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Optimal Treatment of Acute Catarrhal Otitis Media in Children

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Abstract: Congenital cleft palate (CPP) is characterized by various structural defects, which in turn form pronounced functional deficiencies of vital processes: breathing, chewing, swallowing, mimicry, hearing and speech.

Keywords: tonsils, Pirogov's ring, congenital cleft palate.

Introduction. In congenital cleft palate there are common for all types of clefts anatomical abnormalities, expressed in varying degrees depending on the severity of the malformation. These are:

- ✓ clefting of the palatal tissues;
- ✓ shortening of the soft palate;
- ✓ widening of the middle pharynx.

In children with congenital cleft lip and palate, pathologies of the tonsils of the pharyngeal ring are the most frequent causes of concomitant diseases [1,2,3,4,5,6]. The main cause of eustachian tube dysfunction, nasal breathing and speech disorders are pathologies of the pharyngeal ring tonsils. No correlation has been established between surgical treatment of BPH and the method of eliminating hearing, nasal breathing, and speech disorders.

The study of the functions of hearing, nasal breathing, and speech and the development of pathogenetic methods of complex therapy to restore these functions in children with BPH is a highly relevant issue of modern medicine.

All this prompted a deeper study of the state of the tonsils of the pharyngeal ring in children with congenital cleft palate (their changes at different degrees, forms and stages of reconstructive surgery), as well as the development of a new method of correction of respiratory function at different stages of reconstructive-operative treatment, prevention of the development of inflammatory processes of the tonsils of the pharyngeal ring.

Materials and methods of research: For fulfillment of the set tasks we have carried out an examination of 75 patients with pathology of BPH treated in the clinic of pediatric surgical dentistry and polyclinic of surgical dentistry of Tashkent State Dental Institute, as well as in the department of ENT diseases 3 of TMA clinic for the period from September 2021 to March 2023.

The patients were aged from 0.6 to 16 years. The age division of the patients showed predominance of middle (3-6 years) and younger age groups (0.6-3 years), 45.3% and 29.3% respectively.

RESULTS AND DISCUSSION: Analysis of morbidity of children in the first years of life showed that only 5 (6.67%) children were free from diseases till the age of 3 years. During this period 10 (13.3%) children were sick with infectious diseases, 31 (41.33%) with acute respiratory diseases, 20 (26.67%) with bronchitis, pneumonia, 59 (78.67%) with otitis media and other diseases of ENT organs.

When asked at what age children with congenital cleft lip and palate were sick more often, parents

answered as follows: up to 1 year of age, 9 (12%) children were sick most often, from 1 to 2 years of age - 14 (18.67%), from 2 to 3 - 23 (30.67%), from 3 to 4 - 21 (28%), from 4 years of age - 8 (10.67%).

Due to the different period of treatment regarding the reconstructive-restorative surgeries performed on the maxillofacial region, the patients were divided into the following groups: group 1 and group 2.

Group 1 included children who underwent complex methods of treatment with the involvement of all specialists. The basis of complex rehabilitation was continuous dynamic observation of patients, timely and modern methods of diagnostics of anomalies and deformities of the maxillofacial region, which allowed us to recommend the methods of otorhinolaryngologic treatment proposed by us at different age periods, starting from the newborn period.

Group 2 included patients who had not undergone comprehensive rehabilitation for various reasons. The children were treated according to generally accepted methods.

Three age subgroups were identified in each group. The first subgroup included children of the newborn period up to 3 years of age. The second subgroup included children of preschool age (3-6 years). The third subgroup included patients of the school period (7-17 years).

The distribution of patients by groups is presented in Table 1.

In the first group, 9 (37.5%) children out of 24 had traditional treatment in preoperative preparation and 15 (62.5%) used Tantum Verde spray instead of Bioparox for local treatment of the nasopharynx and pharynx.

The patients of the second group - 51 children (68%) were at the stages of treatment and were subdivided into two subgroups: conventionally named second-A subgroup - 43.1% (n=22), these were patients who applied in the first day after surgery on the maxillofacial region (GVHD was 50% (n=12) and with GVH - 50% (n=12)); 56.9% (n=29) of patients made up the second subgroup - these were children examined in the late postoperative period at the stage of orthodontic-logopedic treatment rehabilitation, 51.85% (n=15) of them subsequently underwent repeated stages of surgery. 48.15% (n=14) were children who had completely completed all stages of surgery and were in the orthodontic-logopedic treatment stage. These children were mostly from the older age group (Fig.1).

Table 1. Number of patients in the studied groups

Subgroups	Number of patients in the groups:		TOTAL
	first	second	
1 subgroup	9	12	19
2 subgroup	7	24	33
3 subgroup	8	15	23
TOTAL	24	51	75

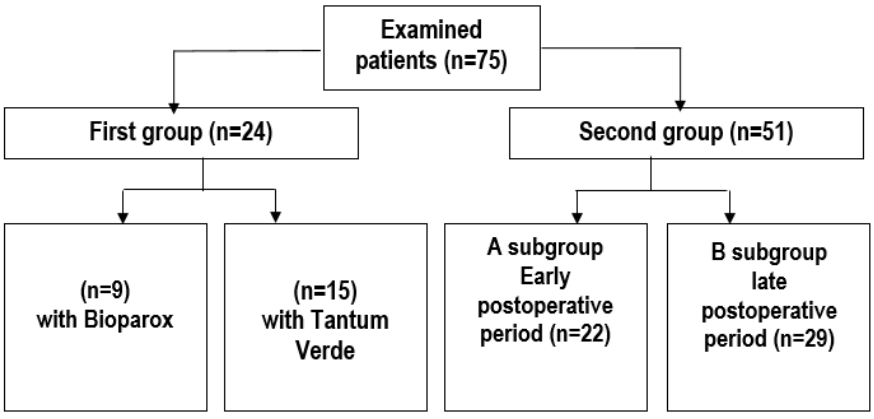

Figure 1. Distribution of patients by groups

- To establish the form and nature of the pathology and to choose the optimal treatment option, the following examination methods were performed:
- ✓ ENT examination (otoscopy, rhinoscopy, pharyngoscopy, laryngoscopy);
- ✓ endoscopic examination of ENT organs: rigid endoscopic rhinoscopy, otoscopy.
- ✓ Clinical methods of examination of ENT organs were performed by traditional methods accepted in general otorhinolaryngologic practice.
- ✓ Microbiological studies: smear for microbiological studies was taken in the morning on an empty stomach with a sterile posterior pharyngeal cotton swab. Colonization of the nasopharyngeal mucosa was assessed by the composition of microflora. Selection of material for bacteriologic study was carried out by light microscopy, microflora was studied according to the method of Haenel (1979) as modified by S. K. Kanareikina et al. (1985).
- In the study of microflora, the following were taken into account:
- ✓ lactobacilli;
- ✓ Staphylococcus saprophyticus;
- ✓ staphylococcus epidermalis;
- ✓ staphylococcus aureus;
- ✓ streptococcus nonhemolyticus;
- ✓ streptococcus hemolyticus;
- ✓ E. coli;
- ✓ protozoa;
- ✓ yeast-like fungi of the genus Candida.
- ✓ Systematization of dysbacteriosis was carried out according to the following scheme: normocenosis; dysbiotic shift, dysbacteriosis of I-II degree, dysbacteriosis of III and IV degrees. Each type was characterized by specific changes in the composition of the microflora of the nasopharyngeal cavity and oropharynx. The preparations were consulted by Prof. I. M. Mukhamedov.
- ✓ In the preoperative period, therapy aimed at restoring the normal flora of the nasopharynx as well as tonsils, reducing the amount of mucus and normalizing immunity was carried out. The indications for the use of antibiotics, sulfonamides and other anti-inflammatory and anti-inflammatory agents were pronounced inflammatory phenomena in the nasopharyngeal region. Antibacterial drugs were prescribed taking into account the sensitivity of respiratory tract microflora.
- The complex approach developed by us includes:
- ✓ examination of ENT organs (ENT endoscopy, otomicroscopy, tonal audiometry, impedanceometry including tympanotubometry) in pre- and postoperative periods;
- ✓ pre- and postoperative sanation of the respiratory tract.
- ✓ Sanation of the TMD included:
- ✓ lavage of crypts of palatine and nasopharyngeal tonsils with FarGALS preparation;
- ✓ nasal administration of Bioparox spray (at the age of up to 3 years), Tantum Verde (at the age of over 3 years);
- ✓ use of hormonal spray (nasonex) in the nose.

One month after sanation, clinical examination of the ENT organs and microbiological studies of the nasopharynx and oropharynx were performed. A course of conservative treatment, including sanation of the respiratory tract, was also carried out.

Periodic examination, clinical examination and microbiological studies of nasopharynx and oropharynx were carried out in a month and every 3 months, on the basis of which it was possible to judge about the effectiveness of treatment.

Sanation of the respiratory tract in the complex approach included lavage of crypts of palatine and nasopharyngeal tonsils. The expediency of adenoid tissue lavage was due to the fact that before the closure of the palate defect adenoid vegetations are well visible and easily sanitized under visual control. The lavage was performed with the preparation FarGALS. This domestic preparation is a water extract from the culture medium of autotropic iron-oxidizing bacteria: ammonium sulfate, single-substituted potassium phosphoric acid, iron sulfate, purified water. The drug has local antimicrobial and antifungal properties, as well as anti-inflammatory and reparative action. It is effective against Gram-positive and Gram-negative aerobic and anaerobic non-spore-forming and spore-forming bacteria. Rinsing was carried out daily, 5-7 times per course of treatment. In the nose of children under 6 years of age - Bioparox spray, and over 6 years of age - Tantum Verde. Bioparox - antibiotic fusafungin. Aerosol for topical use dosed(1 dose of 125 mcg). It is administered in 1 session every 6 h. Each session includes 4 inhalations by mouth and/or 4 inhalations through each nostril. The duration of the usual course of treatment does not exceed 10 days. Antibiotic for topical use, has no systemic effect. It has antibacterial and anti-inflammatory activity. Bioparox is active against: Streptococcus spp. group A, Streptococcus pneumoniae (old name - Pneumococcus), Staphylococcus spp., some strains of Neisseria spp., some anaerobes, as well as Mycoplasma spp., fungi of the genus Candida. Tantum verde - benzydamine - NSAID. Dosed aerosol for topical application is used after meals (1 dose of 0.255 mg). It is prescribed: from 3 to 6 years - 1 injection for every 4 kg of body weight, but no more than 4 injections (maximum single dose) 2-6 times a day; from 6 to 12 years - 4 injections 2-6 times a day and children over 12 years - 4-8 injections 2-6 times a day. Duration of treatment should not exceed 7 days. Duration of the usual course of treatment should not exceed 7 days. When applied topically, the drug is well absorbed through mucous membranes and penetrates into inflamed tissues, is found in blood plasma in an amount insufficient to produce systemic effects. It has antibacterial action due to rapid penetration through the membranes of microorganisms with subsequent damage to cellular structures, disruption of metabolic processes and cell lysosomes. It has antifungal action against Candida albicans. Causes structural modifications of the cell wall of fungi and their metabolic chains, thus preventing their reproduction, which was the basis for the use of benzidamine in inflammatory processes in the oral cavity in children with BPHN.

Results of the study and their discussion. To evaluate the dynamics of subjective and objective data we used a visual-analog scale according to a 5-point system: for 0 points we took the absence of a given symptom, for 5 points - its maximum manifestation. The effectiveness of treatment was also determined by the reduction of microbial contamination of tonsils before and after treatment (in the second week). We did not find any side effects of the means for tonsil irrigation Tantum Verde. All children noted good tolerability of the drug.

Table 2. Local signs of chronic tonsillitis in the examined patients

Signs	**Main group n = 24**	**Control group n = 51**
Hyperemia and roll-shaped thickening of the edges of the palatine glands	**21**	**42**
Presence of pathologic discharge of the palatine tonsils	**19**	**38**
Presence of scars and adhesions of tonsils with palatine glands	**15**	**39**
Thickening and scarring of the lacunae	8	**22**

of the palatine tonsils		
Regional lymphadenitis	**17**	**51**

Analysis of the dynamics of subjective data in the course of treatment revealed more significant positive changes in children of the main group compared to children of the control group. Thus, pain at swallowing in children of the main group before treatment amounted to 3.40±0.49 points, in the control group - 3.10 ± 0.45. After 7 days, pain at swallowing in 21 (87.5%) patients of the main group and 38 (74.5%) patients of the control group disappeared, in the others it significantly decreased. On the 14th day, pain on swallowing disappeared in the main and control groups ($p < 0.01$).

Dysphagia before treatment in the main group amounted to 4.40±0.42 points, in the control group - 4.50±0.39 points. After 7 days of treatment dysphagia disappeared in 15 (62,5%) children of the main group and in 20 (39,2%) of the control group, in the rest it decreased: in 9 (37,5%) patients of the main group - to 2,40±0,38 points, in 31 (60,8%) people of the control group - to 3,3±0,5. By the 14th day dysphagia completely disappeared in children of the main group and in 18 (35,3%) patients of the control group, in other children of the control group this index amounted to 1,40±0,34 points ($p<0,05$).

Hyperemia and infiltration of the palatine mucosa in the main group before treatment amounted to 4.80±0.37 points, in the control group - 4.70±0.35 points. On the 7th day in 21 (87,5%) children of the main group it decreased to 2,10 ± 0,44 points and in 30 (58,8%) patients of the control group - to 2,90±0,38 points. After 14 days, in 23 (95.8%) children of the main group - 0.8±0.5 and in 41(80.4%) child of the control group - 1.30±0.41 points ($p<0.05$) (Fig. 4).

After the treatment, there was a decrease in microbial contamination of tonsils, more pronounced in children of the main group (22 children, 95.65%) than in the control group (32 patients, 62.75%)

Conclusions:

1. Treatment with topical application of Bioparox and Tantum verde have multifactorial effects:

- ✓ anti-inflammatory, anti-edema, reparative, antimicrobial, antifungal;
- ✓ reduces the degree of nasopharyngeal congestion in the lower respiratory tract.

2. The use of these drugs in children for pharyngeal irrigation allows to achieve a pronounced, persistent clinical effect, confirmed catanamnestically, which indicates its high therapeutic efficacy and allows to recommend the drug for widespread use in the complex treatment of pathologic processes of pharyngeal tonsils in children with GERD.

Thus, when deciding on the removal of adenoids and tonsils in children with BPHN, it is important to take into account all risk factors, weigh their influence in the relationship, both with the general condition of the patient, and in connection with the impact on hearing and speech. Early conservative treatment of existing inflammatory processes of the upper respiratory tract is necessary to avoid adenotonsilotomy in this category of children.

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