



INFLAMMATORY DISEASES OF THE MAXILLOFACIAL REGION

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ABSTRACT

This article discusses the causes, clinical manifestations, diagnostic methods, and modern principles of treatment of inflammatory diseases of the maxillofacial region. A significant proportion of inflammatory processes in the maxillofacial region are associated with odontogenic infections, which, if not diagnosed and treated in a timely manner, may spread to the soft tissues, bone tissue, and adjacent anatomical regions. Particular attention is paid to the clinical features of abscesses, phlegmon, periostitis, osteomyelitis, and other infectious and inflammatory conditions.

Introduction

Inflammatory diseases of the maxillofacial region are among the most important problems in dentistry and maxillofacial surgery. A large proportion of these diseases are associated with odontogenic infections. The source of infection is often dental caries, pulpitis, periodontitis, or pathological processes affecting periodontal tissues. If an infection is not diagnosed and treated appropriately in a timely manner, it may spread to the surrounding soft tissues, fascial spaces, and deep neck spaces, potentially leading to life-threatening complications [1].

Inflammatory diseases of the maxillofacial region include periostitis, abscess, phlegmon, lymphadenitis, and osteomyelitis of the jaw bones. Their clinical course depends on the source of infection, the virulence of the microorganisms, the patient's immune status, and the presence of comorbidities. In particular, the spread of infection to the submandibular, parapharyngeal, and retropharyngeal spaces increases the risk of airway obstruction, sepsis, and other serious complications [2].



One of the most common causes of inflammatory diseases in the maxillofacial region is odontogenic infection. The infection may originate in the tissues surrounding the root of a tooth and spread through the bone and soft tissues into adjacent anatomical spaces. The direction of infection spread depends on the location of the affected tooth, the anatomical characteristics of its roots, and the attachment sites of surrounding muscles.

During the early stages of the disease, patients may experience localized pain, swelling, hyperemia, pain during biting or chewing, and enlargement of regional lymph nodes. As the inflammatory process progresses, fever, general weakness, trismus, difficulty swallowing, and facial asymmetry may develop.

When an abscess forms, pus accumulates at the site of infection. In such cases, antibiotic therapy alone is usually insufficient. Elimination of the source of infection and, when necessary, surgical incision and drainage are among the principal methods of treatment [3].

Unlike an abscess, phlegmon does not have a clearly defined capsule, and the infection may spread extensively through the fascial spaces. Infections involving the submandibular, sublingual, and deep neck spaces are of particular clinical importance.

In patients with deep neck infections, careful assessment of the airway is essential. Computed tomography can be used to determine the extent and location of the infection, and urgent surgical intervention may be required in severe cases. A 2023 systematic review emphasized the importance of early diagnosis, airway management, appropriate imaging, and surgical drainage in the management of deep neck space infections [2].

Osteomyelitis of the jaw is another serious inflammatory disease of the maxillofacial region. It is characterized by an infectious and inflammatory process involving bone tissue and bone marrow.

Clinical manifestations may include pain, swelling, purulent discharge, tooth mobility, and, in some cases, the formation of bone sequestra. In addition to clinical examination, radiography, computed tomography (CT), or cone-beam computed tomography (CBCT) plays an important role in establishing the diagnosis and determining the extent of bone involvement.

The treatment of maxillofacial infections requires a comprehensive approach. The main principles of treatment include eliminating the source of infection, performing incision and drainage of purulent collections, monitoring the patient's general condition, and administering antibacterial therapy when clinically indicated.

Antibiotics should not be considered a substitute for appropriate surgical treatment. Instead, they should be used as part of comprehensive management when there is evidence of spreading infection or systemic manifestations [4]. In severe odontogenic infections, factors such as diabetes mellitus, immunosuppression, delayed presentation, and the spread of infection to multiple anatomical spaces may increase the risk of complications. Current literature indicates that surgical management combined with rational antimicrobial therapy remains one of the main approaches to the treatment of severe odontogenic infections [4].



Inflammatory diseases of the maxillofacial region remain an important clinical problem because of their potential for rapid progression and the development of serious complications. Odontogenic infections represent one of the major causes of these conditions. Early diagnosis, accurate assessment of the extent of infection, elimination of the primary infectious source, adequate surgical drainage, and appropriate antimicrobial therapy are essential components of successful treatment.

Special attention should be paid to patients with signs of deep neck infection, airway compromise, systemic toxicity, or underlying diseases that may increase the risk of complications. Timely and comprehensive treatment can prevent the spread of infection, reduce the risk of severe complications, and improve clinical outcomes.

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