DIAGNOSIS AND TREATMENT OF CHILDREN WITH ORGANIC FOREIGN BODIES IN THE RESPIRATORY TRACT

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Foreign bodies (FB) of the trachea and bronchi are a common emergency pathology in which an acute respiratory disease occurs that requires emergency medical intervention. Aspiration of FB in the vast majority of cases occurs in childhood (66.1–97.2%). Of these, the largest group consists of children 1-3 years of age. When dividing children by gender, most authors reveal a predominance of boys.

Key words: *respiratory tract, aspiration, organic foreign bodies, video bronchoscopy, purulent endobronchitis.*

Abstract. *Foreign bodies (FB) of the trachea and bronchi are a frequent emergency pathology in which an acute respiratory disease appears that requires urgent medical intervention. Aspiration of FB in the overwhelming majority of cases occurs in childhood (66.1–97.2%). Of these, the largest group is children of 1-3 years of age.*

Organic FB of the airways, being radiopaque, is more difficult to diagnose and can remain in the bronchi for a long time. Diagnosis of this pathology is a difficult task and often a correct, carefully collected anamnesis is of great importance. There are no specific clinical symptoms that allow us to talk with a high probability of aspiration of a foreign object. Often, the only way to establish the correct diagnosis is diagnostic bronchoscopy. Until now, doctors do not have a consensus on the tactics of treating children with airway FB and their complications.

In the overwhelming majority of cases, aspiration of FB occurs in childhood (66.1–97.2%), as evidenced by the data of numerous studies [2, 5]. Among patients with airway IT, the majority are children aged 1 to 5 years [5, 8]. Of these, a large group is made up of children of 1-3 years of age. At this age, children actively learn about the world around them and put everything that falls into their hands into the oral cavity. And also, at this age, they learn to chew and swallow solid foods, based on personal feelings.

When dividing children by gender, most authors reveal a predominance of boys [5, 8, 11]. Other researchers talk about the predominance of girls [8, 12, 47] or approximately the same frequency of boys and girls with airway FB[11].

Objective. To analyze the results of treatment of aspiration of organic foreign bodies of the respiratory tract.

Materials and methods of research. To study the epidemiology of respiratory tract IT, a review of the prevalence of the studied nosology in the population of children and adolescents for the period 2002-2023 in the structure of hospitalized in the specialized pediatric surgical clinic of Samarkand State Medical University with a capacity of 200 beds, which provides round-the-clock (24/7) specialized high-tech care to the pediatric population, was carried out.

The study of the structure and prevalence of airway FB was carried out among patients admitted to the Department of Thoracic Surgery with a capacity of 30 beds.

For the period from January 2002 to June 2023, 1355 children with suspected FB of the respiratory tract were treated and examined in the Department of Thoracic Surgery of the 2nd clinic of SamSMU for inpatient treatment and examination.

Among 1355 patients who were hospitalized with a diagnosis of airway FB , 407 (30.0%) excluded this disease, and 948 (70.0%) had a confirmed diagnosis.

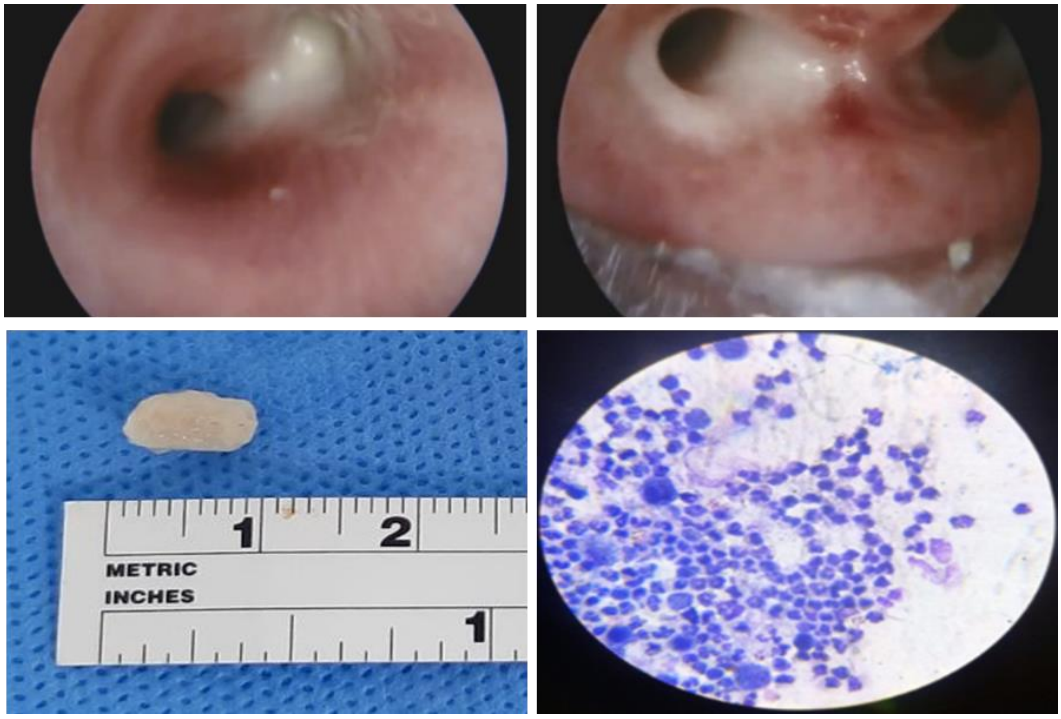
Table 1

Duration of presence of aspirated FB in the airway

Duration of FB aspiration	**Organic FB**	**Inorganic FB**	**Total**
Up to a day	286 (36,9%)	69 (40,1%)	**355** (37,5%)
1-2 days	87 (11,2%)	24 (13,9%)	111 (11,7%)
3-5 days	132 (17,0%)	25 (14,5%)	157 (16,6%)
6-10 days	96 (12,4%)	19 (11,0%)	115 (12,1%)
11-14 days	25 (3,2%)	4 (2,3%)	29 (3,1%)
15-29 days	48 (6,2%)	12 (7,0%)	60 (6,3%)
1 to 3 months	87 (11,2%)	12 (7,0%)	99 (10,4%)
3-12 months	12 (1,5%)	6 (3,5%)	18 (1,9%)
More than 1 year	3 (0,4%)	1 (0,6%)	4 (0,4%)
Total	776 (100%)	172 (100%)	948 (100%)

χ^2=8,463; critical value χ^2=15,507 (p<0,05); p>0,05

Table 1 shows the data depending on the type of foreign body of the respiratory tract. Organic FB of the respiratory tract was observed 4.5 times more often in 776 (81.9%) patients, inorganic – in 172 (18.1%) patients. The maximum limitation period is 11 years. The most common organic respiratory ITs were various types of seeds (sunflower, etc.), as well as various nuts, the latter accounted for more than half of the observations (58.1%).



Rice. 1. Purulent endobronchitis. Romanovsky-Giemsa coloring.

Patient: M.A. Age: 1 year 4 months. Exogenous organic, X-ray contrast single irregularly shaped foreign body of the right main bronchus (piece of peanut nucleolus) 3 days ago, complicated by bilateral limited purulent endobronchitis of both main bronchi.

Organic FB was present in 776 (81.9%) children, inorganic – in 172 (18.1%). The most common organic foreign bodies were various seeds and nuts, which accounted for 58.1% of cases. Among inorganic foreign bodies, plastic objects were the most widespread - 103 (59.8%) cases.

The main localization of aspirated foreign bodies in children is the bronchi (85.5% of cases), much less often they remain in the larynx 34 (3.6%) and in the trachea 61 (6.5%). In the bronchi of the right lung, foreign bodies were found more often 486 (51.3%) than in the bronchi of the left lung 284 (30.0%). In both main bronchi, FB was present in 41 (4.3%) patients. In 56 (12.8%) patients, simultaneous aspiration to different parts of the tracheobronchial tree was noted, which significantly worsened the condition of the children and their treatment.

Most of the aspirated organic foreign bodies of the respiratory tract were chewed - 439 (57.7%), that is, multiple foreign bodies entered the respiratory

tract.

Table 2

Types of aspirated foreign bodies by origin (n=948)

№	Organic FB n=776			
1	Peanut pieces	166 (21,4%)	Kurut, pieces	2 (0,3%)
2	Walnut pieces	135 (17,4%)	Quince Pieces	1 (0,1%)
3	Pulp and seeds of watermelon	126 (16,2%)	Melon seeds	1 (0,1%)
4	Sunflower seeds and their shells	70 (9,0%)	Cherry pit	1 (0,1%)
5	Nucleolus pineapple	51 (6,6%)	Cucumber seeds	1 (0,1%)
6	Food Fragments	36 (4,6%)	Slice of pasta	1 (0,1%)
7	Almonds, pieces and their shells	31 (4,0%)	A piece of hawthorn	1 (0,1%)
8	Carrot slices	25 (3,2%)	Cotton seed	1 (0,1%)
9	Pea	23 (3,0%)	A piece of wood, a bud	1 (0,1%)
10	Corn kernel	14 (1,8%)	A piece of pear	1 (0,1%)
11	Apple slices	12 (1,6%)	Rice	1 (0,1%)
12	Pumpkin seeds	11 (1,5%)	Raisin	1 (0,1%)
13	Bean	11 (1,5%)	A piece of radish	1 (0,1%)

14	Persimmon stone	9 (1,2%)	A piece of potato	1 (0,1%)
15	Bagel, bread (crumb)	7 (0,9%)	Tooth	1 (0,1%)
16	Pistachio kernel	7 (0,9%)	Pomegranate Seed	1 (0,1%)
17	Spikelet (wild barley)	7 (0,9%)	Kurut, pieces	2 (0,3%)
18	Chicken bone	6 (0,8%)	Quince Pieces	1 (0,1%)
19	Fishbone	3 (0,4%)	Melon seeds	1 (0,1%)
20	Garlic clove	3 (0,4%)	Cherry pit	1 (0,1%)
21	Eggshell	2 (0,3%)	Cucumber seeds	1 (0,1%)
22	A piece of meat	2 (0,3%)	Slice of pasta	1 (0,1%)
23	Fragment of a meat bone	2 (0,3%)	A piece of hawthorn	1 (0,1%)

The main causal factors for misdiagnoses of airway FB and delayed hospitalization are: anamnestic failure to specify or missed aspiration time, difficulties in establishing a diagnosis in an asymptomatic course, erroneous diagnoses established by doctors, as well as late recourse by parents for medical advice and help. It is not uncommon for parents to make independent attempts to extract FB with their fingers, or turn to healers, as a result, significant traumatization of the larynx, pharynx and entrance to the esophagus is caused. The latter actions are often and stubbornly hidden from doctors. Most authors [2,

5, 6, 9] consider diagnostic errors to be the main cause of late hospitalization - from 50.8% to 88.0%.

Many researchers talk about different numbers of patients with FB in the respiratory tract hospitalized in clinics on the first day from the moment of ingestion - 15.5-53.4% [6]. The percentage of late hospitalization (after 7 days) also varies and reaches a large percentage of cases - from 13.1% to 76.3% [6, 20]. These figures depend on medical experience, high-quality provision of care at the place of application, as well as on the level of sanitary literacy of the population.

Many researchers [5, 17] noted the dependence of morbidity on seasonality, recording outbreaks of hospitalizations of patients with aspiration of FB in the respiratory tract in July and September. Many researchers [6, 21] have not found a dependence on the season, arguing this by the increase in the range of the above products in all seasons during the year and insufficient sanitary and educational work with the population.

The symptom complex of clinical manifestations of aspiration of FB in the respiratory tract depends on various factors: the localization of FB and its nature, the features of the location of the latter and fixation, the duration of the disease, as well as the age of the patient [5, 9].

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Once aspirated FB is diagnosed, diagnostic bronchoscopy becomes therapeutic, and the FBs are extracted using different types of forceps (W, rat teeth, and conventional biopsy) through the fiberscope biopsy channel. It is customary to use rigid bronchoscopes under general anesthesia with controlled breathing [3, 16], as well as under the control of optical telescopes during and after surgery.

Indications for fibrobronchoscopy in children with aspiration of the bronchopulmonary FB system are as follows:FB, invisible during examination with a rigid bronchoscope [12].

Thus, foreign bodies of the trachea and bronchi are a frequent emergency pathology, in which an acute respiratory disease appears that requires urgent medical intervention. In the overwhelming majority of cases, aspiration of FB occurs in childhood (66.1–97.2%). Of these, the largest group is made up of children of 1-3 years of age. When dividing children by gender, most authors reveal the predominance of boys.

Conclusion. Most of the patients with airway FB are young children (1-3 years) of life (60.4%). Male children (63.5%), from rural areas (82.3%) predominate, in whom organic foreign bodies have entered the respiratory tract (81.9%), of which chewed multiple FBs are more common - 57.7%. Over the 11-year period, there is no downward trend in morbidity. hospitalized in the Department of Thoracic Surgery, is 6.6%.

Organic FB of the airways, being radiopaque, is more difficult to diagnose and can remain in the bronchi for a long time. Diagnosis of this pathology is a difficult task and often a correct, carefully collected anamnesis is of great importance. There are no specific clinical symptoms that allow us to talk with a high probability of aspiration of a foreign object. Often, the only way to establish the correct diagnosis is diagnostic bronchoscopy. Until now, doctors do not have a consensus on the tactics of treating children with airway FB and their complications.

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