

Development of Stenotic Laryngotracheitis in Children Depending on Respiratory and Allergic Status

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Abstract: The problem of acute laryngotracheitis is caused not only by its high prevalence, possibility of a number of complications and lethal outcome, but also by the fact that very often acute stenotic laryngotracheitis tends to recur. Besides, in recent years there is a tendency of increasing frequency of repeated episodes of laryngotracheitis in children, which not only complicates the course of respiratory disease, but can also lead to life-threatening condition ("false" lap). In this connection, it is of certain practical interest to study the peculiarities of stenotic laryngotracheitis formation depending on respiratory and allergic anamnesis.

Key words: stenotic laryngotracheitis, false croup, respiratory and allergic status.

Objective of the investigation: To study the peculiarities of stenotic laryngotracheitis formation in relation to respiratory and allergic anamnesis.

Material and Methods: The study is based on clinical and laboratory examination of 175 children with primary and recurrent stenotic laryngotracheitis, who were admitted for treatment to the Department of Pediatrics of the Pediatric Multiprofile Center of Samarkand Region in the period from 2018 to 2021.

All examined children were divided into 2 groups according to the forms of acute stenotic laryngotracheitis according to the classification of Y. V. Mitin:

- Group 1 - 78 (44.4%) children with primary stenotic laryngotracheitis.
- Group 2 - 97 (55.6%) with recurrent stenotic laryngotracheitis.

Results and discussion.

The analysis of premorbid background of children with this pathology revealed no significant differences in children with primary and recurrent SLT, which allows us to consider them as stages of a long-lasting disease. Thirty-seven (24.2%) children with RSLT had their first SLT at the age of 1 year, 64 (41.8%) at 1 to 3 years, and 52 (34.0%) before 6 years of age (Table 1).

Table 1. Peculiarities of RSLT formation according to age, respiratory history of the first years of life, frequency of recurrent RSLT

| Indicators | Number of children | |
|--|--------------------|------|
| | abs | % |
| The age at which the child first underwent SLT: | | |
| - up to 1 year | 37 | 24,2 |
| - 1 to 3 years | 64 | 41,8 |
| - 3 to 6 years | 52 | 34,0 |
| Frequency of recurrence: | | |
| - once a year | 39 | 25,5 |
| - less than once a year | 8 | 5,2 |
| - 3 times a year | 82 | 53,6 |
| - more than 3 times a year | 24 | 15,7 |
| The length of time between the first SLT and a repeat SLT: | | |
| - 1 month | 18 | 11,8 |
| - 2-4 months | 19 | 12,4 |
| - 4-8 months | 27 | 17,6 |
| - 8-12 months | 18 | 11,8 |
| - 1-2 years | 29 | 19,0 |
| - More than 2 years | 42 | 27,5 |
| Diseases between the first SLT and a repeat SLT | | |

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|---------------------------|----|------|
| - ARVI - 1 case | 20 | 13,1 |
| - ARVI - 2 cases | 22 | 14,4 |
| - ARI - 3 to 5 cases | 38 | 24,8 |
| - ARI - more than 5 cases | 27 | 17,6 |
| - no cases | 46 | 30,1 |

Once a year relapse occurred in 39 (25.5%), once a year and a half in 8 (5.2%), more often in 82 (53.6%) - 3 times a year and more often 3 times a year in 24 (15.7%). An analysis of the time between first and repeated SLT showed that 18 (11.8%) cases relapsed after 1 month, and 19 (12.4%) cases relapsed after 2-4 months. An overwhelming number of relapses occurred after 4-8 months in 27 (17.6%) and after 1-2 years in (19.0%), and more than 2 years in 42 (27.5%) cases. The respiratory history of the children also showed that 46 (30.1%) between the first and second SLT episode had no bacterial or viral infections, 20 (13.1%) had 1 case of SARS, 22 (14.4%) had 2 cases, 38 (24.8%) had 3 to 5 cases, and 27 (17.6%) had more than 5 SARS, i.e. 42.7% of children had three or more SARS (which were not associated with laryngeal stenosis syndrome) between the first and second SLT. On clinical examination, the majority of children admitted to hospital during the acute phase of laryngeal stenosis showed marked symptoms of intoxication, including high body temperature, in 79 (64.8%) children with PSLT and in 51 (33.3%) those hospitalized with RSLT. Catarrhal syndrome associated with conjunctivitis, nasal congestion, rhinopharyngitis occurred in 96 (75.2%) children with recurrent SLT ($P<0.001$) and 103 (84.4%) with primary. Most patients had a "barking" cough (109 (89.3%) and 146 (95.4%) per group, respectively), almost all had hoarseness or hoarseness, with 3.5 times more hissing wheezing in children with PSLT than in children with RSLT. Physical examination of PSLT revealed no change in the lungs of 27 (17.6%) children, dry wheezing rales were heard in 21 (13.7%) and variable wet rales in 35 (22.9%) ($P<0.001$). PSLT auscultation revealed no pulmonary changes in 27 (17.6%) children, dry wheezing rales in 48 (39.8%), and variable wet rales in 10 (8.2%) children. Analysis of the frequency of respiratory symptoms in the examined children showed that they occurred much more frequently in children with RSLT than in children with PSLT, indicating their weaker condition. Dyspnoea, ($P<0.001$), noisy breathing 2.1 times, and chest depression 2.9 times more common in children with RSLT than in children with PSLT. The duration of laryngeal stenosis was 88 (57.5%) up to 1 day in PSLT, up to 3 days - 51 (33.6%), over 3 days - 15 (9.8%); with RSLT correspondingly 50 (41%), 56 (45.9%), 16 (13.1%).

In assessing the severity of OSLT by degree, we considered three components:

- presence of symptoms of laryngitis in the form of a change in voice timbre (hoarseness or hoarseness) and cough (coarse "barking" or coarse wet);
- symptoms of stenosis: inspiration dyspnoea, noisy breathing, sunken chest wall (jugular fossae, subclavian fossae, intercostal spaces and epigastric region);
- symptoms of respiratory depression: inspiration dyspnoea, pallor, cyanosis of the nasolabial triangle, acrocyanosis, general cyanosis, tachycardia, involvement of accessory muscles in breathing (inflated wings of the nose, tension of neck muscles, participation of intercostal muscles in the breathing act). Allergic diseases in surveyed children with OSLT

Table 2

| Diseases | Group 1 (n=122) | | Group 2 (n=153) | |
|-------------------|-----------------|-----|-----------------|---------|
| | abs | % | abs | % |
| Rhinitis | 8 | 6,6 | 39 | 25,5*** |
| Conjunctivitis | 3 | 2,5 | 8 | 5,2 |
| Food allergy | 7 | 5,7 | 37 | 24,2*** |
| Medical allergy | 8 | 6,6 | 29 | 19,0** |
| Pollinosis | 4 | 3,3 | 9 | 5,9 |
| Atopic dermatitis | 6 | 4,9 | 21 | 13,7** |
| Urticaria | 5 | 4,1 | 16 | 10,5* |
| Quincke's oedema | 0 | 0 | 3 | 2,0 |

Note: * - differences from group 1 are significant (* - $P<0.05$, ** - $P<0.01$, *** - $P<0.001$)

The history of children with recurrent laryngotracheitis showed that the disease occurred against an unfavourable allergic background in 94.8% of cases. In children with acute laryngotracheitis, only 33.6% of patients had a history of allergy (Table 2).

Allergic diseases and reactions such as urticaria (16 (10.5%) ($P<0.001$)) were significantly more common in patients with recurrent OSLT Atopic dermatitis (21 (13.7%) ($P<0.01$)), drug allergy (29 (19.0%) ($P<0.01$)), allergic rhinitis (39 (25.5%) ($P<0.001$)), food allergy (37 (24.2%) ($P<0.001$)), atopic dermatitis (21 (13.7%) ($P<0.01$)). This suggests a large role for the allergic component in the pathogenesis of the disease.

Conclusions: Thus, analysis of the premorbid background of children suffering from OSLT reveals the main risk factors for the development of the disease: repeated acute respiratory infections, allergic diseases, and a history of hereditary and obstetric disorders.

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