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Improving Conservative Treatment of Laryngotracheitis in Children

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Abstract: Laryngotracheitis is an inflammatory lesion of the mucous membrane of the larynx and trachea, which leads to swelling, spasm of the upper respiratory tract, voice impairment, and a rough "ringing" cough. This disease develops independently or is a complication of other upper respiratory tract infections: ARVI, measles, whooping cough, scarlet fever, etc. In severe cases of laryngotracheitis, the patient may need emergency care.

Key points: Laryngotracheitis symptoms, treatment, pathogenesis, diagnosis, prevention.

In the medical literature, you can find other names for this disease - subglottic laryngitis pseudocroup.

- ***Classification of laryngotracheitis***

Depending on the causes of development, different types of acute laryngotracheitis are distinguished:

Acute infectious.

It is triggered by viral and bacterial infections.

Allergic.

It develops with isolated allergic swelling of the larynx or against the background of angioedema.

Traumatic.

It occurs due to foreign bodies in the respiratory tract, burns (thermal, chemical, electrical and radiation), household and surgical injuries.

According to the nature of the course, two forms of laryngotracheitis are distinguished:

Bitter.

It appears after the underlying cause is treated, lasts up to several weeks, and ends with recovery.

Chronic.

It develops due to improper treatment of the acute process and occurs over a long period of time with periods of remission and exacerbation.

Depending on the nature of the damage to the tissues of the larynx and trachea, several types of chronic laryngotracheitis are distinguished:

a. catarrhal;

b. hyperplastic;

c. atrophic;

d. swollen polyposis (Reinke-Hajek disease).

With chronic hyperplastic inflammation of the larynx and trachea, damage to the respiratory tract can be limited or diffuse.

Some experts also distinguish laryngeal pachyderma as a separate form of chronic laryngotracheitis.

Etiology of laryngotracheitis

The most common cause of this disease is respiratory viruses. In many cases, bacteria join already during the course of the disease and change its course.

The causative agent of acute laryngotracheitis can be:

a. adenoviruses;

b. influenza viruses;

c. mycoplasma;

d. parainfluenza viruses;

bacteria: pneumococci, beta-hemolytic streptococci, staphylococci, pertussis bacillus, parapertussis bacillus, chlamydia, pallidum treponema, mycobacterium tuberculosis;

pathogens of measles, rubella, chickenpox or mixed viral infection;

herpes viruses.

Most often, the causes of laryngotracheitis are associated with allergic and traumatic effects.

The following factors contribute to the development of this disease:

a. Choanal atresia;

b. overweight;

c. adenoids;

d. tendency to allergies;

e. rhinitis and sinusitis;

f. hypothermia;

g. the period after the planned vaccination;

h. smoking and alcohol abuse;

i. excessive straining of the voice, hysterical screaming or loud singing;

j. very hot or cold, dry or humid air;

k. work in hazardous production;

l. gas and dust levels in the air;

m. habit of breathing through the mouth;

n. deviation of the nasal septum;

o. congestive processes in the respiratory tract with bronchial asthma, bronchiectasis, pneumosclerosis, emphysema;

p. early childhood (anatomical features of the structure of the larynx up to 6 years of age);

q. exacerbation of chronic diseases: diabetes mellitus, ischemic heart disease, rheumatism, gastritis, hepatitis, liver cirrhosis, glomerulonephritis, pyelonephritis, tuberculosis;

r. intracranial birth injury.

Laryngotracheitis is most often diagnosed in children. Usually their development is provoked by a combination of the main cause and a predisposing factor. Acute processes are often aggravated by cold weather in the autumn-winter period.

a. tracheitis

b. blood test for cough

c. Ways of getting laryngotracheitis

Most often, infection with viral and bacterial pathogens occurs through airborne droplets, less often in household settings. Infection occurs after harmful bacteria enter the respiratory tract or mucous membranes of the eyes.

Pathogenesis of laryngotracheitis

After an infection, viruses or bacteria enter the mucous membranes and cause them to become inflamed. They become red and swollen.

Damage to the mucous membrane of the throat causes irritation of the peri-ligamentous tissues. This puts pressure on the larynx and interferes with the function of the vocal cords.

Inflammation of the trachea increases the secretion of the glands and a mucopurulent discharge occurs. This viscous secretion provokes coughing, and a significant inflammatory process can lead to spasms of the walls and the appearance of stenotic breathing and hysterical coughing.

With the development of chronic inflammation, the mucous membrane may change depending on the form of the disease:

With a catarrhal course, it thickens due to infiltration, becomes red and has a slightly bluish tint. The submucosal vessels dilate, and due to increased vascular permeability, obvious hemorrhages form in the submucosal layer.

With hypertrophic changes, it thickens and connective tissue elements are formed in the submucosal layer. The internal muscles of the larynx, vocal cords and trachea are infiltrated. "Singing nodules" may appear in the ligaments. With complications, cysts, contact ulcers and laryngeal ventricle prolapse are formed.

In the atrophic form of inflammation, the normal mucous epithelium is replaced by keratinizing epithelium. The submucosal layer becomes sclerotic, the intralaryngeal muscles and mucous glands atrophy. The vocal cords become thin, and the drying secretion of the glands covers the walls of the larynx and trachea with a crust.

With chronic laryngotracheitis with edematous polyps, hemorrhages appear on the vocal cords, then transparent, gelatinous polyp-like formations of gray-pink or gray color appear. Later they become cloudy and cloudy. The voice of such patients becomes rough and hoarse, breathing becomes difficult. If left untreated, a false-croaking voice appears and malignant tumors may develop.

With laryngeal pachyderma, one or more formations with a warty structure of white-gray, pink or bright yellow color appear on the vocal cords. The voice becomes hoarse or disappears completely. Pachyderma can be malignant.

Clinical manifestations of laryngotracheitis

The nature and severity of symptoms of laryngotracheitis depend on the form of the disease.

Symptoms of acute laryngotracheitis

Typically, symptoms of laryngotracheitis appear against the background of an existing viral infection of the respiratory tract: fever, nasal congestion and runny nose, sore throat, discomfort when swallowing. Sometimes they appear after the temperature drops.

In acute inflammation, the patient will experience the following symptoms of laryngotracheitis:

a. chest pain when coughing;

b. dry cough (sometimes "whooping") in the morning and evening, with attacks that are more pronounced after deep breathing;

c. discomfort in the larynx (dryness, burning, tickling, the presence of a foreign body);

d. hoarseness and stifling of the voice (sometimes until it disappears completely);

e. signs of intoxication: fever up to 38-39 ° C, general weakness, headache, etc.

Over time, the cough becomes wet, accompanied by the release of a small amount of viscous mucous sputum. As the inflammation progresses, it becomes more abundant and liquid, and may contain purulent impurities. In severe cases, an attack of false croup develops.

Patients develop painless and enlarged lymph nodes in the cervical region. Noisy breathing is detected on auscultation. In the area of the bifurcation of the trachea, you can sometimes hear dry and moist rales.

Symptoms of chronic laryngotracheitis

With chronic inflammation, patients complain of frequent and persistent cough, their voice changes, and discomfort appears in the larynx and behind the sternum. Dysphonia can be mild, manifesting itself in the form of hoarseness or constant choking in the morning and evening. It is aggravated by adverse external factors (cold or dry air, dust, etc.), vocal stress, hormonal changes (menopause, onset of menstruation, pregnancy), or exacerbation of chronic inflammation.

In some professions, even minor dysphonia can lead to a violation of the psycho-emotional state and be accompanied by sleep disorders, neurasthenia or depression. Long-term course of the disease contributes to complications leading to complete loss of voice and the appearance of benign or malignant neoplasms.

With exacerbation of chronic laryngotracheitis, the symptoms of the disease are similar to the acute form, but less pronounced. The temperature rises to a low-grade level and lasts for the first 3-4 days. Exacerbation of the disease occurs especially in autumn and winter.

Features of laryngotracheitis in children

Acute laryngotracheitis most often develops in children. Due to the structure of the larynx, the disease occurs before the age of 6. Inflammation of the larynx trachea is often complicated by stenosis and obstruction of the airways.

Treatment of laryngotracheitis in a child

Severe obstruction occurs in approximately 20-40% of children. It is caused by the accumulation of phlegm in the laryngeal cavity, which provokes reflex spasm of the laryngeal muscles. Previously, this condition was called "pseudocroup", but now the term "acute stenosing laryngotracheitis" is used.

The development of this condition forces parents to seek emergency medical attention, as it causes frightening symptoms when it occurs:

a. feeling of lack of air;

b. difficulty breathing;

c. expansion of the nasal wings during breathing;

d. wheezing;

e. severe restlessness or lethargy;

f. discoloration of the nasolabial triangle, ears, and tip of the nose (sometimes a bluish marbling of the skin appears);

g. participation in breathing of auxiliary muscles (jugular and supraclavicular recesses, retraction of intercostal spaces);

h. attacks of unproductive dry and rough cough.

These symptoms only occur when the child is lying down. They are weakened or disappear when the child is sitting or standing. In severe cases, there is confusion and shallow breathing.

If not treated promptly, the obstructive symptoms that accompany croup can lead to asphyxia. Breathing becomes shallow and irregular, consciousness is absent, and the pulse is difficult to feel. Convulsions are possible.

Complications of laryngotracheitis

Lack of treatment and other unfavorable factors can lead to complications of laryngotracheitis, such as:

a. Attack of false croup

b. Tracheobronchitis

c. Bronchiolitis (children)

d. Zatiljam

e. Dysphonia

f. Contact ulcer of the larynx

g. Laryngeal ventricle prolapse

h. Laryngeal cancer

i. Benign neoplasms of the larynx

First aid for laryngotracheitis

If an attack of laryngeal stenosis develops, you should immediately call an ambulance. To provide first aid for laryngotracheitis, you need:

a. Put vasoconstrictor drops in your nose.

b. Take an antipyretic (if necessary).

c. Open the window to let in cool air and dress the patient.

If the child does not have allergies, you can take a hot bath with mustard for the feet or put mustard plasters on the calf muscles. Children who are prone to allergies should not have mustard plasters or mustard baths to prevent swelling.

Take an antihistamine. For faster action, you should grind the tablet into a powder.

Do inhalation with a soda solution. If you have a nebulizer, you can inhale an antihistamine before the doctors arrive (the exact dosage should be checked with the operator who takes the call).

Give warm drinks (preferably diluted with soda milk or non-carbonated alkaline mineral water).

The need for hospitalization during an attack is determined by the doctor.

Diagnosis of laryngotracheitis

If you suspect the development of laryngotracheitis, you should contact your pediatrician, therapist or otolaryngologist.

Various studies can be performed to clarify the diagnosis:

a. ELISA;

b. REEF;

c. PCR tests;

d. computed tomography of the larynx;

e. endoscopic biopsy;

f. chest X-ray;

g. Sputum microscopy in AFB;

h. microlaryngoscopy (sometimes with biopsy);

i. bacteriological culture of swabs from the throat and nose or sputum.

The examination plan is individual for each patient. If necessary, consultations with a phthisiatrician, venereologist or oncologist are prescribed.

The obtained research results will help in the differential diagnosis of laryngotracheitis with a foreign body in the respiratory tract, bronchial asthma, diphtheria, pneumonia, retropharyngeal abscess, papillomatosis, and other neoplasms of the larynx.

Treatment of laryngotracheitis

If there is no risk of complications, treatment is carried out on an outpatient basis.

All patients with acute laryngotracheitis are recommended to drink plenty of warm fluids and stay in a room with moderately cool and humidified air. You should talk less and limit physical activity. The menu should include more fortified foods and light dishes, and too cold or hot, salty, sour or spicy dishes should be excluded.

To eliminate the causative agent of the disease, antiviral drugs or antibiotics are prescribed. Symptomatic treatment is carried out with the help of antipyretic, antitussive, mucolytic and antihistamine drugs. It can be supplemented with physiotherapeutic procedures: alkali and oil inhalations, inhalation of drugs through a nebulizer, electrophoresis. After consulting a doctor, decoctions and infusions of medicinal herbs with anti-inflammatory, antiseptic, expectorant and emollient properties can be used as an adjunct to the main therapy. They can be taken orally or as a gargle.

The following are prescribed for the treatment of chronic laryngotracheitis:

a. immunomodulatory drugs;

b. ascorbic acid;

c. multivitamin complexes;

d. physiotherapeutic procedures: massage, inhalations, breathing exercises, UHF, inductothermy, electrophoresis.

e. In addition to exacerbation of the disease, treatment in a sanatorium-resort is recommended.

For complex chronic forms of the disease, surgical treatment is prescribed. This can be done by performing operations to eliminate laryngeal ventricle prolapse or to remove excess tissue of the larynx and vocal cords, cysts using minimally invasive endoscopic methods and microsurgical methods.

Prevention of laryngotracheitis

To prevent laryngotracheitis, you should:

a. breathing through the nose;

b. compliance with hygiene rules;

c. timely vaccination;

d. eat right;

e. dress according to the weather;

f. engage in physical education and training;

g. relieve severe stress on the vocal cords;

h. timely treatment of chronic diseases.

i. There are no special measures to prevent this disease.

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