

## Features of Dacryocystitis of Newborns in the Krasnodar Territory

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### Abstract

**Introduction:** In this study the state of the problem of dacryocystitis of newborns in the southern region of the Krasnodar Territory is considered.

**Purpose:** The purpose of the study is to improve the treatment of dacryocystitis of newborns, taking into account the health profiles of the newborn and the characteristics of the microbial spectrum of pathogens in the Krasnodar Territory.

**Materials and Methods:** A retrospective analysis of 724 outpatient charts and medical histories of children with dacryocystitis of newborns (868 eyes) treated in 2010 - 2015 years. A comprehensive examination of children with dacryocystitis of newborns included history taking and clarification of complaints from parents; collection of data on previous treatment in the outpatient polyclinic network; examination of the eyeball and the lacrimal apparatus; diagnostic fluorescein tests; Ultrasound examination; consultations of a pediatrician and other doctors.

**Results and Discussion:** On sufficiently large factual clinical material revealed some regional features of dacryocystitis of newborns, in particular, the frequency and nature of concomitant somatic and eye pathology, as well as the frequency and nature of various pathogens of this disease.

**Conclusion:** The conditional profile of dacryocystitis of newborns reflects the characteristics of the disease of children, living in the south of Russia, in the Krasnodar Territory. The predominance of pathogens isolated in phlegmonous dacryocystitis of newborns in this region has been established - *Staphylococcus epidermidis* (46.1%) and *Staphylococcus aureus* (10.3%), which additionally characterizes the disease in this region.

**Keywords:** Inflammation of the Lacrimal Sac; Dacryocystitis of Newborns; Pathogens

### Introduction

Dacryocystitis of newborns (DN) continues to be one of the main problems of pediatric ophthalmology, the most frequent purulent-inflammatory disease of the organ of vision and its adnexal apparatus in children of the first year of life. According to domestic ophthal-

mologists, the incidence of DN varies from 1 to 14% of the total eye pathology of children. According to some reports, the frequency of dacryocystitis of newborns is 7 - 14% and does not depend on an increase in the birth rate. The etiology of dacryocystitis of newborns is currently not fully known. The etiology and pathogenesis of DN is described mainly by two theories - anatomical-physiological and inflammatory. The most common causes of pathology are the anatomical features of the structure of the nasolacrimal canal. No less important is the theory about the inflammatory causes of DN. In the modern interpretation, the disease is regarded as something intermediate between the anomaly of development and the acquired pathology of the newborn. Recommendations for the medical treatment of DN are based on outdated information about pathogens and their sensitivity to antimicrobial drugs, meanwhile, the results of studies in recent years indicate a change in the spectrum of pathogens. In addition, the nature and frequency of occurrence of microorganisms in different regions have a strict specificity, as well as varying degrees of resistance of microorganisms to antimicrobial drugs. Therefore, data obtained in one region cannot be applied to another specific territory.

The appointment of drug treatment, based on the outdated ideas about pathogens and their sensitivity to antimicrobial drugs, leads to the progression of the disease and requires a transition to surgical intervention, fraught with many complications. Thus, the state of the problem and the unresolved number of scientific and practical issues that do not meet the requirements of the time served as the basis for this study.

### Purpose of the Study

The purpose of the study is to improve the treatment of dacryocystitis of newborns, taking into account the health profiles of the newborn and the characteristics of the microbial spectrum of pathogens in the Krasnodar Territory.

### Materials and Methods

The studies were conducted on the basis of the ophthalmology department of the Children's Regional Clinical Hospital of the Ministry of Health of the Krasnodar Territory. Voluntary informed consent was obtained from parents, as legal representatives of sick children, and they were familiarized with their rights. A retrospective analysis of 724 outpatient charts and medical histories of children with dacryocystitis of newborns (868 eyes) treated in 2010 - 2015 was carried out, the average age of children was  $8.65 \pm 2.58$  months.

A comprehensive examination of children with DN included: history taking and clarification of complaints from parents; collection of data on previous treatment in the outpatient polyclinic network; examination of the eyeball and the adnexal (lacrimal) apparatus of the eyes; diagnostic tubular and nasal fluorescein tests; taking the contents of the lacrimal sac and lacrimal tract on the side of the lesion in dacryocystitis of newborns for microbiological analysis; Ultrasound examination of the eyes and its accessory (lacrimal) apparatus; consultation of a pediatrician and an otorhinolaryngologist doctor to exclude diseases and anomalies of the nasal cavity; complete blood count. Ophthalmobiomicroscopy was performed using Slit lamps SL-120Zeiss (Germany) and "Takagi" (Japan). In direct ophthalmoscopy, the Keller headband binocular ophthalmoscope (Switzerland) and the NBO-3 ophthalmoscope (Russia) were used. For ultrasound examinations, the Axis ultrasound machine (France) was used. We used a set of Bowman probes.

### Results and Discussion

For the first time, on a large volume of clinical material (724 cases, 868 eyes), the clinical and anamnestic data of children with dacryocystitis of newborns were retrospectively evaluated and new scientific facts were obtained that made it possible to present the conditional profile of the disease in the southern region of Russia.

It was found that more often DN occurred in boys (56.3%). Urban dwellers predominated (59.7%). In the vast majority of cases, children were born full-term (93.9%), premature babies were only 5.4%, deeply premature - 0.7% of children. In 41.4%, the weight of newborns was 3000 - 3500g, in 30.5% - 3500 - 4000g. During the first three months of life, only 3.4% of parents of children with DN

sought inpatient care, which is due to the physiological characteristics of tear production, as a result of which children of 6 - 9 months of age prevailed (41.3%). In 44.1% of children, the inflammatory process of the lacrimal tract was diagnosed immediately after birth, in the rest - during the first 4 months of life. Prior to contacting the Children's Regional Clinical Hospital, children were treated at their place of residence with the help of massage of the lacrimal sac (97.3%), which did not lead to success and the patency of the lacrimal nasal canal was not restored. Massage was not performed in 2.7% of cases. The hereditary factor, according to the parents, was traced in 23.5% of children. Diagnostic tear-nasal test at the place of residence was carried out in more than half of the children - in 55.3%, not carried out in 44.7% of cases. The test result was negative in 48.3%, positive - only in 7.0% of cases. The first probing of the lacrimal tract was carried out in the ophthalmology department of the Children's Regional Clinical Hospital in 96.6% of children, repeated, after an unsuccessful attempt at the place of residence - in 3.4% of children. In contrast to the rare concomitant ocular pathology (2.3%), where 2 cases of congenital cataracts (0.3%) were clinically significant, the presence of concomitant somatic pathology was observed in 11.6% of cases.

In 88.4% of the examined children with dacryocystitis of newborns, there was no concomitant somatic pathology. Pathology of the musculoskeletal system was detected in 1.0% of newborns, cerebral palsy was in 0.7% of cases, pathology of the cardiovascular system was observed in 1.7% of those examined, lung pathology was in 2.4%, other pathology was in 5.8%.

Were obtained new facts about the burdened heredity of DN in 23.5% of cases, the presence of concomitant diseases of the respiratory, cardiovascular systems and the musculoskeletal system, lesions of the central nervous system and other unspecified pathology in 11.6% of children with dacryocystitis of newborns.

New data have been identified, consisting in the fact that at the regional level, the most common pathogens in phlegmonous DN are *Staphylococcus epidermidis* and *Staphylococcus aureus*, constituting 46.1% and 10.3%, respectively. *Streptococcus pneumoniae* (5.1%), *Streptococcus SPP* (5.1%), *Streptococcus epidermidis* (2.6%) and *Streptococcus mitis* (2.6%) were detected much less often. In isolated cases, the causative agents of nosocomial infections *Stenotrophomonas maltophilia*, *Pseudomonas aeruginosa*, *Acinetobacter calcoaceticus var* were present. *Lwoffii*, *Klebsiella pneumoniae* and *Acinetobacter baumannii*.

It was found that the lack of microbiological research in 73.7% of cases leads to polypharmacy with drug treatment in 89.8% of children with dacryocystitis of newborns in the absence of treatment in 1.4% of children in need of it.

### Conclusion

The most frequent causative agents of phlegmonous dacryocystitis of newborns at the regional level are *Staphylococcus epidermidis* (46.1%) and *Staphylococcus aureus* (10.3%), representatives of the streptococcal group are much less common. As a result, the study obtained a conditional profile of dacryocystitis of newborns in the south of Russia, which reflects the characteristics of the disease of newborn children (concomitant pathology of the cardiovascular and respiratory systems, disorders of the musculoskeletal system, central nervous system lesions, etc.), the frequency and nature of the causative agents of this pathology in the Krasnodar Territory.

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