Improvement of treatment and prevention of complications of acute odontogenic purulent periostitis of the jaws in children.

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Abstract. Introduction: It is known that the diagnosis and treatment of inflammatory diseases of the maxillofacial region are one of the main problems of pediatric dentistry. According to a number of researchers, inflammatory diseases of the maxillofacial region account for up to 21% of all surgical and 52% of dental diseases in childhood. **Methods:** Taking into account the formation of the dental system and the change of teeth, all children are divided into 3 groups. The first group consisted of 336 patients aged 2-5 years with a temporary bite. **Results** To assess the features of the clinical course of the disease, all the signs of the disease were divided into general and local, each of the signs was expressed in points. Such signs as body temperature, white blood cell count, ESR, and LII were divided into 3 gradations and, as they increased, they were given more points, respectively from 1 to 3 points, in the absence of 0 points.

Conclusion: The clinical picture of acute odontogenic periostitis depends on the age of the child: in the period of the formed milk bite (2-5 years), the general signs of inflammation are more pronounced due to the hyperergic reaction during the shift period (6-9 years), local signs of inflammation and their general manifestations correspond to the severity of the disease.

Keywords: odontogenic purulent, inflammatory diseases, odontogenic periostitis.

1. Introduction

The course of odontogenic infection in children has a number of features due to the relative immaturity of the child's organs and tissues, imperfect immunity, abundance of lymphatic tissue, the presence of anatomical and physiological features of the structure of teeth and jaws, ease of damage and increased permeability to microbes of natural protective barriers, etc.

In most children, the source of inflammatory odontogenic diseases is a complication of caries of temporary teeth. Depending on the nature of the pathogen and the reaction of the child's body, the ways of infection, inflammatory diseases in the maxillofacial region can be both acute and chronic.

The high incidence of caries and its inflammatory complications in children under 6 years of age necessitates sanitation and preventive work in preschool institutions. This scientific study is that acute odontogenic inflammatory diseases of the maxillofacial region are an important medical problem in the clinical practice of surgical dentistry, given that the frequency of inflammatory processes in the

maxillofacial region fluctuates within 55-65%, and in the structure of acute purulent-inflammatory diseases of the maxillofacial region reaches 69.5% and currently has a tendency to increase their proportion. An aggressive course of the inflammatory process with damage to deep cellular spaces, accompanied by severe endogenous intoxication, is noted. Despite the large number of studies conducted in this area and the introduction of modern methods, the results of treatment of this category of patients do not improve significantly. An increase in the number and severity of inflammatory diseases of the maxillofacial region and neck lead to an increase in temporary disability, and in some cases - disability and death. Most authors see the reasons for the current situation in the constantly worsening environmental conditions, the decline in the standard of living of the population, which causes an increase in the number of patients with initially altered immune reactivity and the presence of background pathology. The predominance of opportunistic and anaerobic microflora in the etiology also determines the characteristics of the course of odontogenic phlegmon. diseases largely depends on early diagnosis and an objective assessment of the severity of the condition.

2. Methodology

Taking into account the formation of the dental system and the change of teeth, all children are divided into 3 groups. The first group consisted of 336 patients aged 2-5 years with a temporary bite. The second group consisted of 175 children aged 6-9 years with a removable bite, the third group consisted of 40 children aged 10-13 years, who

mostly had temporary teeth replaced with permanent ones. Localization of the inflammatory process (upper, lower jaws, right and left), "causal" teeth, which were the entrance gates of infection, etc., were studied in all patients. To take into account anamnestic, clinical and laboratory studies of the course of the disease, we developed an examination card for a patient with acute purulent periostitis, which included anamnestic information, general and local signs of the disease, and laboratory research data. All qualitative signs were quantified (scores).On the day of admission, complaints were carefully studied when collecting a namnesis, local signs of the inflammatory process were taken into account**.**

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Such signs as body temperature, white blood cell count, ESR, and LII were divided into 3 gradations and, as they increased, they were given more points, respectively from 1 to 3 points, in the absence of 0 points.

We were interested in how the clinical picture of periostitis in children manifests itself depending on age.

When analyzing the complaints of patients aged 2-5 who were admitted to the clinic with acute purulent periostitis, it was found that the younger the child, the more pronounced the general signs of the disease (Table 2). Parents of 29 out of 32 children noted signs of the disease such as weakness and malaise.

3. Results

All children had symptoms such as headache, loss of appetite, and pain in a broken tooth, while 15 children had anxiety and agitation. All the children complained of jaw pain and a broken tooth.

Of the 32 children, only 7 have, despite the presence of

Table 1.

Assessment of clinical signs of acute purulent periostitis in children upon admission to the clinic, depending on age

	Age groups	2-5лет (n=32)	6-9 лет (n=31)	9-13 лет (n=22)	Всего (n=85)
	Signs	29±1,04	19 ± 0,84*	9 ±0,64*	57(67,1%)
	Weakness, malaise	31±1,64	11 ±0,67*	10±0 ,84*	52(61,2%)
	Headache	15±0,95	5± 0,24*	1±0, 11*	21(24,7%)
	Agitation, restlessness	32±2,54	16 ±0,88*	15±1 ,02*	63(74,1%)
	Impaired appetite	31±1,84	27 ±1,08*	18±0 ,84*	76(89,4%)
	Pain in the jaw, in the tooth	7±0,16	15 ±0,74*	13±0 ,67*	3541,2%
	Body temperature 36.6-36.90C	28±1,33	32 ±1,22	18±1 ,11*	78(91,7%)
	37.0-37.90C	33±1,24	-	-	33(38,8%)
	38.00C>	5±0,02	9± 0,62	9±0, 66	23(27,1%)
0	Number of leukocytos9-10 * 109	46±2,55	40 ±1,34	22±1 ,27*	108
1	10-14 * 109	12±0,89	6± 0,21*	3±0, 17*	21(24,7%)

2	14-18 * 109	7±0,54	12 ±0,49	11±0 ,45	30(35,3%)
3	ESR 9-16 mm/h	36±1,95	24 ±1,33*	20±0 ,75*	80(94,1%)
4	17-25 mm/h	21±1,33	7± 0,47*	1±0, 09*	29(34,1%)
5	26 mm/h and more	7±0,62	13 ±0,91	7±0, 24	27(31,7%)
6	LII 1,5-2,0	44±3,48	36 ±1,33	30±1 ,84*	110
7	2-4	9±0,49	3± 0,19	-	12(14,1%)
	СУММА	**393±12,6**	**26 5±14,9**	**187± 9,54**	
8	Collateral edema	25±1,22	29 ±1,66	5±0, 22	59(69,4%)
9	Inflammatory infiltration	9±0,67	5± 0,14	3±0, 18	17(20,0%)
0	Hyperemia of the skin	8±0,41	2± 0,11	-	10(11,7%)
1	Enlargement of lymph nodes	13±0,67	7± 0,34	1±0, 08*	21(24,7%)
2	Mobility of the causal tooth	28±1,99	25 ±0,94	15±0 ,84*	68(80,0%)
3	Discharge of pus from dental karmas	15±0,87	25 ±1,03	15±0 ,67	55(64,7%)
4	Bad breath	10±0,59	25 ±1,17	11±0 ,79	46(54,7%)
5	Infiltration is a transition.the folds	32±1,97	31 ±2,47	19±1 ,11*	72(84,7%)
6	Softening of the infiltrate	15±1,01	21 ±1,64	2±0, 13	38(44,7%)
7	Alveolitis	7±0,48	-	-	7(8,2%)
8	Wound (incision puncture)	7±0,51	-	-	7(8,2%)
	Lots of destruction	7±0,33	17	9±0,	33(38,8%)

9			±0,75	57	
0	Very poor hygiene.condition	30±1,64	31 ±1,88	22±0 ,69	83(97,6%)
2 06±11,8	**218±10,6**	**102±7,68**			
5 99±24,4	**483±25,5**	**289±17,2***			

Note: * - P<0.05 the significance of differences in relation to the data of children aged 2-5 years Out of 31 children, 27 complained of pain in a collapsed tooth, 16 children had body temperature increased from 37 to 37.9 ° C. Decreased appetite was observed in 13 children. The clinical picture of acute purulent periostitis changes with age.Of the 22 children, 10-13 years old complained of weakness and malaise. 10 had headaches, only 1 boy was somewhat restless, and 15 children complained of decreased appetite. Pain in the destroyed tooth and jaw was noted by 18 children. The increase in body temperature in 13 of 22 patients with periostitis was in the range of 37.0-37.9 °C.During the examination, we also paid attention to blood counts depending on age. Of the 32 children with acute purulent periostitis aged 2-5, only 7 had a body temperature ranging from 36.6 to 36.9 °C. In these children, the number of leukocytes ranged from 9 to 10 • 109/l. In the majority of children (23), the content of leukocytes in peripheral blood was within 10-14 • 10 9/ l and y In 13 children, this age group ranged from 1.5 to 2, in 18 children it ranged from 24, and only 1 had more than 4 units.Analyzing blood counts in children of this age group, it can be concluded that the infectious and inflammatory process proceeded without pronounced signs of intoxication, as evidenced by blood counts - moderate leukocytosis, low ESR and low LII. When comparing the local signs of periostitis,

depending on age, a number of features were also revealed. Thus, in children aged 2-5 years, despite the fact that the infectious and inflammatory process was localized by periodontal disease of the causal tooth, nevertheless, 25 had collateral edema of the soft tissues of the face. 9 children had an inflammatory infiltrate with hyperemia of the skin above it. In this age group, ESR tended to increase among 32 children, in 12 it was in the range of 9-16 mm/h. In 12, it ranged from 17 to 25 mm/h and in 7 over 26 mm/h. The leukocyte index in 13 children was 1.5-2; in 18 - from 2 to 4, and only in 1 child it was higher than 4.

After the replacement of temporary teeth with permanent ones (at the age of 10-13 years), the clinical picture of periostitis changes significantly.

So, out of 22 children, only 9 complained of weakness and malaise, 10 of headaches. There were no restless, excited children among these children. Appetite disorders were noted by 15 children, 18 children complained of pain in a collapsed tooth, which worsened with stress on the tooth. Body temperature was subfebrile in only 9 children. Upon admission to the clinic, 11 had moderate leukocytosis and one had severe leukocytosis.

A comparative analysis of the general signs of the disease in children of three age groups, expressed in points, found that in children aged 2-5 it averaged 12.8 points, and in children aged 6-9 it averaged 8.5 points, and in children aged 9-13 it averaged 8 points. To assess the severity of the inflammatory process in the age aspect, it was of interest to study the manifestation of local signs of the disease.

Thus, in children aged 2-5, the inflammatory process went beyond the periodontal area of the "causal" tooth into the adjacent soft tissues. In 19 (59.3%) children, it manifested itself as an inflammatory infiltrate of the cheek with skin hyperemia. In 13 (40.6%) there was collateral edema, and in 13 (40.6%) children, enlarged lymph nodes were detected. Of the 31 children aged 6-9, 8 (25.8%) had an inflammatory infiltrate, 2 had skin hyperemia, and 7 (22.6%) had enlarged regional lymph nodes.

At the same time, these signs were less pronounced in children aged 10-13, so out of 22 children, only 7 (22.7%) had an inflammatory infiltrate of the cheek, however, no skin hyperemia above the infiltrate was observed, the regional lymph node was enlarged in only 1 child.

When comparing the local signs of periostitis in children of all three age groups, we noted that at 10-13 years of age, periostitis occurs more as a limited focus of inflammation. So, out of 22 children, only 5 had a periosteal process with collateral edema, three had an inflammatory infiltrate without skin hyperemia, and only two children had regional lymphadenitis. At this age, there were fewer children with multiple decayed teeth. However, all the children had very poor oral hygiene.

As mentioned above, all the qualitative and quantitative indicators studied were converted into points. We conducted a comparative analysis of clinical and laboratory parameters depending on age. It was found that in children 2-5 years old, on average, the total score of general signs of periostitis was 12.8 + 0.34, local - 8.5. At the same

time, in children 6-9 years old, the total score of general signs was 8.5 + l21 and local 8.54 + 0.49.

At this age, the body's response to the purulent-inflammatory process was less active than in younger children. When comparing the sum of the periostitis scores of children aged 10-13, it turned out that the general signs were 4.12 + 0.34 points, and the local ones were 5.61 + 0.47. At this age, the purulent-inflammatory process proceeded with a less pronounced clinical picture, local signs of the disease were more pronounced

4. **Conclusions.** The clinical picture of acute odontogenic periostitis depends on the age of the child: in the period of the formed milk bite (2-5 years), the general signs of inflammation are more pronounced due to the hyperergic reaction during the shift period (6-9 years), local signs of inflammation and their general manifestations correspond to the severity of the disease. During the period of permanent bite formation (10-13 years), the picture of periostitis is dominated by local signs of inflammat

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