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Research Article

RESULTS OF TRADITIONAL TREATMENT OF PATIENTS WITH PHLEGMON OF THE FACE AND NECK

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ABSTRACT

In the clinic of surgical diseases, purulent-inflammatory processes of the maxillofacial region and neck occupy a leading place, posing a serious danger to health and life. The number of patients with severe phlegmon of the face and neck is increasing from year to year, which entails an increase in temporary disability, and in severe cases leads to death. Long-term observations of researchers dealing with this problem have shown that these patients make up about 50% of the bed capacity of maxillofacial and surgical departments, and the mortality rate reaches 7%. Cellulitis that spreads to several anatomical areas of the face and neck is particularly severe, since they are prone to progression and development of life-threatening complications: mediastinitis, sepsis, thrombophlebitis of the facial veins, thrombosis of the cerebral sinuses, etc.

KEYWORDS

Maxillofacial region, phlegmon, thrombophlebitis of facial veins.

INTRODUCTION

In the clinical practice of maxillofacial surgery, abscesses and phlegmons of the face and neck occupy one of the leading places in terms of frequency of occurrence (from 40% to 60%) and deserve special attention of surgeons and dentists [3]. This is primarily due to the risk of developing complications such as mediastinitis, sepsis, thrombosis of facial veins and cerebral sinuses [2]. The main etiological factor leading to the development of phlegmons and abscesses of the maxillofacial area is odontogenic and periodontal infections [1]. You should not lose sight of such sources of infection as the air sinuses, tonsillar-pharyngeal, otogenic , foci of infection from outside and much more. The microbiological landscape, as a rule, is represented by resident mixed microflora, with a predominance of staphylococci and/or streptococci in collaboration with Escherichia coli or other coli [4].

A number of studies have been devoted to this problem, including the work of N.S. Chernomorchenko, I.R. Gilts , E.V. Fomichev et al. [1], in which the authors indicate that the microbiological

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landscape of opportunistic microflora in a purulent wound is more diverse with concomitant pathology. For example, with diabetes mellitus, Lactobacillus and Candida are most often found , with pneumonia and bronchitis - Klebsiella ornithinolytica , Klebsiella pneumoniae , Klebsiella oxytoca , etc. Even Celsus (1st century AD) described local signs of inflammation (swelling, redness, fever, pain) [5]. The purulent-inflammatory process can be localized both superficially in the tissues and involving deep-lying spaces over a significant extent, which can lead to the formation of intermuscular phlegmon. When the infection spreads through the subcutaneous tissue, the inflammation turns into diffuse epifascial phlegmon with detachment and destruction of areas of the skin [6]. Superficial purulent-inflammatory processes in the maxillofacial area are characterized by tissue swelling with a local increase in temperature, redness of the skin or oral mucosa above the site of inflammation. For deep abscesses and phlegmons, pain and disruption of chewing function, as well as swallowing and breathing, are mainly typical. With combined damage to two or more anatomical areas and cellular spaces, the clinical picture becomes more diverse, which often complicates the diagnosis of the purulent-inflammatory process [7].

Undoubtedly, when pathogenic microflora is introduced into the body, there is a response from the entire organism as a whole. The severity of the response depends on a number of conditions. First of all, this is the amount of bacterial toxins and tissue breakdown products that have penetrated into the peripheral bed from the source of infection, which leads to a decrease in the body's resistance [4]. Developing intoxication entails disruption of hematopoietic functions in the bone marrow and, as a consequence, anemia and a significant change in the composition of white blood [8]. Based on the nature of the body's response to the purulent-inflammatory process, normergic , hyperergic and hypergic (anergic) variants of the course of the disease are distinguished [9]. The work of scientists from neighboring countries is devoted to this issue, such as Vu Viet Cuong et al . [6] a study was conducted in this direction, after which the mechanisms of development of the body's reactions to inflammation were specified from the point of etiology and pathogenesis.

With a hyperergic reaction, there is a rapid development of the process with spread to surrounding tissues, causing extensive swelling, with the involvement of lymphatic vessels in the inflammatory process, a pronounced symptom of purulent-resorptive fever. With this variant of the course of the disease, despite timely treatment, death can occur. With a normergic reaction of the body, the inflammatory process covers a smaller volume of tissue, is characterized by an increase in body temperature to 38.5 ° C, intoxication syndrome, leukocytosis and neutrophilia are less pronounced than with a hyperergic reaction. With such a development of the clinical picture, timely provision of assistance (opening the source of infection) and adequately administered therapy, it is possible to achieve a positive treatment effect. The hypertensive course of inflammation in the face and neck occurs in 60% of cases [10] and is characterized by a weakly expressed response by general and local reactions of the body. When attacked by a highly virulent infection, the body's protective barriers work slowly, which leads to the breakthrough of microorganisms through the lymphatic ducts into the bloodstream and the development of a generalized process. M.V. Kirpichnikov et al . [2], in their study, draw the attention of specialists to the fact that with the sluggish development of the purulent-inflammatory process, the load on the immune system increases,

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which leads to its depletion and damage. At the same time, more in-depth and comprehensive clinical and laboratory research and new promising treatment methods are required. Currently, the Russian Federation uses the generally accepted classification of the phases of the wound process according to M.I. Cousin [5].

Results. The complex of traditional treatment of 45 patients (group II - comparison) with phlegmon of the face and neck began with surgical treatment, the main task of which was to carry out timely adequate opening of the phlegmon in accordance with the localization of the purulent-inflammatory process, providing conditions for optimal drainage of the purulent focus and cleansing the wound from non-viable tissues (Figure 12). When planning the surgical stage of treatment, the clinical picture of the development of the disease, the nature and extent of the inflammatory process were taken into account, laboratory diagnostics and additional research methods (ultrasound, X-ray, CT) were performed. Intraoperatively, material was collected to study the microflora and its sensitivity to antibacterial drugs. The general condition of the patients at the time of hospitalization was assessed as severe and extremely serious. SIVR indicators in all patients upon admission corresponded to a severe degree, body temperature reached 39.6 ± 0.4 °C, tachycardia 122 ± 4.6 beats. per minute, respiratory rate > 21 ± 1.3 per minute, leukocytosis – 22 ± 6.8 × 109. Upon admission, 42 people had a combination of SIRS criteria accompanied by the presence of "febrile temperature + leukocytosis" against the background of tachycardia and tachypnea , which corresponded to a normal reaction of the immune system. In 3 patients (6.7%) cases, "hypothermia + leukocytosis" was noted, which indicated a "cold" syndrome of the body's systemic reaction to inflammation; a similar reaction of the body can occur when the immune system is depleted.

Endogenous intoxication according to the leukocyte intoxication index 6.7 ± 0.86 conventional units . corresponded to severe in 36 patients (80%), and in 9 patients (20%) LII reached 9.4 ± 0.67 arb . units, which indicated a significant degree of severity of endogenous intoxication in the presence of an acute purulent process. In the CBC, a leukocyte shift of the leukocyte formula to the left was observed. Against the background of pronounced leukocytosis, the number of segmented leukocytes significantly increased and averaged 75 ± 3.6% ($p < 0.05$), the number of band leukocytes neutophils reached 8 ± 1.4%. In 16 patients (35.6%) monocytosis was observed up to 12 ± 1.7%. In 93.3% of cases (42 patients), lymphopenia was noted - 12 ± 6.3%, and in the remaining patients the relative number of lymphocytes decreased to 3 ± 1.1%. The majority of patients - 95.6% (43 people) had thrombocytopenia up to 117 ± 76 × 109 /l.

When analyzing laboratory parameters, positive dynamics in patients with traditional treatment was observed by the 5th day, and in 11 patients, against the background of the spread of the purulent-inflammatory process to adjacent cellular spaces, there was a significant deterioration in the general condition and blood counts with a significant decrease in the number of lymphocytes less than 1% ($p < 0.05$) and platelets less than 50×10 9 /l, an increase in the procalcitonin test more than 10 ng / ml, which indicated the development of a septic condition.

Analyzing the number and structure of complications that arose in patients in the comparison group against the background of traditional therapy, the results presented in Figure 13 were obtained. Repeated surgical treatment of a purulent wound was carried out

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in 9 patients, which is 20%. The total number of patients with various complications was 11 people (24.4%), of which: spread of the purulent-inflammatory process to adjacent areas - 4 people, mediastinitis was observed in 3 patients and sepsis was diagnosed in 4 patients according to consensus criteria " Sepsis-3". Death from progression of multiple organ failure occurred in 2 people. To objectively assess organ failure that occurred in this category of patients, the SOFA scale was used. In this case, the average number of points on the SOFA scale was 11.2 ± 3.4.

Against the background of traditional therapy, in patients in the comparison group, body temperature returned to normal only on the 7th day from the start of treatment. The timing of pain relief was observed at 5.62 ± 0.26 days, the end of exudation in patients at 10.81 ± 1.3 days, and the appearance of granulation occurred at 10.46 ± 0.98 days. Assessing pain during dressings in the period from the 1st to the 5th day, the pain intensity reached 2.75 ± 0.2, and only by the 10th day did the patients experience no pain. The rate of reduction of the wound surface according to L.N. Popova was 4.7% on the 3rd day, 6.2% on the 5th day, on the 7th day the wound area decreased by 9.4%, on the 10th day the reduction reached 10.6%, on Day 13 was 10.5%. The average time for applying secondary sutures for the group was 15.4 ± 1.30 days. The number of days in hospital was 21.64 ± 2.89 days.

Despite the generally positive dynamics in the treatment of phlegmons of the face and neck in patients in the comparison group, obtained during the traditional management of patients using standard gauze bandages, we noted a number of disadvantages of this method of local treatment:

- the bandages dried quickly and stuck to the wound;
- changing the dressing caused severe pain due to injury to the underlying tissues; – the need for frequent re-dressings or constant irrigation of the dressing with an antiseptic solution;
- repeated microbiological examinations of wound discharge revealed the addition of intrahospital multiresistant microflora with sensitivity only to antibiotics of the carbopenem group ;
- low sorption capacity in relation to wound discharge;
- the therapeutic effect was provided only during one of the phases of the wound process. The presence of these deficiencies is confirmed by the results of microbiological, cytological and histological studies.

In patients undergoing traditional treatment, the quantitative contamination in the wound immediately after surgical treatment varied from 106 to 108 CFU, in 93.3% (42 people) it was 108 CFU. During a repeat study carried out on the 5th day, in 14 patients (31.1%) the microbial landscape changed and was represented by nosocomial microflora. Microbial contamination significantly decreased to 104 CFU only in the 31st patient of the comparison group (68.9%) by the 8th day, and in the remaining patients by the 12th day. When analyzing cytograms over time on days 1 and 3, patients observed massive accumulations of detritus and a leukocyte reaction that corresponded to the early stage of the inflammatory process; segmented neutrophils predominated in the smears. Starting from the 7th day, the appearance of degenerative forms and an increase in the number of macrophages were observed among neutrophils.

In the fingerprint smears on the 10th day, the appearance of fibroblasts was noted, which is a sign of the formation of granulation tissue, and by the 15th day, young epithelial cells with basophilic cytoplasm

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were observed in the preparations, which clinically corresponded to the appearance of marginal epithelialization in the wound.

When analyzing histological specimens over time, on the day of surgical treatment and on the 3rd day, the morphological picture corresponded to the early stage of the inflammatory process. The wound shows a diffuse purulent inflammatory infiltrate, detritus from polymorphonuclear leukocytes, inflammatory swelling of the surrounding soft tissues and their melting.

In the majority of patients of group II/comparison, on the 7th day, the microscopic picture, against the background of purulent-necrotic destruction of soft tissues, showed the formation of single superficial vascular loops, which indicates the beginning of the process of formation of granulation tissue in the wound.

Starting from the 10th day, in patients of the comparison group, among the leukocyte infiltration, the appearance of a well-defined superficial layer of vascular loops of granulation tissue was observed, as well as the appearance of macrophages and fibroblasts, which indicates the formation of young granulation tissue in the wound.

On the 13th day, the microscopic morphological picture corresponded to the maturation of granulation tissue with well-defined vertical vessels and cellular elements: macrophages and fibroblasts.

By the 15th day, in the patients of the main group, homogenization of collagen fibers and the appearance of plasma cells in large numbers were visualized in histological preparations. The microscopic and clinical pictures corresponded to the filling of the entire wound surface with mature granulation tissue in combination with marginal epithelization .

Conclusions This clinical picture was confirmed by cytological (young epithelial cells with basophilic cytoplasm in the smear imprint from the wound surface) and morphological pictures (homogenization of collagen fibers - fibrous layer with the formation of marginal epithelialization of the wound, with replacement of the dermis by coarse fibrous collagen), observed on the 12th and 15th day. On the 15th day, secondary sutures were placed in the operating room under general anesthesia. The postoperative period proceeded without complications. The patient was discharged for further outpatient treatment on the 20th day.

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