or systemic immunological deficiency [10,11].

It is important to know!

If you suspect fungal inflammation of the sinuses, you should not do hot procedures for the nose - warming up, or compressing. This will not only be a useless exercise but can also provoke a bacterial infection. It is also prohibited to drink antibiotics and irrigate your nose with antibacterial sprays, which will only further reduce local immunity and provoke the growth of fungal colonies.

Prevention of the disease:

- hardening;
- balanced diet;
- fight against dysbacteriosis;
- timely dental treatment;
- stress prevention;
- correct daily routine;
- playing sports;
- early initiation of treatment for all infectious diseases;
- correction of somatic pathologies of the body.

According to statistics, in 5-10% of people who suffer from rhinosinusitis, a detailed diagnosis reveals fungal infectious agents in the nasal cavity and sinuses. If left untreated for a long time, fungal sinusitis can provoke the development of bronchial asthma. Therefore, it is very important to recognize and treat the pathology in time.

Conclusions

Early diagnosis and treatment of odontogenic periodontitis in patients with sinusitis will help prevent complications of the disease, such as osteomyelitis of the maxilla and other adjacent bone tissues.

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