Central Asian Journal of Medicine

Volume 2020 | Issue 1 Article 13

3-3-2020

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ABSTRACT

Introduction. The research covers a study and analysis on prevalence and structure of purulent-inflammatory diseases of maxillofacial area. **The research objective** is to provide data on prevalence, structure, diagnosis and treatment of patients with purulent-inflammatory diseases (PID) of the maxillofacial area (MFA); to analyze results of the treatment depending on the spectrum of identified microorganisms; to identify postoperative complications in patients with MFA pathology. **Material and methods**. 593 patients with purulent-inflammatory diseases were provided with specialized medical care at the Department of Oral and Maxillofacial Surgery of the multidisciplinary clinic at the Tashkent Medical Academy (TMA) during the period from 2017 to 2018. The cause of the purulent-inflammatory diseases development was determined basing on the spectrum of identified microorganisms. **Results and discussion**. Analysis of case histories of patients with purulent-inflammatory diseases of the maxillofacial and cervical area for 2017–2018 showed that in most cases, antibiotic therapy was performed with cephalosporins, penicillins, fluoroquinolones, lincosamides (lincomycin), cotrimaxosole (bacimex), used predominantly in combination. **Conclusion.** Treatment of patients with purulent-inflammatory diseases of the maxillofacial

and cervical area should be comprehensive and include a surgical intervention (rupture of the purulent foci with the removal of necrotic tissue), removal of the causative tooth, antibacterial therapy and appointment of symptomatic agents.

Keywords: maxillofacial area, purulent-inflammatory diseases, phlegmon, abscess, diagnosis, surgery.

Introduction

Despite successes achieved in the diagnosis and treatment, PID continues to be the most difficult and urgent problem of surgical dentistry and maxillofacial surgery, making from 40 to 50% of the total number of patients who need specialized surgical care [1,2,4,9].

One of the most urgent issues of dentistry nowadays are acute odontogenic inflammatory processes. Despite the development of new methods of treating purulent infection, the number of patients with inflammatory diseases has an aggressive tendency to increase, leading to difficult complications. They not only cause temporary disability of patients, but also, due to serious complications, can be fatal [3,5,6,7].

Inflammatory processes of the maxillofacial area in all cases have an infectious nature, i.e., the microbial flora plays a great role in their occurrence, development and disease course. Even when a tissue lesion is caused by mechanical, physical or chemical factors, it is always more or less sown with microorganisms penetrated from the mucous membranes, skin or from the external environment. The presence of microorganisms in the inflammation zone in moderation is regarded as a positive factor; since as a result of exposure to toxins and antigenic stimulation phagocytes rush into this zone, various factors of the body's resistance are activated, initially non-specific and then specific, which are involved in the regulation of the course and elimination of inflammation. However, the excess of a certain “critical level” of microbial bodies, which, apparently, is individual for each organism, inevitably leads to the development of clinically pronounced inflammation, i.e. causes significant local and general disorders which requires treatment [8,10,13].

Inflammation in the maxillofacial area is predominantly odontogenic, associated with pathological processes in the dentofacial segment, starting from complicated caries, difficult dentition, periodontitis, etc. Inflammatory processes of tonsillogenic, rhinogenic, hematogenous and others are also found in the maxillofacial area. A special section is devoted to the manifestations of specific inflammatory processes of the face and neck [12,14,15].

Numerous studies on microflora of odontogenic abscesses and phlegmon have shown their polyetiological nature in 68–88% of cases. Anaerobes were found in 28-100% of seeding; mixed anaerobic-aerobic flora of purulent foci was found in 52-68% of clinical samples. Anaerobic-aerobic associations most often consist of 3-4 species. Being in combined cultures, bacteria enter into antagonistic and synergistic relationships. This explains the significant deterioration in the clinical picture of the disease in combined anaerobic-aerobic infections. For example, it was noted that Fusobacterium nucleatum exhibits a weak pathogenicity in monoculture. The synergistic effect of concomitant microorganisms increases its pathogenicity. Purulent-inflammatory processes involving associations of peptococci and peptostreptococci are accompanied by a more severe course and extensive lesion than inflammation caused by the monoculture of anaerobic gram-positive cocci [16,17,18].

Among odontogenic inflammatory diseases of the maxillofacial area, the following are most widespread and significant: periodontitis, periostitis of the jaws, osteomyelitis, abscesses and phlegmon.

The development of the inflammatory process is closely associated with the patient's immune condition and virulence of microflora. There is no coincidence that extensive researches are currently being carried out on the protective properties of the body. With normal reactivity, an adequate response of the body to the antigen is ensured - a normal reaction occurs.

Immunodeficiency is often observed in the case of a hyperergic or hypoergic reaction, which can be primary (congenital) or secondary (acquired). In such cases, the disease proceeds with abnormalities, often leading to complications.

Numerous studies of flora in odontogenic foci draw attention to the polymorphism of microorganisms. Virulence and the concentration of bacteria in the purulent focus significantly affect the results of the disease [19,20].

The anatomical and topographic localization of the inflammatory focus, the connection with the surrounding areas and cellular spaces, the abundance of blood and lymph vessels, perineural cracks are considered to be very important.

It should be also emphasized that to prevent the development of odontogenic inflammation, such measures are necessary as sanitation of the oral cavity and the elimination of chronic foci of infection. Timely detection of pathological changes in the teeth and oral cavity, their treatment, starting with the carious process, will eliminate the development of life-threatening complications.

Many issues on etiology and pathogenesis, prophylaxis and treatment of children with purulent-inflammatory diseases of MFAs are still not sufficiently studied, which explains the constant interest and attention of researchers to them.

The relevance of the problem is determined not only by the frequency of jaw osteomyelitis in children, but also by the change in recent years in the clinical course of odontogenic osteomyelitis with a predominance of chronic, sluggishly current, prone to relapsing forms. The tendency to the increase in clinically atypical purulent inflammatory processes in the maxillofacial area, increase in the number of severe, fulminant cases with severe intoxication and prevalence of chronic, accompanied by general and local complications, is usually associated with the appearance of antibiotic-resistant forms of bacteria, reduction of a body resistance, as well as significant changes in the composition of pathogens of purulent-inflammatory processes. There is not only the replacement of aerobic and facultative anaerobic associations (displacement of non-hemolytic streptococcus with staphylococci), but also a change within one species. The role of representatives of the obligate non-spore-forming anaerobic microflora is growing.

For the last decade, it has been shown that the widespread and sometimes irrational use of antibiotics in the treatment of acute purulent inflammatory diseases of the MFA has led to a change in the qualitative composition of microflora. A significant number of low-manifest, erased forms appeared, leading to an erroneous opinion about the nature of the inflammatory process.

Concerning the issues on the treatment of acute purulent inflammatory disease of MFA, in modern conditions of “pharmacological oversaturation” of the body, a decrease in the sensitivity of microflora to antibiotics, suppression of the immune defense by environmental factors, allergization of the body, which are insufficiently participating in some cases of surgical technique, low efficiency of generally accepted methods is noted (Kharitonov D.Yu., 1997; Burov A.I., 2000; Tarasenko S.V., 2002). All above mentioned convincingly suggests that the problem of treating acute purulent inflammatory diseases of MFA is quite urgent and requires the development and implementation of new technologies.

The features of disease prevalence, course and treatment of odontogenic osteomyelitis of the facial skeleton in children have been studied by a number of authors and only few works have reflected the problems of diagnosis and treatment of odontogenic osteomyelitis of the lower jaw. The causes of diagnostic errors have not been studied enough, the starting and methods of surgical interventions have not been adequately determined in children with acute odontogenic osteomyelitis of the lower jaw. Despite the introduction of new methods of prevention and treatment of acute purulent inflammatory disease of MFA, there is a tendency to the increase in the frequency of odontogenic osteomyelitis of the lower jaw, severity, chronic processes, as well as adverse outcomes.

A number of authors indicate the appropriateness of using gravitational therapy in the treatment of moderate and severe periodontitis in adults. Similar works on using gravitational therapy in childhood with acute odontogenic processes of the lower and upper jaws in the available literature could not be found.

Besides, methods for the complex treatment of children with odontogenic osteomyelitis of the lower jaw have not been developed, depending on the form, localization and prevalence of the process, the age of the patient; as well as no analysis was performed on complications and long-term outcomes of osteomyelitis of the lower jaw.

The frequency of inflammatory diseases of the maxillofacial area makes 77% of the number hospitalized in the department of maxillofacial diseases, of which 49.0% are inflammatory processes of odontogenic nature. In the general majority of cases (in 96%), the temporary and first permanent molars affected by caries and its complications served as the entrance gates of infection.

In etiology of inflammatory diseases of the maxillofacial area during odontogenic processes of the lower jaw, associations of obligate and facultative anaerobic bacteria play an efficient role. The composition of the microflora of the purulent focus depends on age. With age increasing, the number of associations and the strict anaerobes also increases. In the older age group, the frequency of anaerobic excretion exceeded 60.0%, i.e. the microbial "flora" was approaching to adults. The use of antibiotics of the macrolide group, which suppress the growth of 100% strains of peptostreptococci, bacteroids and fusobacteria, in the treatment of patients with odontogenic inflammatory diseases significantly improved the treatment results.

For improvement of the differential diagnosis quality, prognosis of the clinical course of acute odontogenic osteomyelitis of the lower jaw, it is necessary to consider and analyze the totality of clinical manifestations, pre-morbid background, leukocyte intoxication index, X-ray examination data, absolute lymphocyte count, and blood biochemical parameters. Consideration of all the data proves the diagnosis in 99.7% of cases.

Although the treatment and prevention system of dental institutions is wide, 0.1–0.3% of all patients in the maxillofacial surgery department of the multidisciplinary clinic at the TMA die from purulent-inflammatory diseases every year [1, 2].

Materials and methods. Reliability of the research data and results is confirmed by a sufficient number of observation units, using modern research methods and statistical processing. The medical documentation (registration form

No. 066 / y-02) of the MFA department of the TMA multidisciplinary clinic was studied. The research analysis covered the cases of 593 patients with purulent-inflammatory diseases of the maxillofacial area in the period for 2017 and 2018. The possible error calculated using the classical theory of measurements did not exceed 5% in the present study. Among the observed cases in 2017 there were 307 patients (51.8%), in 2018 - 286 patients (48.2%). Male patients made 326 people (55%), and female - 267 (45%), children under the age of 17 years - 15 people (2.5%).

Results and discussion. The predominant form of the purulent-inflammatory diseases is acute odontogenic jaw osteomyelitis, which occurs 1.41 cases per 1000 population, including 1.01 cases per 1000 population complicated by phlegmon [1, 8, 10]. In the Department of Oral and Maxillofacial Surgery of the multidisciplinary clinic at the TMA for the period 2017–2018 jaw osteomyelitis occurred in 358 cases: in 2017 - 175 cases (48.8%), in 2018 - 183 cases (51.2%), in the acute form - 212 cases (59.2%), in chronic form - 146 cases (40.8%). The most common cause of jaw osteomyelitis was the odontogenic factor - 314 cases (87.7%), the traumatic factor - 35 (9.8%), the bisphosphonate factor - 9 (2.5%).

Analysis of statistical data for the period 2017–2018 indicated an increase in the number of patients with odontogenic osteomyelitis by 1.9%.

The second most frequent lesions were odontogenic phlegmon, maxillofacial abscesses - 219 cases: in 2017 - 119 cases (54.3%), in 2018 - 100 cases (45.6%). The following zones were involved in the localization of the purulent-inflammatory process (Table 1):

Table 1.

Zones of purulent-inflammatory process localization

zone, area	For 2017	For 2018
Infraorbital	2 (1,2 %)	2 (1 %)
Temporal	2 (1,2 %)	2 (1 %)
Infratemporal fossa	5 (2,9 %)	1 (0,5 %)
Buccal	12 (7 %)	23 (12,4 %)
Parotidiomasseteric	2 (1,2 %)	4 (2 %)
Alar-maxillary	27 (15,8 %)	30 (16,1 %)
Alar-palatine fossa	2 (1,2 %)	2 (1 %)
Submasticatory	19 (11,1 %)	24 (12,9 %)
Submental	15 (8,8 %)	16 (8,6 %)
Submandibular	45 (26,3 %)	50 (26,9 %)
Oral cavity fundus	7 (4,0 %)	7 (3,8 %)
Parapharyngeal space	3 (1,8 %)	3 (1,6 %)

Cervical adenoflegmon	5 (2,9 %)	3 (1,6 %)
Prevailing facial and cervical phlegmon	7 (4,0 %)	8 (4,3 %)
Sublingual cushion	1 (0,6 %)	–
Lateral surface of the tongue	1 (0,6 %)	–
Alveololingual groove	16 (9,3 %)	8 (4,3 %)
Base of tongue	–	3 (1,6 %)

In 2017 30 patients (9.7%) were observed in the intensive care department, in 2018 - 12 patients (4.19%). The number of patients observed in the intensive care department decreased by 40%.

Causative teeth are the teeth of both of the upper and the lower jaw:

- for 2017: 18 (28) = 8 (6%); 17 (27) = 4 (3%); 16 (26) = 4 (3%); 12 (22) = 3 (2.3%); 11 (21) = 3 (8.3%); 38 (48) = 49 (37.1%); 37 (47) = 19 (14.4%); 36 (46) = 13 (9.8%); 35 (45) = 9 (6.8%); 34 (44) = 9 (6.8%); 33 (43) = 4 (3%); 32 (42) = 5 (3.8%); 31 (41) = 3 (2.3%);
- for 2018: 18 (28) = 3 (2.1%); 16 (26) = 5 (3.6%); 15 (25) = 1 (0.7%); 14 (24) = 2 (1.4%); 13 (23) = 3 (2.1%); 38 (48) = 49 (35%); 37 (47) = 42 (30%); 36 (46) = 18 (12.6%); 35 (45) = 8 (5.7%); 34 (44) = 4 (2.6%); 33 (43) = 5 (3.6%); 32 (42) = 1 (0.7%); 31 (41) = 1 (0.7%).

The most often affected areas are submandibular, alar-maxillary and submental, and the causative teeth are third molar of the lower jaw, then 2 molars of the lower jaw, a molar of the lower jaw and third molars of the upper jaw.

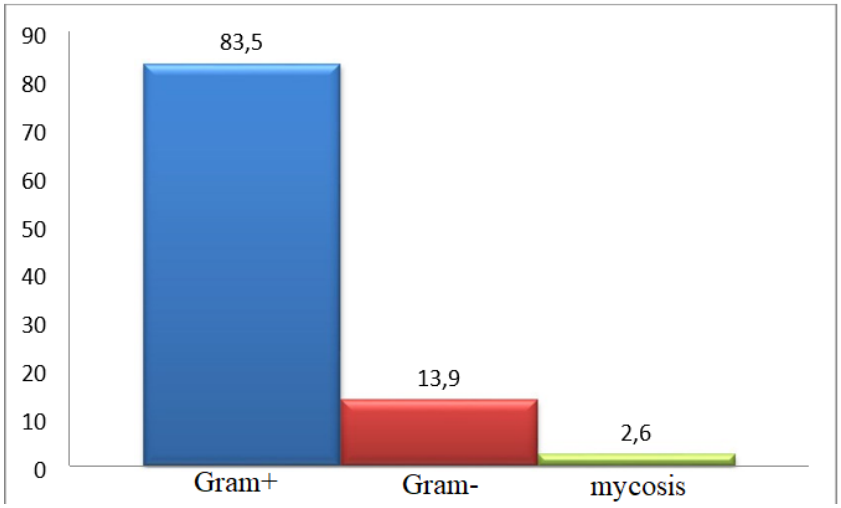
Lymphadenitis occupies the third place in frequency, and is found in 11 patients: in 2017 - in 2, in 2018 - in 9. By localization, submandibular lymphadenitis was more common - 7 (77.8%); by localization on buccal, cervical and parotid, and submental areas - 1 case for every cases (11.1%). The etiology in the development of lymphadenitis is odontogenic, and remains unrevealed in only one case.

In 2017, a specialized medical care was provided to two patients with a purulent keratic cyst of various areas, one patient with a purulent hematoma of the mental area, one patient with a purulent trichoderma cyst, and one patient with an infected buccal wound complicated by phlegmon.

In 2018, a specialized medical care was provided to one patient with a purulent hematoma of the buccal area and one patient with an infected buccal wound complicated by an abscess.

The frequency of purulent-inflammatory diseases of the MFA at the Department of Oral and Maxillofacial Surgery of the multidisciplinary clinic at the TMA for the period 2017–2018 had a tendency for decrease in average by 3.5%.

Modern PIDs in maxillofacial surgery are often polymicrobial; among causative agents, there is a prevalence of conditionally pathogenic bacteria, which are part of normal human microcenoses. Gram-positive cocci dominate. The spectrum of identified microorganisms for 2018 is presented in Diagram 1.



Diag. 1. Spectrum of identified microorganisms for 2018.

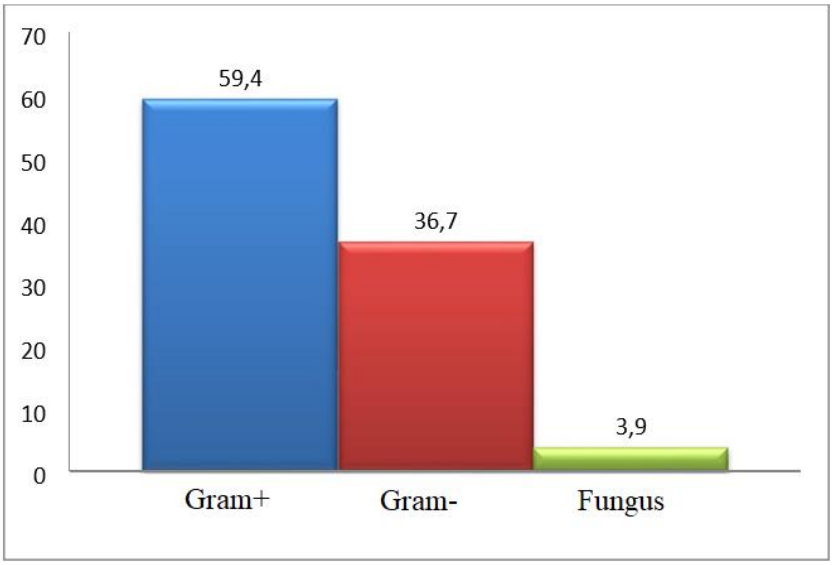
Seeding results of the clinical material taken from the patients at the Maxillofacial Surgery Department of the multidisciplinary clinic at the TMA in 2018 is mainly represented by gram-positive flora - 83.5% (Diagram 2): streptococci and staphylococci, enterococci, streptococcus veridans are predominant - 35 cases (30.4%). The percentage of gram-negative flora was 13.9, the predominant was enterobacterial cloacae - 4 cases (3.5%) (Table 2).

Table 2

Seeding results of the clinical material taken from the patients of the Department of Oral and Maxillofacial Surgery of the Multidisciplinary Clinic at the TMA in 2018.

Gram-positive flora	Gram-negative flora	Fungus
Streptococcus veridans – 35 (36,4 %)	Klebsiella pneumoniae – 3 (18,6 %)	Candida – 4 (100 %)
Staphylococcus epidermidis – 25 (26 %)	Neisseria sicca – 2 (12,5 %)	
Enterococcus faecium – 22 (22,9 %)	Enterobacter cloacae – 4 (25 %)	
Streptococcus aureus – 3 (3,1 %)	Escherichia coli – 1 (6,25 %)	
Гр+ палочка рода Corynebacterium – 1 (1 %)	Neisseria perflava – 1 (6,25 %)	
Streptococcus sanguinis – 1 (1 %)	Acinetobacter liroffi – 1 (6,25 %)	
Granulicatella adiacens – 1 (1 %)	Sphingomonas paucimobilis	

Streptococcus mitis – 1 (1 %) MRSA – 1 (1 %) Staphylococcus haemolyticus – 1 (1%)	– 1 (6,25 %) Acinetobacter baumannii – 3 (18,6 %)	



Diag. 2. The spectrum of identified microorganisms for 2017.

In 2017, seeding results were predominantly represented by gram-positive flora making 59.4%: those were streptococci, staphylocci, enterococci, among which streptococcus veridans prevailed - 25.6%. The percentage of gram-negative flora was 36.7, among which neysseries, enterobacteria, Pseudomonas aeruginosa, Escherichia coli, and others were registered (Table 3).

Table 3

Seeding results from the clinical material taken from the patients of the Department of Oral and Maxillofacial Surgery of the Multidisciplinary Clinic at the TMA in 2017.

Gram-positive flora	Gram-negative flora	Fungus
1	2	3
Streptococcus veridans – 33 (43,4 %) Staphylococcus epidermidis – 17 (22,3 %) Enterococcus faecium – 24 (31,6 %) Streptococcus aureus – 2 (2,6 %)	Klebsiella pneumoniae – 3 (6,3 %) Neisseria sicca – 2 (4,25 %) Enterobacter cloacae – 3 (6,3 %) Escherichia coli – 1 (2,1 %)	Candida – 5 (100 %)

	Neisseria perflava – 2 (4,25 %) Acinetobacter liroffi – 2 (4,25 %) Citrobacter diversus – 1 (2,1 %) Acinetobacter baumannii – 1 (18,6 %) pseudomonas aeruginosa – 2 (4,25 %) Sphingomonas paucimobilis – 1 (2,1 %) staphylococcus saprophyticus – 1 (2,1 %) Streptococcus pluranimalium – 1 (2,1 %)	

Thus, in 2018 the percentage of gram-positive microflora increased. The treatment of patients with purulent-inflammatory lesions of the MFA and cervical soft tissues was complex and involved a medical therapy (antibacterial, anti-inflammatory, symptomatic, detoxification, restorative), as well as performance of an emergency surgery: radical autopsy and drainage of purulent inflammatory focus. In case of odontogenic etiology - removal of the causative tooth, sanitation of the oral cavity.

Access to purulent foci can be either intraoral, extraoral, or combined (counterperter). An extraoral method is used in cases when the surgery from the oral cavity does not provide complete drainage of the cellular space or is impossible due to concomitant inflammatory contracture of the masticatory muscles. At the Department of Oral and Maxillofacial Surgery of the Multidisciplinary Clinic at the TMA for the period 2017—2018 extraoral access was used in 481 cases, intraoral access - in 112 cases.

Scope and tactics of extraoral access surgery:

– Type I - predominance of the exudative form with the purulent formation: opening of a phlegmon with a wide incision with revision of all cellular spaces involved in the inflammatory process, their drainage;

– Type II - predominance of purulo-necrotic lesions of soft tissues: the most widespread opening and revision of the cellular spaces up to the “healthy” tissues, necroectomy in accessible areas, drainaging, application of systems for flow dialysis of wounds, staged surgical treatment in the postoperative period;

– Type III - predominance of necrotic or necroputrefactive lesion of soft tiisues: the use of wide and multiple incisions, providing maximum disclosure of the inflammation zone to the entire depth of the affected tissues. Revision of the possible pathways of infection. Vascular ligation for the prevention of erosive bleeding outside the necrosis zone. Simultaneous, and later staged necrotomy. The use of systems for day-and-night dialysis, application of ointments on a water-soluble basis, staged necrotomies [5–7].

The main criteria for assessing the radicalism of surgery in patients with facial and cervical phlegmons:

–guaranteed elimination of the primary odontogenic cause of infection;

–the use of accesses, providing the revision of all facial and cervical cellular spaces involved in the inflammatory process, guaranteed absence of non-extracted purulent foci;

–the choice of the surgical access should provide not only the maximum opening of the wound, but also the possibility of proper treatment with staged necrotomies, wound dialysis and the use of the necessary local treatment, considering the phases of the wound process;

– performing of wide and multiple incisions should not be associated with fears concerning the formation of significant tissue defects.

–Antibacterial medicines used in the process of treatment in the Department of Maxillofacial Surgery of the Multidisciplinary Clinic of the TMA for 2017–2018 were cephalosporins (ceftriaxone, cefepime, cefotaxime, cefazolin and others), penicillins (amoxicillin, ampicillin), fluoroquinolones (ofloxacin, pefloxacin, ciprofloxacin), aminoglycosides (amica), lincosamides (lincomycin), co-trimaxosole (bacimex). Alongside with medicines, the complex of measures was prescribed: a high-protein diet, detoxification therapy using a solution of sodium chloride with glucose, Ringer's solution, antimicrobial agents (metronidazole); after relief in the acute phase of inflammation a physiotherapy was prescribed: UHF, laser.

The main results of the PID in the Department of Oral and Maxillofacial Surgery of the Multidisciplinary Clinic at the TMA for 2017–2018 were recovery, 1 case of fatality, 25 cases of repeated admission and the provision of medical care to the patients. Among them, with a diagnosis of exacerbation of post-radiation osteomyelitis - 4 cases, chronic odontogenic osteomyelitis - 10 cases, exacerbation of chronic post-traumatic osteomyelitis - 3 cases, slowly consolidated fracture, complicated by abscess - 5 cases, slowly consolidated fracture, complicated by phlegmon of the submandibular area - 3 cases.

After analyzing those cases, it was found out that patients underwent medical observation repeatedly: after 7–9 months - 5 patients (20%), 2 months later - 10 patients (40%), 1 month later - 10 patients (40%).

Among the main factors that predetermined the need for repeated operations was the inadequacy of the primary surgical intervention (preservation of teeth in the fracture line - 8 cases); the presence of foreign bodies (titanium miniplates - 2 cases, a fiber - 1 case, bone fragments - 14 cases).

The number of patients under the age of 66 years composed 18 people. Male patients predominated - 13 people, and 5 female patients.

Surgical interventions included sequestrectomy overwhelmingly, both performed independently - 6 surgeries, and with simultaneous opening and drainage of the abscess - 4 surgeries, sequestrectomy and removal of the causative (43) tooth - 3 operations, with simultaneous opening and drainage of the abscess, phlegmon - 8 operations, with simultaneous opening and drainage of phlegmon, removal of causative (34) tooth - 1 operation, opening, drainage of abscess and removal of causative (37) tooth - 1 operation, opening, drainage of abscess,

removal of the foreign body - 1 operation, the application of secondary sutures - 4 operations.

In 2017 a case of mortality was recorded. A 77-year-old woman spent a day at the department; the immediate cause of death was multiple organ dysfunction syndrome. Main disease: diffused phlegmon of the oral cavity fundus and left side of the neck. Severe endogenous intoxication. Concomitant: ischemic heart disease, HD 2 st., CHF of the 2nd degree, chronic cerebrovascular insufficiency, bilateral sensorineural hearing loss, gastric ulcer.

2018 was noted with absence of fatality concerning PID. The main causes of mortal cases were: the prevalence of PID, concomitant severe systemic diseases, the age factor, late treatment (4-7 days from the onset of the disease) to the medical institution.

Conclusion.

In most cases of observation, the most often affected areas are submandibular, pterygoid-maxillary and submental, and the prevailed causative teeth are third teeth of the lower jaw, then 2 molars of the lower jaw, 1 molar of the lower jaw and third teeth of the upper jaw.

Analysis of case histories of patients with purulent-inflammatory diseases of the maxillofacial and cervical area for 2017–2018 showed that in most cases, antibiotic therapy was performed with cephalosporins (ceftriaxone, cefepime, cefotaxime, cefazolin, etc.), penicillins (amoxicillin, ampicillin), fluoroquinolones (ofloxacin, pefloxacin, amiprofloxacin, erythromycin), lincosamides (lincomycin), cotrimaxosole (bacimex). All antibiotics were used predominantly in combination.

When examining the exudate from putrefactive-necrotic phlegmon of the oral cavity fundus and the cervical cellular spaces, it was found that of all identified species, gram-positive flora predominates - mainly streptococci and staphylococci, enterococci; among gram-negative flora - enterobacter cloacae, neisseria, enterobacter, Pseudomonas aeruginosa, Escherichia coli, etc.

Treatment of patients with purulent-inflammatory diseases of the maxillofacial and cervical area should be complex and include surgical intervention (purulent foci rupture with the removal of necrotic tissue), removal of the causative tooth, antibacterial therapy, the appointment of symptomatic medications.

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