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**LIST OF ABBREVIATIONS**

- ▲ — brand or generic names of the drugs
- AIDS — acquired immunodeficiency syndrome
- ADS — antitetanus serum
- ALT — alanine aminotransferase
- AST — aspartate aminotransferase
- ANS — autonomic nervous system
- APV — artificial pulmonary ventilation
- ARF — acute renal failure
- ARI — acute respiratory infections
- ARVI — acute respiratory viral infection
- AST — aspartate aminotransferase
- ATA — acidum adenosintriphosphoricum
- CBC — complete blood count
- CFT — complement fixation test
- CMV — cytomegalovirus
- CNS — central nervous system
- CSF — cerebrospinal fluid
- CVS — cardiovascular system
- DHGP — direct hemagglutination reaction
- DIC — disseminated intravascular coagulation
- EEG — electroencephalogram
- ESR — erythrocyte sedimentation rate
- FRI — food toxic infection
- GCS — glucocorticosteroids
- HCV — hepatitis C
- HGIIR — hemagglutination inhibition reaction
- HIV — human immunodeficiency virus
- IEE — immune—enzyme analysis
- IFA — immuno-fluorescent assay
- IHGF — indirect hemagglutination test
- IFT — immuno-fluorescence test
- IVFD — intravenously by drip
- I.M. — intramuscular
- IV. — intravenous
- HGIIR — hemagglutination-inhibition reaction
- HIV — human immunodeficiency virus
- PCR — polymerase chain reaction
- PHT — passive hemagglutination test
- RSI — respiratory syncytial infection
- RNA — ribonucleic acid
- RSI — respiratory syncytial virus
- t — body temperature
- URTC — upper respiratory tract catarrh
- US — ultrasound
### STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF INFLUENZA

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<thead>
<tr>
<th>Yes</th>
<th>Intoxication. CNS involvement</th>
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<td>Acute onset of the disease with a fast rise, headache, vomit. Resistant red dermatographism, herpetic eruption on the lips. Patients can exactly indicate the time of the beginning of the disease. Children suffer from intensive headache, trashing around in their bed and broken sleep. The pain gets more intensive when turning the head, with sound and light irritants. From the first day there is repeated vomiting, not related to food intake. Children at early age have clonic-tonic convulsions frequently. Positive meningeal symptoms. In CBC: eosinophilia, neutrophilic leukocytosis, elevated ESR. The nature of the cerebrospinal fluid: turbid, purulent, thousandth pleocytosis, neutrophilic character. Protein ++++. Low sugar and chloride levels</td>
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<th>Meningococcal meningitis</th>
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**Meningococcal meningitis**

The presence of purulent center (otitis, sinusitis, pneumonia) often precedes development of the disease. Sudden onset, anxiety, acute headache, hyperesthesia, repeated vomiting. Early meningeal symptoms. In young children — bulging of fontanelle, separation of sutures, increased sizes of the skull. The limb paresis, static locomotor ataxia, cranial nerve dysfunction appear. Patients are pale and cyanotic, with intensive dyspnea. Hepatosplenomegaly. Frequent development of edema — brain edema, which may cause death in the first 3 days of the illness. In CBC: leukocytosis, with a sharp shift of neutrophils, high ESR. Cerebrospinal fluid analysis: turbid, purulent, greenish-gray fluid, neutrophil cell count — thousandths, a significant increase of protein level. Bacteriological test of CSF reveals lancet-shaped diplococci located extracellularly.

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Symptoms of nervous system impairment usually follow the inflammation of salivary glands, but both disorders can also occur simultaneously. Acute development of the disease with chill, headache, vomiting, weakness and myalgia. Meningeal symptoms are expressed moderately. Clear cerebrospinal fluid flows under high pressure, normal or slightly increased protein levels, lymphocyte cell count hundredths. Chloride and sugar concentrations are not changed. Lumbar puncture makes patient feel better.

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**Influenza**

Acute disease onset with high fever, chills, dizziness, weakness, fatigue, muscle and joint pain. There is pain in the temples, forehead, brow, eye area. There are delusions, hallucinations, nausea, vomiting related to food intake, medication, water. Light catarrhal conditions of the upper respiratory tract. Granulosity of posterior pharyngeal wall. X-ray pattern of segmental pulmonary edema. No clinical signs of edema. In severe cases there are convulsions, transient loss of consciousness, stiff neck. It is important to take into account the epidemiological situation. Diagnostic testing: leukopenia with lymphocytosis, liquor without pathological changes — the meningism syndrome.
### Intoxication. CNS involvement

<table>
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<tr>
<th>No</th>
<th>Adenoviral infection</th>
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<td>Fever syndrome, catarrh of the upper respiratory tract: profuse muco-purulent nasal discharge, mild hyperemia of posterior pharyngeal wall. Specific eye disease — purulent conjunctivitis. There is a hyperplasia of oropharyngeal lymphoid formations and lymphadenopathy of the neck. Normal CBC</td>
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| Acute onset with moderate symptoms of intoxication. Catarrhal phenomena occur from the first day of illness. There is a hard, rough, dry cough, sore throat, runny nose, nasal congestion. There is a nasal discharge initially slimy, then muco-purulent. There is swelling and redness of the mucous membrane arches, soft palate, posterior pharyngeal wall. Often the first manifestation of the disease is «grits» syndrome, usually at night the child suddenly wakes up from a rough barking cough. Hoarseness, noisy breathing quickly join, laryngeal stenosis develops. Stenosis severity rarely reaches 2\textsuperscript{nd} degree |

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<th>Parainfluenza</th>
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<tr>
<td>Expressed catarrhal period: purulent discharge from the nose, conjunctivitis. Dry, haunting cough. Appearance of Koplik spots. Three-stage rash: 1) maculopapular rash; 2) period of pigmentation; 3) branny olesquamation. Leukopenia in CBC</td>
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<tr>
<th>Measles</th>
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<td>The main symptoms are: prolonged fever, headache, specific intoxication — stupor, hallucinations, delirium, loss of consciousness, pale and dry skin. There is a roseolous rash on the skin of the anterior abdominal wall. Tongue is covered with thick brown in the center, the edges are clean, red. There are imprints of the teeth. Diarrheal syndrome: «pea soup» feces up to 8—10 times a day. No nausea or vomiting. Hepatosplenomegaly. Positive Widal reaction</td>
</tr>
</tbody>
</table>

| Typhoid |
**DIAGNOSTIC ALGORITHM:**
**SEASONAL INFLUENZA (FLU)**

**AFFECTED ORGANS**

- Autonomic nervous system (ANS) and cardiovascular system (CVS)
- Central nervous system
- Lungs
- Nasopharynx

**SIGNS AND SYMPTOMS**

- Facial hyperemia, abdominal pain, fecal retention, nasal bleeding, hemorrhagic rash
- High fever, vomiting, headache, muscle pain, loss of consciousness, convulsions, meningism, weakness
- Dry rales, cyanosis
- Changed voice, rough cough, noisy breathing, retraction of compliant areas of the chest
- Pharyngeal erythema, rhinitis

**MAIN SYNDROMES**

- Appendicitis, mesenteric adenitis
- Toxic dysentery, meningococcal infection, meningococcal encephalitis, typhoid, parotic meningitis, meningitis of viral etiology
- Croupous pneumonia
- Diphtheritic croup, foreign body, croup by ARVI
- Adenoviral infection, prodrome of measles, parainfluenza
**STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF PARAINFLUENZA**

**Catarrhal syndrome. Intoxication. Croup syndrome**

- Acute onset of the disease with temperature rise up to 38–39 °C, slight weakness, deteriorating appetite, possible headache, rare muscle and joint pain. There are abundant serous discharge from the nose, which then become of mucopurulent character. Nasal mucosa and back of the throat is swollen, hyperemic, back of the throat is swollen, hyperemic, with hyperplastic follicles on the latter. There is a moist, often paroxysmal cough, the distinctive sign is catarrhal, follicular, membranous conjunctivitis.

**Adenoviral infection**

**Diphtheria of larynx (true group)**

- Gradual onset of the disease with a moderate rise, low intoxication, rough "rasping bark" and slight hoarseness. Further there is inspiratory dyspnea, noisy breathing, hoarse voice, to the degree of aphonia. During inhalation — retraction of compliant places in the chest.

**Pertussis**

- The disease begins gradually, with a dry cough, a slight rise in temperature, a slight rhinitis. Then within 1–2 weeks cough aggravates, it becomes obsessive, inspiratory whoops appear. During the spasmodic cough patient turns red, blue, the veins on his neck are swollen and his eyes become bloodshot, his head bulges out forward, tongue is put out maximally. The attack ends with discharge of viscous, sticky mucus and vomiting.

**Mucoviscidosis (pulmonary form)**

- The beginning is gradual with the development of chronic obstructive bronchitis. Coughing, taking pertussis-like character, bright, not very viscous mucus stands out, subsequently it becomes more viscous, mucopurulent. There is no hoarseness. Protracted bilateral pneumonia with abscess formation and bronchiectasis is typical. There is a symptom of respiratory and cardiovascular failure, developmental delay.

**Parainfluenza (false croup)**

- Acute onset, with a rise in temperature, the appearance of mild intoxication and catarrhal symptoms. The general condition suffers moderately. Sore throat, nasal congestion, nasal discharge is slimy, then slime-purulent. Contrasted with general health, usually at night, the baby suddenly wakes up from the rough, "barking" cough. Quickly hoarseness and noisy breathing join, larynx stenosis develops.
Catarrhal syndrome. Intoxication. Croup syndrome

The disease develops gradually, with edema of the loose subcutaneous fat — lips, neck, eyelids, etc. (Quincke’s edema), allergic urticaria — urticarial rash all over the body, itching. There is mucus discharge from the nose, cough with the discharge of viscous, tough mucus. There is a hoarseness at voice, pharyngeal edema

The disease develops gradually, with a dry non-productive cough, which then becomes wet with the discharge of the mucous or muco-purulent sputum. There is an elongated breath, difficult breathing, moderate intoxication and subfebrile temperature

The disease develops slowly. There is a chronic dry, hoarse cough, a change in voice, often inspiratory dyspnea with stridor

The disease begins with a cough that aggravates gradually, gains spasmodic character with reprises. There is no hoarseness. No high fever. Catarrhal symptoms are mild

Sudden severe hacking cough. Breath is dramatically difficult. Child gets pale, cyanotic, takes a forced attitude. Parents can accurately indicate the time of first symptoms emergence
PARAFLU

MAIN SYNDROMES
- Cataract of the upper respiratory tract
- Croup
- Asthmatic bronchitis

SIGNS AND SYMPTOMS
- Slight cough, slight nasal discharge, mild hyperemia of the fauces
- Sudden disease onset, barking cough, changed voice, stenosis, rapid elimination of stenosis
- Cough, inspiratory dyspnea, in the lungs; hard breathing and mixed rales

DIFFERENTIAL DIAGNOSIS
- Measles, influenza, adenoviral infection, RS-infection, rhinovirus infection, meningococcal nasopharyngitis, enteroviral infection
- Foreign body, diphtheria of larynx
- Pertussis, attack of bronchial asthma
DIAGNOSTIC CRITERIA
- Slight intoxication
- Slight cattarhal phenomena
- Virus isolation
- IFA positive results
- Serology: antibodies titer increased 4 times

COMPLICATIONS
- Pneumonia
- Otitis
- Sinusitis
- Croup
- Tonsillitis

TREATMENT
- Desensitizing, symptomatic, revulsive, inhalation, antispasmodic means, neurological agent, antibiotics for complications

PREVENTION
- Isolation of the patient, epidemiological actions in the spot, interferon
**STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF ADENOVIRUS INFECTION**

**Intoxication. Catarrhal syndrome**

- Gradual onset of the disease with subfebrile temperature. Clinical signs of croup: a rough barking cough, hoarseness, noisy breathing, stenosis of the larynx. Sore throat, rhinitis, stuffy nose. Swelling and hyperemia of the mucous oropharynx

**Paragrippe**

- The disease is called «infectious rhinitis». Stuffiness of the nose, shortness of breath and profuse nasal watery discharge. Headache in the nasal bridge, and aches all over the body. Herpetic eruptions on the lips and on the eye of the nose. Face is slightly pasty, excessive lacrimation, the sclera are injected. Discomfort in the throat and a little dry cough

**Rhinovirus infection**

- Increase of body temperature to 38.5–39 °C, catarrh of the upper respiratory tract. Hoarse voice, dry cough, haunting, disturbing the child. Evident bilateral conjunctivitis with bright hyperemia, conjunctival edema and discharge. Koplik spots. Erythema in the form of small pinkish-red spots on the soft and hard palate, 1–2 days before rash

**Measles, catarrhal period**

- Gradual onset of the disease with a rise of temperature to subfebrile level, rhinitis, loss of appetite, dry cough. There is a pale face, conjunctival hyperemia occasionally, injection of sclera vessels. There may be headache, dizziness, chills, insomnia, sweating, pain in the eyeballs, and sometimes abdominal pain, nausea, vomiting, hepatomegaly, lymphadenopathy. In the oropharynx: pharyngitis. Symptoms of bronchitis and croup are present

**Mycoplasma-infection**

- Acute onset with body temperature over 38 °C, which persists for a long time (sometimes up to 10 days or more). Conjunctivitis, lymphadenopathy. First, the defeat of one eye, then the second. Cough is wet, mild hyperemia of the pharynx and pharyngitis. There is hepatosplenomegaly. In CBC — moderate leukocytosis with neutrophilia, lymphopenia, slightly increased ESR

**Adenoviral infection**
Intoxication. Catarrhal syndrome

On the 4–5 days of illness maculopapular rash appears. The first elements of the rash appear as small pink spots behind the ears and on the bridge of the nose. By the end of the first days, rash covers the entire face, neck, chest, upper back. Staging of the rash is typical. Catarrhal symptoms disappear. Face is puffy, eyelids are thickened. The eyes are red, there is pus. There are abundant rashes everywhere on the skin.

«Typhoid status» (stupor, hallucinations, delusions). Symptoms of intoxication are maximal, evident. Skin is pale, dry, warm, face is puffy. There is a roseolous rash on the skin of stomach, sometimes on the chest and shoulders. Icteric stained of the skin of palms and feet (Filippovich symptom) is typical. There is a Padalka symptom, hepatosplenomegaly. In CBC: leukopenia, neutropenia, anezinofiliiya, lymphocytosis, elevated erythrocyte sedimentation rate.

Punctate macular rash covers the entire surface of the skin. There are mild catarrhal symptoms. There is a lymphadenopathy. In the blood: leukopenia, lymphocytosis, plasma cells. There is a peripheral lymph nodes enlargement, especially the occipital and back cervical. The rash is localized on extensor surfaces of the limbs around the joints, on the back and buttocks. After the elimination of the rash there is no signs of pigmentation or desquamation.

Herpesvirus

The main signs of the disease are mild sore throat, slight dry cough, runny nose (sometimes), hyperemia of the pharynx, enanthema. Then the bubbles → erosion → epithelization appear. By the end of the week enanthema and other manifestations of the disease completely disappear. There is a short duration of the course.

Bronchitis

There is a swelling of bronchial mucosa, obstruction, bronchospasm. Cough is dry at first, then it becomes wet with discharge of mucus. Moist, dry rales are auscultated (medium, rarely fine bubbling rales). Longer process of exhalation, difficulty of breath.
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF MYCOPLASMA INFECTION

Yes

Catarrhal symptoms. Intoxication.
Respiratory distress syndrome

Gradual onset of the disease with subfebrile fever. The main clinical signs are rhinitis, loss of appetite, dry cough, intoxication, pallor, conjunctival hyperemia, vascular injection of the sclera, pain in eyeballs. There is an abdominal pain, nausea, vomiting, hepatomegaly, lymphadenopathy. Symptoms of intoxication are little evident. Pharyngitis, catarrhal conditions, the symptoms of bronchitis and of croup (sometimes) develop. In the lungs there is a rough breath, inconstant scattered rales. In CBC: moderate leukocytosis, neutrocytosis, increased ESR.
Catarrhal symptoms. Intoxication. Respiratory distress syndrome

Bronchitis. Bronchitis with severe bronchial obstruction are typical. There is a catarrhal syndrome, hyperemia of the fauces, subfebrile or normal temperature. There is a mild headache, chilling, chest pain, dry cough, expiratory dyspnea, perioral cyanosis. Percussion: vesiculotympanic sound. Auscultation: crepitus fine bubbling rales

RS-infection

Evident catarrhal phenomena accompanying with large nasal discharge, hyperplasia of lymphoid structures of the stomatopharynx, conjunctivitis, swollen lymph nodes, lack of changes in the peripheral blood (normal CBC). There is a wet cough, throat congestion, intoxication, possible muscle and joint pain. In young children the diarrhea of enteritis character is possible

Adenoviral infection

The disease develops after contact with birds (pigeons, poultry). Acute onset with high fever and marked toxemia in the absence of catarrhal symptoms or upper respiratory tract pathology. The possibility of relapse and late myocarditis, hepatosplenomegaly, leukopenia, increased ESR, a longer course of disease. In addition, pneumonia signs can develop

Ornithosis

Acute onset with high fever, intoxication, flushing, injection of sclera vessels, puffy face, hyperemia of the tonsils and soft palate. Tracheitis, tracheobronchitis and focal pneumonia develop. There are pains in the eyeballs, muscle pain, abdominal pain, bowel disorders. Hallucinations, hepatosplenomegaly, prolonged fever, headache, insomnia and mental instability are possible. In severe cases: serous meningitis and encephalitis

Q fever

The disease proceeds with toxicosis. The onset is paroxysm with coughing up blood, shortness of breath, sharp chest pain. The diaphragmatic pleura gets involved in the process, with pain radiating to the abdomen. There is an impaired consciousness, delirious state. Neutrophilic leukocytosis and high ESR are typical changes in CBC. Prescription of antibiotics results in rapid improvement

Croupous pneumonia
DIAGNOSTIC ALGORITHM:
MYCOPLASMA INFECTION

Intrauterine fetal lesion, miscarriage, prematurity, generalized form of damage and central nervous system damage

Frequent urination with small portions, the symptoms of nephritis

Headaches, meningeval symptoms

Hepatomegaly

Swelling, tenderness, limitation of movement

Pain in the eyeballs, hyperemia of the conjunctiva, injection vessels of sclera, damage to the choroid

Intoxication, raising the temperature to febrile level, headache, sore throat, hyperemia of the throat, difficulty in nasal breathing. From 4–5 days scanty expectoration. There are sometimes the symptoms of croup. In the lungs, there is a hard breathing, in constant scattered dry rales. In pneumonia there are chest pains

ETIOLOGY

MECHANISM OF TRANSMISSION

AFFECTED ORGANS AND TISSUES

SIGNS AND SYMPTOMS
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF ENTEROVIRAL INFECTION

Enteroviral infection (Boston exanthema)

Yes

Exanthema syndrome. Intoxication

- Maculo-papular rash, first behind the ears, on the bridge of the nose with tendency to merger. On the 2nd day — on the body and hands. On the 3rd day — on the lower limbs. Staging of the rash, Koplik spots and conjunctivitis are typical

  Measles

  Macular large-spotted hemorrhagic rash appears late (on the 6–7th day of the disease). Localization — relatively uniformly covers the whole body. There is itching of the skin. After disappearance of the rash the scaling of the skin is observed, often there is dehydration. Kidneys are affected. Hepatosplenomegaly. CBC: leukocytosis, elevated ESR level

  Leptospirosis

  Maculo-papular rash, more abundant on the face with tendency to merger. After the disappearance of the rash pigmentation and skin exfoliation may develop. There is no staging of the rash. At the time of rash appearance and before there is no decrease and a new increase of body temperature. Tonsillitis is typical. CBC: atypical mononuclear cells. Lymphadenopathy develops

  Infectious mononucleosis

  Large-spotted macular rash, doesn’t merge, with no staging. With underlying fever there is swelling and puffiness of face, the muscle soreness and significant eosinophilia. From medical history: consumption of not enough processed meat 1–4 weeks before the disease

  Trichinosis

  Abundant macular rash on the extensor surfaces of limbs with concentration in the large joints, on the buttocks. There are single elements on the body, and there is no rash on the face. Hyperemia of face and neck, vascular injection of the sclera vessels, hepatosplenomegaly are typical

  Roseberg infectious erythema

  Acute onset of the disease. Macular rash with tendency to fusion, more intense on the trunk. There is no staging. After the disappearance of the rash and pigmentation, desquamation stay. Signs of serous meningitis and epidemic myalgia were found. The rash persists for 3–4 days

  Entero virus exanthema
<table>
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<th>Condition</th>
<th>Description</th>
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<tr>
<td>Exanthema syndrome, Intoxication</td>
<td>There is a punctate macular pinkish-red rash on the background of unchanged skin. Elements of the rash do not merge. The rash initially appears on the face, then within a few hours it spreads throughout the body. There is a localization on the extensor surfaces of the extremities, around the joints, back and buttocks. The rash lasts for 2–3 days. It disappears without pigmentation and desquamation.</td>
</tr>
<tr>
<td>No</td>
<td>Rubella, Pink lichen, Syphilis, Medicinal dermatitis</td>
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<tr>
<td>Normal or subfebrile temperature</td>
<td>There is at the beginning a pink-red oval spot on the chest with a small scaling in the center (&quot;parent plaque&quot;). Then there is macular rash on the whole body. There are oval spots up to 15 mm, with the peeling in the center, less intensive painted with bright red border on the periphery.</td>
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<td>The profuse rash, roseolic and papulous, evident on the trunk, prone to merger, is present for up to 2–3 weeks, then gradually pales and disappears. There is a presence of residual effects of primary syphilides (hard chancre).</td>
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<tr>
<td></td>
<td>Rash appears in the first days after taking the drugs. There is an itchy skin, swollen lymph nodes and mild eosinophilia. Rash merges, there is no staging.</td>
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STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF SPINAL FORM OF POLIOMYELITIS

Yes

Syndrome of flaccid paralysis.
Liquor syndrome

The paralyses are characterized by acute rapid development; with period of increasing intensity from a few hours to 1–2 days. Paralyses are asymmetric, even on the same limb; different muscle groups can have different degree of damage. There are no signs of sensitivity failure, pelvic or pyramidal disorders. Typical pain syndrome: spontaneous pain in the limbs and back, painful palpation of nerve trunks. The recovery period takes 1–3 years.
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<th>Syndrome of flaccid paralysis.</th>
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<tr>
<td>Liquor syndrome</td>
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- **Osteoarticular somatic pathology (bursitis, arthritis, low back pain, etc.)**
  - It is characterized by sparing gait. The child tries not to step on the affected leg, bends the knee and spares it. Passive motion and palpation are painful. Tendon reflexes and tone are preserved. Normal cerebrospinal liquid normal. In CBC: marked inflammatory changes.

- **Myelitis**
  - Central paralysis characterized by symmetry, conduction disturbances of sensitivity, high tonus, lively reflexes, pyramidal signs, rough and chronic pelvic disorders, trophic disorders with the bedsores formation.

- **Polyradiculoneuropathy**
  - It is often characterized by fever-free onset, with increasing, sometimes long and wavy, development of paralyses, which are symmetrical and predominantly distal. Polyneuritic and radicular type of sensitivity impairment. CSF: increased protein with normal cell count.

- **Polioencephalitis-like diseases (enteroviral infection)**
  - Fever, catarrhal signs, herpangina, myalgia syndrome, diarrhea, exanthema. Absent or smoothed meningencephalitic syndrome, limited character of paresis. The normal state is of the CSF. Complete recovery of paresis is in the first 2 months of the disease.
Poliomyelitis

Atypical

- Non paralytic
- Asymptomatic
- Obliterated

General infection (abortive)

- High fever, weakness, lethargy, headache, vomiting, poor appetite, hypersensitivity, pain in the extremities, sweating, thirst, tachycardia

Meningeal

- Cough, sore throat, abdominal pain, abdominal distension, abdominal tension, frequent liquid stool
- Occipital muscular rigidity, positive Kernig's and Brudzinskiy's symptoms

Polyradiculoneuritis

- Easy spinal paralysis
- Absence of cyclicity
- Normal temperature
- Favorable prognosis of diseases

Foreign body in airways

Normal temperature

Flu, ARVI

Intestinal infections

Meningitis of different etiologies

Virus isolation

Complement fixation test, neutralization reaction

Dynamics of liquorologic parameters

Hormones

Medicaments that increase reactivity, vitamins

Medicaments that improve nerve conduction

Miobiostimulators

Exercise therapy, massage, spa, physiotherapy
### STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF DISEASES ACCOMPANYING EXANThema

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Scarlet fever</th>
<th>Pseudotuberculosis</th>
<th>Measles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability prodrome</td>
<td>No</td>
<td>No</td>
<td>Yes, 3–4 days</td>
</tr>
<tr>
<td>Body temperature</td>
<td>Febrile, 3–5 days</td>
<td>Febrile, 4–6 days</td>
<td>Subfebrile 3–4 days, then febrile 3 days</td>
</tr>
<tr>
<td>Catarrh of the upper respiratory tract</td>
<td>Absent</td>
<td>Expressed</td>
<td>Expressed</td>
</tr>
<tr>
<td>Angina</td>
<td>Typical (catarrhal, facunlar, necrotic)</td>
<td>Absent</td>
<td>Catarhal</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>Absent</td>
<td>Typical</td>
<td>Typical</td>
</tr>
<tr>
<td>Intoxication</td>
<td>Moderately expressed, persists 3–5 days</td>
<td>Expressed, preserved more than 5 days</td>
<td>Moderate, persists 6–8 days</td>
</tr>
<tr>
<td>Time of the rash appearing</td>
<td>On the 1–2 day</td>
<td>The end of 1 week</td>
<td>On the 4–5 day</td>
</tr>
<tr>
<td>Duration of the rise of the rash</td>
<td>1 day</td>
<td>1–3 days</td>
<td>3 days stage: face—trunk—limb</td>
</tr>
<tr>
<td>Character of rash</td>
<td>Micropunctate rash, in concentratated places — petechial with hyperemia</td>
<td>Micropunctate rash with hyperemia</td>
<td>Maculopapular, prone to merger</td>
</tr>
<tr>
<td>The preferential localization of rash</td>
<td>Natural folds, the lateral surface of the trunk, flexion of the legs, lack of nasolabial triangle</td>
<td>Symptom of «glove», «socks», «hood»</td>
<td>Does not have special places of localization</td>
</tr>
<tr>
<td>Pigmentation</td>
<td>Absent</td>
<td>Absent</td>
<td>Present</td>
</tr>
<tr>
<td>Desquamation</td>
<td>Laminar scaling — on the palms, soles, scaly — on the trunk</td>
<td>Macroscaling — on the palms, soles, scaly — on body</td>
<td>Scaly</td>
</tr>
<tr>
<td>Enanthema</td>
<td>Micropunctate rash, pink in color, in soft and hard palate, appears simultaneously with exanthema</td>
<td>Meets not permanently</td>
<td>1. On the buccal mucosa, gums, lips — whitish papules: Belsky—Filatov—Koplik’s spot, appear on 2–3 days of illness and persist for 2–3 days. 2. On the mucosa of hard and soft palate — the pink spots appear simultaneously with exanthema</td>
</tr>
<tr>
<td>The state of tongue</td>
<td>Coated in the first 1–2 days, then the «strawberry»</td>
<td>Coated in the first 1–2 days then «strawberry»</td>
<td>No specific findings</td>
</tr>
<tr>
<td>Cardiovascular system and other organs impairment</td>
<td>1st week — the sympathetic phase: tachycardia, a tendency to the increased blood pressure; 2nd week — vagus phase: bradycardia, decreased blood pressure, enlarged heart borders</td>
<td>Organ failure, depending on the severity of the process</td>
<td>No specific findings</td>
</tr>
<tr>
<td>Lymphatic nodes</td>
<td>Increased submandibular lymph nodes</td>
<td>The increase in mesenteric lymph nodes</td>
<td>No specific findings</td>
</tr>
<tr>
<td>Rubella</td>
<td>Meningococcemia</td>
<td>Chicken pox</td>
<td></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------</td>
<td>---------------------------------</td>
<td></td>
</tr>
<tr>
<td>Absent or 1–2 days</td>
<td>No</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Normal or subfebrile 2–3 days</td>
<td>Febrile, 5–7 days</td>
<td>Subfebrile or febrile 3–5 days</td>
<td></td>
</tr>
<tr>
<td>poorly expressed</td>
<td>Absent</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Hardly ever</td>
<td>Absent</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Slightly expressed or absent</td>
<td>Severely expressed, persists 3–5 days</td>
<td>Slightly expressed, persists 3–5 days</td>
<td></td>
</tr>
<tr>
<td>On the 1–2 day</td>
<td>On the 1–2 day</td>
<td>On the 1st day</td>
<td></td>
</tr>
<tr>
<td>1–2 days</td>
<td>1–2 days</td>
<td>3–5 days, jerky</td>
<td></td>
</tr>
<tr>
<td>Predominantly spotted</td>
<td>Haemorrhagic, irregular shape, with central necrosis</td>
<td>«False» polymorphism: a spot—papule—vesicle—crust</td>
<td></td>
</tr>
<tr>
<td>The largest number in the buttocks, extensor surfaces of extremities</td>
<td>Mainly in the buttocks, legs</td>
<td>Does not have special localization places</td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>May be on the mucosa of the soft and hard palate, appear simultaneously with exanthema</td>
<td>Absent</td>
<td>Erosion on the oral mucosa</td>
<td></td>
</tr>
<tr>
<td>Without features</td>
<td>Normal</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>Without features</td>
<td>Frequent development of infective toxic shock, purulent meningitis</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>Increased occipital and back cervical lymph nodes</td>
<td>Normal</td>
<td>Normal</td>
<td></td>
</tr>
</tbody>
</table>
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF HERPETIC INFECTION (SIMPLE HERPES)

**Yes**

**Intoxication.**

**Syndrome of exanthema, enanthema**

There is a moderate intoxication. The rash appears on 2nd-3rd day. The rash is evenly dispersed throughout the body, abundant on the scalp, mucous membranes of the mouth, face, trunk, rarely — on the genitals. Rash with intervals between eruptions in 1–3 days. The «false» polymorphism — spots, papules, vesicles, crusts. After the peel dropout a light pigmentation is left. On the palms and soles there is no rash usually.

Chickenpox

Herpes zoster

Interviral infection (herpangina)

Adenoviral keratoconjunctivitis

Herpetic encephalitis

Herpetic infection (herpes simplex)

The disease is usually combined with other manifestations of enteroviral infection: serous meningitis, myalgia. It starts with acute headache, vomiting and abdominal pain. From the first days of illness at the mucosal palatal arches, tongue, soft and hard palate there are small red papules, 1–2 mm in diameter, rapidly turning into a soft vesicles — vesicles surrounded by a red aureole. After 1–2 days the vesicles burst, become eroded, covered with grayish-white bloom. There is a pain during swallowing and lymphadenopathy.

Symptoms of intoxication, evident by catarrhal signs of the upper respiratory tract infections. The leisure of the conjunctiva occurs in the first days of illness. Initially, one eye is affected, for 2–3 days the conjunctiva of another eye is involved. Burning, stinging, a foreign body sensation in eyes. The eyelids are swollen, hyperemic. Remarkably hyperemic conjunctiva, granular, edematous and sometimes thick grayish-white membrane are visible. The membrane does not spread beyond the conjunctiva.

Involvement of the central nervous system may be during the herpetic lesions of other sites (lips, mouth, eyes), but in young children primary generalized infection often occurs. The disease begins acutely, with a rise of t, severe headache, repeated vomiting. At the height of intoxication there may be convulsions, loss of consciousness, paresis, paralysis, impaired reflexes and sensitivity. There is a severe course of the disease, residual effects in the form of memory, taste and smell loss may be prolonged. In CSF: lymphocyte cell count, high protein content.

Acute onset with the rise to high numbers of t, chills, loss of appetite. Clinical manifestations are diverse: mucous membranes, skin, eyes, genitalia, central nervous system, visceral forms. A common forms feature is the appearance of grouped vesicles at the beginning with a clear, then with yellowish contents, which quickly burst to form erosions with remnants of exfoliated epithelium. After falling of the scabs small redness or light pigmentation remain for a while. Normal CBC, sometimes with leukopenia, relative lymphocytosis.
<table>
<thead>
<tr>
<th>Intoxication.</th>
<th>Syndrome of exanthema, enanthema</th>
</tr>
</thead>
<tbody>
<tr>
<td>The disease occurs as a result of exposure to various allergens. Often there is a history of new food consumption, where hypersensitivity is manifested (eggs, meat, citrus fruits, strawberries). There is a rash — urticaria, without a favorite location, very itchy. The rash may be pale or red, above the surface of the skin, disappear in a short time.</td>
<td>Urticaria</td>
</tr>
<tr>
<td>The disease occurs in older infants and young infants with known hypersensitivity to food allergens. Extremely itchy rash appears on the abdomen, back, legs. Rash is urticarial, sometimes vesicular. Highly pruritic dense bubbles are on the palms and especially soles. The rash never appears on the scalp.</td>
<td>Strep-miliary</td>
</tr>
<tr>
<td>The rash appears on the skin of the body and face. Bubbles form pea-sized, dense, filled with serous fluid which gradually becomes cloudy and suppurate with characteristic location on the palms and sole. Bubbles appear on the basis of inflammation leaving bits of the epithelium as they break. The liver and spleen are usually enlarged. The diagnosis is confirmed by the detection of treponemes in vesicles and serological reactions.</td>
<td>Neumatal pempitlus</td>
</tr>
<tr>
<td>The rash is very itchy, there are multiple scratches on the skin. There are nodules and sometimes blisters form again in place of itchy scratching. The preferential localization of the rash is in areas with the most delicate skin — between the toes, on the flexion side of joints around the armpits, on the lateral surfaces of the back. One can see the scabies mite moves: linear intradermal inflammatory changes in a few mm. Mite can be found in the study under the microscope after pulling it from the depths of the burrows by needle.</td>
<td>Scabies</td>
</tr>
<tr>
<td>The disease affects children of the first year of life. Bright, juicy, edematous erythema, serous papules, microvesicles appear on the cheeks, forehead, extensor surfaces of limbs, with background of itching. Microvesicles break rapidly and form the typical erosion — «serous wells». There is serous fluid released from it. Merging erosion forms large weeping erosion areas, in places covered with crusts. Often the other parts of the body are lessened, but not the back, buttocks. Manifestation of the disease is associated with the introduction of cow's milk products into a child's diet.</td>
<td>Infantile eczema</td>
</tr>
</tbody>
</table>
DIAGNOSTIC ALGORITHMS: HERPETIC INFECTION

ETIOLOGY
Herpes simplex virus

SEASONALITY
Winter time

THE MECHANISM OF TRANSFER
Transplacental
Airborne
Sexual
Household contact

AFFECTED ORGANS AND SYSTEMS
Kidneys
Eyes
Lungs
Liver
Central nervous system
Facial skin and oral mucosa
Genitals
Genital herpes
Mucous membranes

CLINICAL FORMS
Hepatitis, pneumonia, herpetic nephritis
Conjunctivitis, blepharoconjunctivitis, keratitis, keratoconjunctivitis, chorioretinitis, uveitis, retinal perivasculitis
Herpetic lip, nose, eyelids, face, hands, herpetic eczema
Encephalitis, meningoencephalitis, neuritis
Affected penis, vulva, vagina, cervix, perineum, urethra, endometrium
Stomatitis, gingivostomatitis, temperature raising to 39 °C, fever, restlessness, food refusal, increased salivation, cold sores on the buccal mucosa, tonsils, enlargement of regional lymph nodes

FLOW
Recurring
Abortifacient
Acute
### Step Diagnostics and Differential Diagnosis of Chickenpox

<table>
<thead>
<tr>
<th>Vesicular rash</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fever, symptoms of intoxication</strong></td>
<td></td>
</tr>
<tr>
<td>There is a herpetiform rash — a group of closely spaced vesicles filled with clear contents. Mucous membranes, skin, eyes, genitals and nervous system are affected. The rash is usually located around the mouth, lips, on the wings of the nose, sometimes on the face and trunk, and it is itching and burning.</td>
<td></td>
</tr>
<tr>
<td>Herpes simplex</td>
<td></td>
</tr>
<tr>
<td>There is a sudden onset of disease with extensive erythematous spots. There are huge bubbles on their background (similar to the burn of III degree). There are bubbles on the background of hyperemic skin, detachment of the epidermis. Eroded surface remains after the rupture of the bubble. There is a positive Nikolsky's symptom.</td>
<td></td>
</tr>
<tr>
<td>Lyell's syndrome</td>
<td></td>
</tr>
<tr>
<td>There is a polymorphic exudative erythema, accompanied by severe damage not only of the skin, but also of mucous membranes. Localized on the trunk, neck, face, extremities. The rash consists of spots, papules, vesicles and blisters. Evident lesions of the mouth mucous membranes, nose, conjunctiva and genitals can be found. On the palms and soles there are round dark-red spots with hemorrhagic manifestations.</td>
<td></td>
</tr>
<tr>
<td>Stevens-Johnson's syndrome</td>
<td></td>
</tr>
<tr>
<td>At first vesicles form on the mucous membrane, then they burst quickly and convert to erosion which causes a sharp pain during swallowing. It is characterized by rhythmicity with the change of the four periods vertigo, tinnitus and insomnia. There are symptoms of cardiovascular weakness, seizures, loss of consciousness. There is a hepatosplenomegaly. Diuresis is reduced.</td>
<td></td>
</tr>
<tr>
<td>Natural smallpox</td>
<td></td>
</tr>
<tr>
<td>Acute onset of the disease. By the 3–4th day on the backdrop of a temporary reduction of body temperature the rash appears. Elements of the first rash are detected on the face, hands, and then on the trunk. The cycle of development: spot—papule—vesicle—erosion—crust—scar. Less susceptibility of people to that disease. The stages of the disease change quickly.</td>
<td></td>
</tr>
<tr>
<td>Monkey pox</td>
<td></td>
</tr>
<tr>
<td>The rash is polymorphic. Skin, mucous membranes of the mouth and genitals are affected. Typical rash changes by stages. The final element of the rash is the crust. Bubbles are unicameral. At the peak of the disease there are swollen lymph nodes, liver, spleen enlarged rarely. The body temperature is 39–40 °C, sometimes with a chill.</td>
<td></td>
</tr>
<tr>
<td>Chickenpox</td>
<td></td>
</tr>
</tbody>
</table>
### Fever, symptoms of intoxication

<table>
<thead>
<tr>
<th>Eczema</th>
<th>Heat rash</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No</strong></td>
<td><strong>Yes</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exudative-idiopathic</th>
<th>Scabies</th>
<th>Drug allergy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td><strong>Yes</strong></td>
<td><strong>Yes</strong></td>
</tr>
</tbody>
</table>

**There are bright juicy edematous erythema, serous papules, microvesicles on the cheeks, forehead, extensor surfaces of extremities against the background of itching, which are rapidly opens and form the typical erosion («serous wells»). When erosions merge they form large weeping areas in places covered with crusts.**

A lot of small bubbles the size of a millet seed, thickly arrange, especially on the chest and abdomen, on a slightly reddened skin. At first, the bubbles are transparent, then dry up and grow turbid. There is a slight itch of the skin, profuse sweating.

There is a persistent intertrigo on the skin folds, dry and pale skin, gneiss, cradle cap, the growth of abnormal body weight (pastosity, friability). There may be erythematous papulo-vesicular rash on the trunk and extremities. «Geographic» tongue, conjunctivitis, rhinitis, catarrh of the respiratory tract are typical. There is an exposure of the food allergens.

There are itch burrows on the palms and soles. There is a profuse rash in the form of blisters, spots, vesicles and soak on the face, scalp, neck, hands (mostly on the flexor surface), hips, legs, around the navel and nipples. The positive effect of rubbing 5% sulfur ointment mixed with balsam Shostakovich, 2 times a day for 5 days.

The rash appears during the first days after taking the drugs. Itchy skin, swollen lymph nodes and mild eosinophilia. Rash blends, there is no stages. There are cutaneous lesions of the mouth, tongue, eyes, mouth, stomach and intestines mucous membranes. It can be caused by penicillins, cephalosporins, tetracyclines, sulfonamides.
DIAGNOSTIC ALGORITHMS:
VARICELLA

- **AFFECTED ORGANS**
  - Skin
  - Mucosal membranes
  - Central nervous system

- **SYMPTOMS AND SYNDROMES**
  - Rash
  - Enanthema
  - Hyperthermia, insomnia, headache, anorexia, vomiting, delirium

- **CHARACTERISTICS OF THE RASH**
  - Rash, papule, vesicle, local polymorphism, the lack of favorite localization

- **THE INDICATORS OF SEVERITY**
  - Plentiful rash
  - Failure of internal organs

- **COMPICATIONS**
  - Encephalitis
  - Pneumonia
  - Gangrene
  - Erysipelas
  - Abscesses
  - Phlegmon
  - Lymphadenitis
  - Stomatitis
  - Pyodermia
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSTICS OF CONGENITAL CYTOMEGALOVIRUS INFECTION IN CHILDREN YOUNGER THAN 1 YEAR OLD

Yes

Syndrome of intrauterine infection at fetus and newborn

The risk of abortion is high. The disease manifests at birth with jaundice, hepatosplenomegaly, hemorrhagic purpura. The color of urine gets darker and feces color becomes bright. Muscular hypotonia, hyporeflexia and convulsions occur. Microcephaly, hydrocephaly, septum and aortic valves cleft and others are often affected. Malformations of the kidneys and gastrointestinal tract are typical.

Cytomegalovirus infection
**Syndrome of intrauterine infection at fetus and newborn**

- **Toxoplasmosis**
  - An abortion can occur as a result of congenital toxoplasmosis infection. At birth, the infected baby has a triad: hydrocephalus, intracranial calcifications, and chorioretinitis. Hepatosplenomegaly, jaundice, intoxication, fever, polymorphic rash, hemorrhagic syndrome, anemia, possible generalized lymphadenopathy and cataract also can occur.

- **Listeriosis**
  - Abortion is frequently possible. A baby is prematurely born, with the signs of malnutrition. In the first few days the temperature rises sharply, peripheral circulation is impaired and jaundice appears. Leading syndrome is respiratory failure (distress or pneumonia). Rashes on the skin and mucous membranes are roseolous, papular, and petechial. It is characterized by the appearance of grayish-white granulomas, sized of a millet grain on the swollen mucous membranes of the stomatopharynx, the back of the throat, on the tonsils. It is characterized by meningitis, meningoencephalitis.

- **Herpes infection (Herpes simplex virus)**
  - Intrauterine infection may cause an abortion. When the disease affects children there is a marked intoxication, hemorrhagic syndrome and the symptoms of acute cardiovascular insufficiency develop. Jaundice, hemorrhagic syndrome, intracranial calcifications, chorioretinitis, microphthalmia and cataracts are possible complications. Skin and visible mucus damages are rare. But if it occurs, the vesicular rash appears on 5–7 days of life.

- **Rubeola**
  - Premature delivery is possible. Cataracts, heart defects and deafness form the typical triad. Retinopathy, microphthalmia, glaucoma, micro and hydrocephalus, cleft soft and hard palate, cryptorchidism, hypospadias, congenital hepatitis are also typical. Thrombocytopenia and hemorrhagic syndrome are often observed.

- **Chlamydia infection**
  - Infection of the child occurs during the passage of mother's birth canal. It manifests with granulation conjunctivitis and pneumonia. The disease has a torpid course. It is complicated by blepharitis, stenosis of lacrimal nasal tract, scarring of the conjunctiva. Cough is dry first, then paroxysmal with a lot of mucus. Dissociation is between marked dyspnea and scant physical data.
METHODS OF DIAGNOSIS

- IEA
- PCR
- Treponema pallidum hemagglutination
- Complement fixation test
- Neutralization reaction
- Detection of cytomegalovirus in the sediments of urine, saliva, cerebrospinal fluid

CLINICAL COURSE

- Acute
- Chronic

TREATMENT

- Immunomodulators:
  - Normal immunoglobin
  - Human immunoglobulin
  - Anti-cytomegalovirus
- Antiviral:
  - Ganciclovir
  - Valganciclovir
- Antibiotics for bacterial infection:
- Corticosteroids
- Vitamin therapy
- C.K.P.

PREVENTION

- Proper personal hygiene when in contact with a newborn
- Screening of pregnant women for CMV
- Use of condoms
- During blood transfusions: transfusions of blood and blood components from seronegative donors
## STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF MEASLES

<table>
<thead>
<tr>
<th>Yes</th>
<th>Exanthema. Intoxication syndrome. Catarrhal syndrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubella</td>
<td>The rash appears in the first days of illness. Elements of the rash cover all the body. Rash develops simultaneously — small round pink-red spots do not merge and disappear completely after 2–3 days, with no pigmentation or desquamation. Enlargement of occipital and back cervical lymphatic nodes. Subfebrile temperature. Slightly runny nose, cough and sometimes conjunctivitis.</td>
</tr>
<tr>
<td>Scarlet fever</td>
<td>It begins acutely with vomiting, pain in the throat. The body temperature increases to febrile digits. On the 2nd day of onset appears punctate rash, abundant on hyperemic background, more intense on the sides of trunk, the flexors of the limbs, in the natural folds. The rash does not affect the nasolabial triangle. Peeling starts after the disappearance of the rash. Hyperemia of the stomatopharynx, clearly delimited (catarrhal, follicular, necrotic quinsy). «Strawberry» tongue</td>
</tr>
<tr>
<td>Enteroviral exanthema</td>
<td>Acute onset of the disease, with the rise of body temp to 39 °C and maculosis rash. Pink rash develops on unmodified skin, keeps for 1–2 days, disappears without desquamation or pigmentation. Vomiting and abdominal pain are typical. Scleritis, catarrhal conditions of the upper respiratory tract</td>
</tr>
<tr>
<td>Infectious mononucleosis</td>
<td>Acute onset of the disease, with the rise of temp to 38–39 °C, maculosis papular rash, abundantly located on the face, tending to merge, with pigmentation and desquamation after disappearance. Tonsillitis, lymphadenopathy. Enlarged liver and spleen. CBC: leukopenia, lymphocytosis, plasma cells</td>
</tr>
<tr>
<td>Measles</td>
<td>Acute onset of the disease with the rise of temp to 38.5–39 °C, development of catarrh of upper respiratory tract and conjunctivitis. Grayish-white spots appear on the buccal mucosa. After 4–5 days, maculopapular rash develops in three stages: 1st day — face, neck, 2nd day — trunk, arms, 3rd day — legs. After the disappearance of the rash brown pigmentation remains and persists up to 1.5 weeks</td>
</tr>
<tr>
<td>Exanthema. Intoxication syndrome.</td>
<td>Catarrhal syndrome</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Appearance of the rash is connected with taking sulfonamides, but can be due to other appointed drugs. It appears on the first days after admission. Rash is punctuate. Body temperature increases to subfebrile figures, malaise, also can be itching, swelling, peripheral lymph nodes</td>
<td>Medicinal dermatitis</td>
</tr>
<tr>
<td>The disease is more frequent in adults. Sometimes it develops after ARI. Primarily, pink-red oval spot appears on the breast with desquamation in the centre. Spots can be found all over the body. Patient’s state is well. Temperature is normal or subfebrile</td>
<td>Pityriasis rosea Gilbert</td>
</tr>
<tr>
<td>The disease develops gradually. Itchy nodules and vesicles appear on the skin. There are scabby tracts — linear intradermal inflammatory changes of a few millimeters, usually developing between the toes, on the flexion of the joints, the sides of the back, scrotum. No catarrhal symptoms, normal temperature</td>
<td>Scabies</td>
</tr>
<tr>
<td>Sudden onset of the disease, high fever, symptoms of intoxication. From the first hours there are extensive erythematous spots, with huge vesicles. Detachment of the epidermis is observed from the dermis in a large area of the hands, feet and trunk. No catarrhal symptoms</td>
<td>Lyell’s syndrome</td>
</tr>
<tr>
<td>Acute onset with high fever (39–40 °C). On the 3rd–4th day the temperature is critically reduced and there is a rash, spreading over the trunk, limbs, neck and head. Pale pink roseola tends to merge keeping for 2–3 days and disappear without desquamation or pigmentation. No catarrhal symptoms. It is common in elder children</td>
<td>Stifth disease</td>
</tr>
</tbody>
</table>
MEASLES

EPIDEMIOLOGICAL FEATURES
- Source: the patient
- Transmission: airborne
- Instability of the virus
- Volatility of the virus
- Susceptibility: general

FFECTED ORGANS
- The respiratory system
- The organs of digestion
- Nervous system
- Skin
- Eyes

SYMPTOMS
- Runny nose, cough
- Enanthema, Hilarov's spots
- Pharyngitis, hyperemia, watery stool
- Fever, headache, fatigue
- Vomiting, diarrhea
- Red, maculopapular rash
- Unchanged background of skin, stages of rash, desquamation, pigmentation
- Pharyngitis, tearing and puffy eyelids

PERIODS OF DISEASE
- Prodromal
- Eruption
- Pigmentation

DIFFERENTIAL DIAGNOSIS
- Flu, adenoviral infection, parainfluenza, croup diphtheric
- Rubella, scarlet fever, allergic rash
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSTICS OF EPIDEMIC PAROTITIS (MUMPS INFECTION)

<table>
<thead>
<tr>
<th>Parotid and salivary glands. Intoxication</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td></td>
</tr>
<tr>
<td>It is more often seen in the elderly. Salivary gland is painful. Swelling is on the affected side. Process is unilateral. There is no fever. The stones that obstruct salivary duct can be revealed by ultrasound (US) and sialography. Normal CBC</td>
<td>Salivolithiasis</td>
</tr>
<tr>
<td>The lesion of the parotid salivary glands occurs due to local purulent infection (otitis, tonsillitis, and dental caries). Acute onset of the disease with high intoxication. Soreness and density are above the parotid gland. The skin over it is bright hyperemic. There is appearance of fluctuation. There is neutrophilic leukocytosis in CBC</td>
<td>Acute purulent parotitis</td>
</tr>
<tr>
<td>The lesion of the parotid glands is associated with occupational hazard. Acute and chronic poisoning by mercury and lead. Disease affects adults mostly. In children it is extremely rare. Mumps develops slowly, often accompanying with changes of the teeth and gums</td>
<td>Toxic parotitis</td>
</tr>
<tr>
<td>Inflammation of the salivary glands is chronic. Relapses occur once a year, alternating with periods of clinical well-being. The disease begins with the rise of body temperature, swelling and pain of the gland. Buccal mucosa is swollen on the affected side. Pus discharges from the parotid duct. Spontaneous disappearance of pain and swelling in 7–20 days</td>
<td>Primary chronic parotitis</td>
</tr>
<tr>
<td>Acute onset. Symptoms of intoxication. The lesion of the parotid salivary gland usually starts unilateral, after 1–2 days the process moves to the second gland. Moderately painful gland has pasty consistency. The skin above it has normal color. Positive Murso’s symptom, pain by pulling the ear up and ahead, with pressure below the outer edge of the ear canal. Vartonoiv’s duct is swelled. Other glands are involved in the inflammatory process: submaxillary and sublingual salivary glands, pancreas, mammary gland, gonads, thyroid gland. In clinical blood test: leukopenia and lymphocytosis</td>
<td>Epidemic parotitis</td>
</tr>
</tbody>
</table>
### Parotid and salivary glands. Intoxication

| Acute onset of the disease, the symptoms of intoxication are expressed slightly. The tonsils are moderately swollen, mild redness of tonsils and palatine arches. There are fibrinous coats on tonsils, **++** tissue, dirty gray, difficult to separate. The subjacent tissue bleeds when it is removed. The membranous coats drowned in water, are not grounded between glass slides. Regional lymph nodes are mild swollen and slightly painful. In CBC: leukocytosis with neutrophilic shift |

| Diphtheria of the tonsils |

| There is intoxication, lymphadenopathy. Lesions of the tonsils are necrotic and ulcerative. It is often one-sided. Necrosis doesn’t rise above a surface of the tonsils; the surface is uneven, rough. On the 3rd–4th day of illness necrosis place forms an ulcer crater, covered with a very thin fibrinous coat under which ulcer epithelializes for 9–12 days. Putrid smell of the breath. By microscopy in smears taken from the surface of the tonsils detected spirillum and spindle-form bacilli |

| Simanovsky–Rautbus tonsillitis |

| Duration of illness is long (for months). Curve of the temperature has undulating character. Lymph nodes are swollen in all groups. Lymph nodes are enlarged to the size of V–VII, dense, fused with each other and the subjacent tissues — “potatoes in a sack.” Biopsy of lymph node shows Berezovsky–Steinberg’s cells |

| Lymphoproliferative |

| There is fever. The posterior pharyngeal wall is much hyperemic, loosened. There is a big amount of thick mucus. The tonsils are swollen, raised to II–III degree, hyperemic. Coats on the tonsils are whitish-yellow, loose, rough, rugate, easily removed and grounded between glass slides. The sharp enlargement of cervical lymph node groups, especially those located on the posterior edge of the sternocleidomastoid muscle. Lymph nodes are dense, elastic, not soldered to each other and the subjacent tissues. Nasopharyngeal tonsils are swollen. A child breathes with a half-open mouth; his voice takes on a nasal tone. Hepatosplenomegaly. In CBC: lymphocytic leukocytosis, elevated ESR, presence of atypical mononuclear cells |

| Infectious mononucleosis |

| Disease is rare as a separate unit. Usually damage of pharynx appears due to ARI. Hypertermia, painful throat. On the tonsils, swollen and hyperemic, appears bluish overlay, rarely they can be found only in the gaps or can be like small island. Overlays partially impregnated with fibrin are difficult to remove. They are easily grounded between glass slides. Diffuse bright hyperemia of the oropharynx, without clear boundaries. Expressed polyadenopathy |

| Staphylococcal angina |
**DIAGNOSTIC ALGORITHMS:**
**DIAGNOSTICS OF MUMPS INFECTION**

- **Affected organs and systems:**
  - The brain
  - Pancreas
  - Mammary glands
  - Testes
  - Ovaries
  - Parotid salivary glands
  - Submandibular salivary glands

- **Symptoms and signs:**
  - Headache, repeated vomiting, occipital muscle tension, Kernig's and rudzinsky symptom
  - Encircling abdominal pain, repeated vomiting, constipation or diarrhea
  - Enlargement of glands
  - Enlargement of the organ, pain on palpation
  - Lower abdominal pain
  - Enlargement of the glands, absence of acute inflammation, pain when chewing, anterior and posterior pain
  - Enlargement of the gland, pain on palpation

- **Methods of research:**
  - Investigation of liquor — the transparency of cerebrospinal fluid, high pressure of liquor, lymphocytic pleocytosis, the norm of sugar and chlorides
  - Investigation of diastase — elevation of blood and urine diastase
  - Serological complement fixation test — a diagnostic antibody titer to the antigen
  - Vinological research — virus isolation from blood, from cerebrospinal fluid
  - CBC — shift to the left
  - Palpation of the gland — enlargement in size and pain
  - External examination — enlargement of glandular organs
  - Epidemiological anamnesis — contact with a sick person
  - Anamnesis of the disease — acute onset
### Step Diagnostics and Differential Diagnostics of Stomatopharyngeal Diphtheria

<table>
<thead>
<tr>
<th><strong>Yes</strong></th>
<th><strong>The syndrome of quinsy. Intoxication syndrome</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>The disease is caused by hemolytic streptococcus. Increased t, intoxication. Inflammation of the tonsils. Enlarged regional lymph nodes. Severe fever. Two-way process</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Tonsillitis (Streptococcus, Staphylococcus)</strong></td>
</tr>
</tbody>
</table>

| **No marked symptoms of intoxication, subfebrile t. Sore throat at swallowing is absent or not very marked. The process is usually unilateral. On the first day of mild hyperemia, swelling and an increase in one of the palatine tonsils. Then, on a background of hyperemia, a rounded greyish-white spot about 10 mm in size appears on its surface. On the 2nd-3rd day coat is forming at this place, when removing — there is an ulcer. Breath is putrid** |
|  | **Sirotovskiy–Plan–Vicente’s tonsillitis** |

| **Develops after hypothermia or ARI. The process is mainly on the tonsils and regional lymph nodes. Low-grade fever is in the evenings, aerocyanosis, lability of heart rate, orthostatic hypotension, unpleasant sensations in the heart. Pains in the throat. Cohesion of the tonsils with the arches, the presence of scars on the tonsils, sometimes in lacunas with caseous plugs** |
|  | **Chronic tonsillitis** |
|  | **Peritonsillitis** |

| **Rapid rise of the t, chill, marked toxicosis. Sharp pain in throat when swallowing and even at rest, sometimes painful movement of the head. Trismus chewing muscles limits the opening of the mouth; increased salivation. Examination of the stomatopharynx is difficult. Pharyngoscopy detects unilateral swelling and bulging in the absence of coats on the mucous membrane of the tonsils** |
|  | **Mycotic tonsillitis** |

| **The general condition suffers a little. Body temperature remains normal, rarely subfebrile. Coat associated with the fungus is greyish-white, rarely continuous. It is usually located by separated areas, capturing not only the tonsils, but also the mucosa of the mouth, the posterior pharyngeal wall. The fever and symptoms of intoxication are absent. A common whitish coat is on the mucous membranes of the oropharynx** |
|  | **Stomatopharyngeal diphtheria** |

| **Acute onset of the disease. Fibrinous coat is on the tonsils. Sore throat is absent or expressed only slightly. Coat is difficult to separate. Swelling of the subcutaneous fat neck. Coat is not grounded between the glass slides, drowns in the water. Body temperature — 37–38 °C. When removing the coat, surface of the tonsil bleeds** |
|  |  |
### The syndrome of quinsy. Intoxication syndrome

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scarlet fever</td>
<td>Persons who have no immunity to streptococcal erythrogenic toxin are affected. Hyperemia of the skin, micropunctate rashes followed by desquamation of the skin, tachycardia, vomiting. Bright hyperemia of mucous membranes — <em>burning mouth</em>, clear, bloodshot tongue (<em>strawberry</em> tongue). Desquamation is especially marked on the fingers.</td>
</tr>
<tr>
<td>Infectious mononucleosis</td>
<td>High fever, general intoxication, an acute onset of illness. Damage of the tonsils and the enlargement of regional lymph nodes. The appearance of quinsy is lagging behind with respect to time by increasing, symptoms of general intoxication. Pharynx involvement on the third day and later. Bilateral necrotic changes in the tonsils. Fibrinous coat on the tonsils, does not extend beyond the tonsils. Generalized lymphadenopathy. The liver and spleen may be enlarged. There are atypical mononuclear cells in the blood.</td>
</tr>
<tr>
<td>Listeriosis</td>
<td>The rash, usually erythematous, with the figure of the <em>&lt;butterfly on his face&gt;</em>; generalized lymphadenopathy, enlarged liver and spleen. There are some patients with purulent meningitis. High fever with large daily scale, septic metastases, secondary purulent foci.</td>
</tr>
<tr>
<td>Syphilis</td>
<td>The enlargement of one tonsil, its mucosa membrane is hyperemic. The regional lymph node is moderately enlarged of dense consistency, painless. No pain during swallowing. On the affected tonsil develops necrotic processes, forming a hard chancre. Low-grade fever, slight malady. Changes in the tonsils remain for a very long time without significant dynamics (up to a month or more).</td>
</tr>
<tr>
<td>Tularemia</td>
<td>High fever, pain at swallowing. The process is unilateral, necrotic. Coat is of grayish color, after its removal there is an ulcer. It is characterized by the formation of buboes. The regional upper anterior cervical lymph nodes are enlarged. Bubo is not soldered to the surrounding tissues, is mobile, the skin over it is not changed. Fluctuation of buboes. It may form a fistula.</td>
</tr>
</tbody>
</table>
DIAGNOSTIC ALGORITHMS: DIPHTHERIA

**Eyes**
- Infrequent localization
  - Difterical form
    - Sudden edema of the eyelids, films on conjunctiva and on the eyeball
  - Croupous form
    - Moderate edema of the eyelids, membranous conjunctivitis
  - Catarrhal form
    - Hyperemia of the conjunctiva, purulent

**Larynx**
- Widespread B
  - Hoarseness to aphonia, rough cough, stenosis I
  - Widespread A
    - Stenosis II
    - Stenosis III
  - Localized croup

**Nose**
- Membraneous
  - Film on the nasal septum
- Catarhal-ulcerative
  - Bloody discharge, excoriation around the nose, sores in the nasal mucosa

**Pharynx**
- Spread
  - Spread coats in the pharynx, edema of around the lymph nodes
- Subtoxic
  - Coats beyond the tonsils, a marked increase in regional lymph nodes
- Localized
  - Islands or the filmy coats on the tonsils, moderate swelling of the lymph nodes
- Hypertoic
  - Sudden onset, dimming of consciousness, weakness, hemodynamic disturbances, coats and edema in the throat
- Toxic
  - Sudden pharynx edema, spread coats, sweet breath, edema of the cervical tissue
DIFFERENTIAL DIAGNOSIS
- Infectious mononucleosis
- Epidemic parotitis
- Lacunar tonsillitis
- Tonsillitis follicularis
- False-membranous angina
- Angina Streptococcal
- Necrotic angina
- Parotitis
- Parotitis of the ARV
- Group ARV
- Group of other infections
- Foreign body
- Papillomatous
- Adenoviral conjunctivitis
- Erythema
- Orbital cellulitis

COMPLICATIONS
- Myocarditis
- Paralysis and paresis of cranial nerves
- Polyradiculo-neuritis
- Panophthalmitis

TREATMENT
- Serotherapy, desensitisation, vitamins, and plasma hormones,
magnesium sulfate, strychnine, coenzyme A, ATA, glutamic acid,
bendazol, proserin, intubation, tracheostomy

PECULIARITIES AT THE MODERN STAGE
- Reduction of incidence up to sporadic cases, reducing of mortality,
increasing of the coefficient of severity, the prevalence of pharynx diphtheria, lack of periodic rises,
the incidence in older children, the predominant disease in rural areas,
bacilli carriers are the main source of infection

PREVENTION
- Active immunization
- Control of immunity
- Identification of carriers of toxigenic bacteria
- Treatment of carriers

DIAGNOSTICS
- Bacterioscopy swab
- Bacteriological research
- Serological research
### Intoxication. Tonsillitis. Adenosplenomegaly

<table>
<thead>
<tr>
<th>No</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Brucellosis</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prolonged subfebrilitis, lymphadenopathy, enlarged liver and spleen, severe muscle pain, generalized arthralgia without visible changes in the joints. Chorioretinitis, progressive myopia. Changes of the autonomic nervous system. Detection of calcifications in the bone marrow by the X-ray. Serological study shows the growth of toxoplasma antibodies titer</td>
</tr>
<tr>
<td></td>
<td>Toxoplasmosis</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Long period of disease (for months). The temperature curve is of undulating nature. Lymph nodes are increased in all groups. Lymph nodes are enlarged to the size of VI–VII, tight, welded together and the underlying tissues. Symptom «of potatoes in a sack». Biopsy detects cells of Bez-zovsky–Steinberg in the lymph</td>
</tr>
<tr>
<td></td>
<td>Lymphogranulomatosis</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe paleness of the skin. Enlargement of the spleen. Increased bleeding, reduction in the number of red blood cells and hemoglobin, significant increase of ESR. The results of sternal puncture: increased myelokaryocytes, reduced number of metakariocytes, impaired myelopoiesis. Sharp increase in the number of blast cells, decreased amount of intermediate and mature forms of myeloid</td>
</tr>
<tr>
<td></td>
<td>Acute leukemia</td>
</tr>
</tbody>
</table>
### DIAGNOSTIC ALGORITHMS: INFECTIOUS MONONUCLEOSIS

<table>
<thead>
<tr>
<th>AFFECTED ORGANS</th>
<th>SYMPTOMS AND SIGNS</th>
<th>METHODS OF DIAGNOSIS</th>
<th>DIAGNOSTIC FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td>Fever</td>
<td>General blood analysis, leukocentrifugation, serological reactions, thermometry</td>
<td>The reaction of Paul–Bunnell–Davidson, the reaction of Tomeczuk, hemagglutination test with horse erythrocytes</td>
</tr>
<tr>
<td>Parenchymal organs</td>
<td>Enlarged liver and spleen</td>
<td></td>
<td>Minor biochemical changes, mild leukocytosis, mononucleosis, atypical mononuclear cells, moderately accelerated ESR</td>
</tr>
<tr>
<td>Pharynx</td>
<td>Quinsy</td>
<td>Palpation, biological research</td>
<td>Scanty runny nose, enlargement of nasopharyngeal tonsils, coating in the nasopharynx, atypical mononuclear cells in the smear, catarhal phenomena, coating in the pharynx</td>
</tr>
<tr>
<td>Nasopharynx</td>
<td>Difficulty of nasal breathing</td>
<td>Cytology of the tonsils, pharyngoscopy, bacteriological examination</td>
<td>A lot of moving, without painful lymph nodes, no inflammation, cellular tissue pastosity</td>
</tr>
<tr>
<td>Lymph nodes</td>
<td>Enlargement of lymph nodes, enlargement of all groups of lymph nodes</td>
<td>Palpation, external examination</td>
<td>Acute onset, sore throat, snoring breathing, changes in the configuration neck, long-term high temperature</td>
</tr>
</tbody>
</table>

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DIFFERENTIAL DIAGNOSIS

- Acute laryngotraheitis
- Pharynx diphtheria
- Tonsillitis
- Lymphadenitis
- Lymphogranulomatosis
- Viral hepatitis
- HIV infection

PECULIARITIES IN INFANTS

- Significant damage of nasopharynx, expressed catarrhal phenomena, skin eruptions, more atypical mononuclear cells in the blood, absence of serological changes, insignificant coating on the tonsils

TREATMENT

- Vitamins
- Antipyretic
- Antihistamines
- Antibiotics (indicated)
- Corticosteroids (indicated)
<table>
<thead>
<tr>
<th>Yes</th>
<th>Micropunctate exanthema. Syndrome of tonsillitis. Intoxication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The rash appears on the 3rd–4th day of onset. The skin is hyperemic. Hyperemia and expressed skin pustulity of hands and feet (the symptoms of &quot;gloves&quot;, &quot;socks&quot;, &quot;hood&quot;). There is a moderate hyperemia in the pharynx. &quot;Strawberry&quot; tongue. Hepatosplenomegaly. There are muscle and joint pain. Micropunctate rash is on unmodified skin, usually in the abdomen, axillary region, on the lateral surfaces of the body</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td></td>
</tr>
</tbody>
</table>

| Yes | It begins acutely, temperature rises, catarrhal symptoms appear. Lymphadenopathy — cervical, back cervical, located behind of sternocleidomastoid muscle like a chain. There are tonsillitis and hepatosplenomegaly. In CBC: atypical mononuclear cells, increased ALT, AST. Jaundice. Maculosis rash, and then can be pigmentation, skin desquamation |
| Infectious mononucleosis | |

| Yes | Catarrhal symptoms. Polymorphous rash, maculopapular, hemorrhagic, often around the joints (in the hands, feet) (a symptom of "gloves", "socks", "hood"). Joint inflammation (swelling, redness, tenderness, limitation of movement). Myocarditis. Hepatosplenomegaly. Nausea, vomiting and abdominal pain. Pouring sweat, high fever, with large daily fluctuation. Jaundice, diarrhea. Stool diluted, often with mucus, greenish color, sometimes blood |
| Intestinal yersiniosis | |

| Yes | The disease is most often seen in young children. The rash is micropunctate, single, with a hemorrhagic component, localized on the face, neck, upper body. Manifestations of disseminated intravascular coagulation (DIC). Diagnosis is based on severe clinic of flu |
| Toxic form of influenza | |

<p>| Yes | Catarrhal symptoms. Micropunctate rash is followed by desquamation of the skin. Tachycardia, frequent vomiting. Bright redness of the throat — &quot;flaming&quot; pharynx. Rash is on hyperemic skin, especially on fingers. Tonsillitis, lymphadenopathy, &quot;strawberry&quot; tongue. Rash doesn’t leave pigmentation. Pale nasolabial triangle. Thickening of the rash on the cheeks, on the side of the trunk, abdomen, flexor surfaces of limbs |
| Scarlet fever | |</p>
<table>
<thead>
<tr>
<th>Micropunctate exanthema.</th>
<th>Syndrome of tonsillitis. Intoxication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maculo-papular rash, maculosis, catarrhal conditions, subfebrile temperature. The rash stage on the hyperemic background skin is specific. The pigmentation is after the disappearance of the rash. Filatov–Koplik’s spots, conjunctivitis. Sometimes group syndrome may develop, rash tends to merge</td>
<td></td>
</tr>
<tr>
<td>Body temperature is subfebrile. The rash is small maculos, sometimes papular, disappears without pigmentation, desquamation, and does not tend to merge. There is no rash staging. Lymph nodes are swollen — occipital, back cervical. Slight conjunctivitis. In CBC: leukopenia, relative lymphocytosis, plasma cells (10–30%)</td>
<td>Rubella</td>
</tr>
<tr>
<td>Acute onset, high fever up to 39 °C and more. The rash is small maculos-papular. Headache, muscle pain, scleritis, catarrhal symptoms. Vomiting and abdominal pain are typical. Localization of rash: face, body, sometimes arms and legs. Rash is on unmodified background skin. Rash does not have staging, doesn't leave pigmentation or desquamation</td>
<td>Enterovirus boston exanthema</td>
</tr>
<tr>
<td>Maculos rash associated with taking sulfonamides, antibiotics. General malaise, fever, often to subfebrile. Itching of the skin, enlargement of peripheral lymph nodes. In the blood: mild eosinophilia. The rash tends to merge, no staging. Rash appears during the first days of drug administration</td>
<td>Medical dermatitis</td>
</tr>
<tr>
<td>Normal or subfebrile t. Rash is maculos, abundant, most marked on the trunk. Single rosella and papules are revealed. The rash persists for a long time up to 2–3 weeks, then gradually fades and disappears without a trace. Anamnesis: the presence of primary syphilides (chancre) residual effects. Rash appears on a relatively good state of health of the patient, long-term preservation of rash without dynamic</td>
<td>Syphilis</td>
</tr>
</tbody>
</table>
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF MENINGOCOCCAL INFECTION (PURULENT MENINGITIS)

Yes

Meningeal syndrome. Hypertension. Intoxication

Acute onset of the disease with febrile fever, violent headache, hyperesthesia, repeated vomiting, and intoxication increases. A large fontanelle protrudes, sutures do not hold, size of the skull is increasing, loss of consciousness, convulsions, mono- and hemipareses. Focal lesions appear on 1–2 days of illness. Cerebrospinal fluid is muddy, often greenish, neutrophilic pleocytosis (500–1500)·10³/l, increase in protein (1–10 g/l)

Pneumococcal meningitis

Acute onset of the disease, with a rise in temperature to 38–40 °C. CNS damage is preceded by parotitis, an inflammation of other glandular organs. Severe headache, vomiting, weakness, myalgia, moderate meningeal syndrome. Cerebrospinal fluid flows under pressure, the protein content is normal or increased to 2.5 g/l, cytosis is from several hundreds to 2000·10³/l at the expense of lymphocytes, a film of fibrin may fall

Parotid meningitis

The disease begins acutely, with a rise in body temperature to 39–40 °C. There is a severe headache, dizziness, repeated vomiting, restlessness, and sometimes abdominal pain, delirium, convulsions. The patient's face is hyperemic, slightly pasty, injected sclera. Mucus membranes of oropharynx are hyperemic, grain on the back wall of the pharynx and soft palate. Meningeal symptoms are from the first day, short-term. Liquor of spinal puncture is transparent, cytosis of 200–300 cells per 1 mm² flows under the pressure; cytosis is firstly mixed, then the lymphocytic. The Pandey's reaction is weakly positive

Enterovirus infection (serous meningitis)

It develops more often in the presence of influenza. It is characterized by an identical clinical picture of meningitis, but in contrast to recent positive dynamics is observed fast after the lumbar puncture. Liquor is diluted, from the general blood analysis — picture of a viral infection

Meningism

The disease begins with a rise in temperature to 39–40 °C, strong chill. Severe headache, becoming worse when moving head, strong stimuli. Marked hyperesthesia, repeated vomiting, and convulsions. Meningeal symptoms for 2–3 days, red dermographism. In the spinal puncture — CSF is turbid, putrid, neutrophilic pleocytosis, measured from thousands of cells in 1 microlitre

Meningococcal meningitis
<table>
<thead>
<tr>
<th>Meningeal syndrome. Hypertension. Intoxication</th>
</tr>
</thead>
</table>

**No**

Meningeal syndrome is developing after exanthema and is accompanied by a sharp rise in temperature to 40°C, nausea, vomiting, severe headache, hyperesthesia. Meningeal symptoms, decreased or absent tendon reflexes, especially in the lower extremities. The abdominal reflexes are absent or reduced. Cerebrospinal fluid flows under high pressure, cytosis (60–150) · 10⁵/l, lymphocytes predominate. The protein content is slightly increased (1.5 times)

<table>
<thead>
<tr>
<th>Measles meningoencephalitis</th>
</tr>
</thead>
</table>

Signs of meningoencephalitis appear soon after the disappearance of the rash. Low-grade fever, enlarged occipital and back cervical lymph nodes. Headache, vomiting, disturbances of consciousness, tonoculonic convulsions. Paresis, ataxia, central respiratory disorders. In cerebrospinal fluid, a dominant amount of lymphocytes is revealed. Virological methods — virus allocation from blood

<table>
<thead>
<tr>
<th>Rubella meningoencephalitis</th>
</tr>
</thead>
</table>

Headache, repeated vomiting, shuddering and twitching of individual muscle groups and limbs, and sometimes tremor, horizontal nystagmus. Meningeal symptoms are on 2–3 days of illness. In the liquor lymphocytic cell count is moderate (up to 200–300 in 1 mm³), a slight increase in protein. Paralysis does not develop, but there is weakness when walking

<table>
<thead>
<tr>
<th>Poliomyelitis meningeal form</th>
</tr>
</thead>
</table>

Occurs on the 7–9th day of vaccination, with high temperature. Generalized tonoculonic convulsions, anxiety, tremors, motor automatisms, tremor of the extremities, anizoreflexia, pyramidal signs. Hallucinatory–delirium syndrome, psycho disorders, cataleptic phenomena. Normal CSF
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF PERTUSSIS, PARAPERTUSSIS

Yes

Syndrome of intoxication.
Paroxysmal cough

- Intoxication is moderate. Night sweats, weight loss. Polymicroadenopathy. Constant dry non-productive cough, rare or frequent. Marked tachypnea with tachycardia. Change in chest radiographic findings. Positive tuberculin test

- The disease begins gradually. During the whole period of the disease — subfebrile temperature. Intoxication is weak. Rhinitis and pharyngitis are typical. Laryngitis is especially marked. Symptoms of croup often develops in young children — dyspnea, barking cough, hoarse voice

- Clinical picture develops gradually. Mild symptoms of intoxication. The appearance of rough barking cough, slight hoarseness — stage croupous cough. Later symptoms of croup are progressing steadily — the disease passes into the second stage — the stenosis. Breathing is difficult, noisy breathing, aphonia, silent cough. Development of the II—III stages of stenosis

- There is rhinitis at the beginning of the disease. Laryngotracheitis. Cough becomes worse at the end of the 2nd week. It is characterized by the absence of marked fever. General condition is relatively good. Assiduous increasing cough. Passive hemagglutination test (PHIT) with parapertussis diagnosticum is positive

- Paroxysmal spasmodic cough is characterized by a long sequence of coughing strength on exhale, after which there is a noisy inspiration — and a new series of coughing strength. Attacks of cough end with the discharge of viscousropy expectoration, vomiting. In older children before the attack of cough there are phenomena of precursors. There are conjunctival hemorrhages in the eyes, puffiness of the face, aphthae on the frenulum of the tongue. There is leukocytosis, lymphocytosis, reduced ESR in CBC
Syndrome of intoxication.
Paroxysmal cough

Due to the sudden closure of the glottis a child stops breathing, turns blue, cyanosis is gradually replaced by pallor, and sweat appears on his face. After the attack — a deep breath. Mild inspiratory dyspnea may persist.

When you go out to the street compensatory cough develops because of reflex spasm of the larynx. There are no symptoms of intoxication, catarrhal symptoms. There are repeated cases of such phenomena in the past history.

The correct diagnosis is made after laryngoscopy. The cough is chronic and hoarse. Depending on the location of the tumor there is change of voice, inspiratory dyspnea with stridor. Dyspnea is chronic.

Cough is spastic and paroxysmal. Asphyxia occurs in severe cases. The attack occurs suddenly in absolutely healthy person; the exact time of its occurrence is said. At first the cough is dry. Then when connecting a secondary infection, it becomes wet, paroxysmal. Sometimes it is possible to establish the movement of a foreign body in the trachea at distance, or in auscultation. In bronchial obstruction there is the development of atelectasis.

The attack occurs more often at night. It is preceded by a period of precursors which are anxiety, sleep disturbance, excitement. Typical autonomic disturbances are pallor or flushing, sweating, headache. Phenomena of respiratory discomfort appear: throat irritation, chest tightness, stuffiness in nose, sneezing. Then the troublesome attacks of cough, sibilant rales, heard at distance, dyspnea with difficult expiration occur. After attack there is viscus and glassy expectoration. At microscopy there are eosinophils, asthma crystals and Curschmann's spirals in sputum.
Para Whooping Cough

Etiology
- Bacillus of para whooping cough

Seasonality
- Autumn-winter

Mechanism of Transmission
- Airborne

Affected Organs and Tissues
- Airways (bronchi, trachea, alveoli)
  - Compulsive cough, slightly runny nose, the discharging of mucus, sore of frenulum of the tongue
- CNS
  - Cerebral hemorrhage, hypoxic encephalopathy, convulsions, meningitis
- Lungs (pneumonia)
  - Pneumonia, segmental atelectasis, empyema
- Eyes
  - Subconjunctival hemorrhage

Clinical Forms
- Pertussis like
- Subclinical
WHOOPING COUGH

PERIODS
- Incubatory
- Catarrhal
- Spasmodic cough
- Permission

CLINICAL SYMPTOMS
- Temperature is normal or subfebrile, obsessive cough, slight effects of catarrh of the upper respiratory tract
- Discharge of viscous mucus, paroxysmal cough, respiritory whoop, vomiting after coughing, variated wheezing in the lungs, sores on the frenulum of tongue, scleral hemorrhage
- Pulmonary emphysema, hyperexcitability, occasional bouts of coughing

THE DIFFERENTIAL DIAGNOSIS
- ARVI, bronchitis, premorbid symptoms of measles
- Croup, bronchial asthma, foreign body, tuberculosis bronhoadenit, respiratory allergy, para whooping cough, pneumonia

METHODS OF DIAGNOSIS
- Epidemiologic - contact with the sick and coughing
- Clinical - paroxysmal cough, temperature, and leukocytosis, in the absence of intoxication
- Hematologic - evolution of leukocytes degree, lymphocytosis, normal ESR
- Serologic - complement fixation, agglutination test, reaction of slowed hemaglutination
- Bacteriological - culturing bacillus of Bordetella pertussis
- Other - skin test, of immunotest, enzyme

ESPECIALLY IN INFANTS
- Shortening of the catarrhal period, absence of respiratory whoop, attack of cyanosis, apnea, cough equivalents, undulating course and frequent complications
COMPLICATION
- Pneumonia
- Encephalopathy
- Otitis
- Sinusitis
- Other

PRINCIPLES OF THERAPY
- The optimal regimen
- Aerial oxygenation therapy
- Antibiotics
- Neuropharmacology
- Aerosol inhalation
- Desensitization and symptomatic medication

PECULIARITIES AT THE PRESENT STAGE
- Reducing of morbidity rate, elimination of mortality,
- Age susceptibility,
- Frequency of abortive obliterated forms, pertussis-like disease,
- Contagious index bacteriocarrier, strong immunity

PREVENTION
- Isolation of the patient
- Quarantine
- Bacteriological examination of contact
- Active immunization
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF DYSENTERY

Yes

Intoxication, invasive diarrhoea

Acute onset of the disease, characterized by the gradual development and intensification of symptoms within 3–4 days. From the first day of the disease there is a significant amount of mucus, blood, its color is dark green, it becomes frothy, like "swampy slime." Vomiting is not often, but persistent. The body temperature rises from the 1st day of illness, reaching a peak in the first 3 days and lasts at average 5–7 days. There is enlargement of the liver and spleen.

Salmonella enteritidis

Acute onset of the disease, with a rise in body temperature, there is periodic cramping abdominal pain. Symptoms of intoxication are observed in the first 1–2 days, maximum — 3 days. Diarrhea is up to 5 times a day, sometimes — 10 times, quite profuse with a great amount of mucus, and blood-streaked. Anal sphincter is closed, there is no tenesmus.

Escherichia coli

Acute onset of the disease, with rising temperature up to 38–39 °C. There are florid symptoms of intoxication. Nausea, repeated vomiting and abdominal pain. Frequent stool: from 2–3 to 15 times a day, often with mucus and blood. The abdomen is moderately distended. Sometimes the liver and spleen are enlarged. Sometimes there are catarrhal signs, in some cases — polymorphic eruption on the skin around the joints, on the hands, and feet.

Intestinal yersiniosis

Acute onset of the disease, with rising temperature to 38–39 °C, which lasts no more than 3 days. Frequent single or repeated vomiting. Headache, cramping abdominal pain, usually moderate, without distinct localization. Stool becomes more frequent, it becomes liquid, with mucus and blood. First, the stool is formed, and then at 2–3 day feces disappear completely, stool becomes scanty like the "rectal" spit — a lump of mucus and blood. Tenesmus. Sigmoid colon is spasmed. Compliance of the anus.

Campylobacteriosis

Acute onset of the disease, with rising temperature to 38–39 °C, which lasts no more than 3 days. Frequent single or repeated vomiting. Headache, cramping abdominal pain, usually moderate, without distinct localization. Stool becomes more frequent, it becomes liquid, with mucus and blood. First, the stool is formed, and then at 2–3 day feces disappear completely, stool becomes scanty like the "rectal" spit — a lump of mucus and blood. Tenesmus. Sigmoid colon is spasmed. Compliance of the anus.

Dysentery
## Intoxication, invasive diarrhea

<table>
<thead>
<tr>
<th>Escherichia \ enteropathogenic form</th>
<th>Rotavirus \ gastroenteritis</th>
<th>Cholera</th>
<th>Ulcerative \ colitis</th>
<th>Simple \ dyspepsia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute onset of the disease with fever. Stool is frequent, 10–15 times a day, watery, yellow or orange, with an admixture of small amounts of mucus, without blood. The abdomen is moderately distended; soft, abdominal murmur along the small intestine. The liver and spleen are not enlarged. The anus is closed, there is an irritation around it and on the buttocks. Vomiting is persistent, but not often, 2–3 times a day. Regurgitation.</td>
<td>Acute onset of the disease, with rising temperature up to 37.5–39 °C. Vomit is abundant, mixed with food, and then — watery, with flakes of mucus. Stool becomes frequent up to 5–15 times a day, watery, bulky, yellow or yellow-green, frothy, with a pungent odor, splash-stool. Sometimes it is a dull whitish or pityriasis. Pain is cramping in the epigastric or umbilical region. The mucous membrane of the soft palate, small tongue, palatine arches are partially hyperemic and slightly swollen, grainy. The liver and spleen are not enlarged.</td>
<td>The disease begins acutely, with liquid stools. It becomes colorless, watery and bulky, with floating flakes, like «rice water», there is no peculiar smell, mixed with mucus and blood, up to 3–10 times a day. Vomiting starts after the diarrhea. Temperature is decreased or subfebrile. Imperative feeling of defecation are frequent at night.</td>
<td>There are complaints of abdominal pain, usually on the left side, bloating, borborygmus, and constipation. The stool may be like «sheep-dung» or its first portions are formed, following — liquid (constipational diarrhea). Defecation is divided into two parts: patient feels defecation urge straight after defecation. There is mucus, and sometimes blood in feces. There is loss of appetite, and sleep disturbance. Nausea and vomiting are not typical. There is no fever.</td>
<td>Acute onset of the disease. There are regurgitations, vomiting, stop weight gain and diarrhea. Stool becomes more frequent up to 5–8 times a day. Fecal matters are not homogenous, liquid, yellow-green color, with mucus and white lumps, with an unpleasant odor. During expressed meteorism stool is spitting. There is irritation of the skin around the anus. There is offensive breath, meteorism, tongue is coated. There is no fever.</td>
</tr>
</tbody>
</table>
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF INTESTINAL COLI-INFECTION IN INFANTS

Yes

The enteritis syndrome, intoxication

Disease occurs in infants and is caused by introducing of supplementary food or transferring the child to bottle feeding. In such cases, when the process is too rapid, or when the quantity and quality of introduced supplementary food is not adequate to the child's age, it leads to the functional disorders of intestines. There is no intoxication, regurgitation. Child is relatively calm. Unformed stool without pathological additive. All disorders disappear after the elimination of all nutritional causes.

Simple dyspepsia

Staphylococcal enteritis

Viral diarrhea

Salmonellosis of enteric form

Coli-infection

The disease occurs in infants. It is related with mother's disease (mastitis, sore throat, etc.). The disease develops gradually. Stool becomes more frequent, liquid, with mucus, green, often blood-streaked. The temperature is subfebrile. Clinical course is an undulating, with prolonged (for several weeks), subfebrile fever, unstable stool.

The disease is more common in children younger than 2 years. The body temperature is up to 37–38 °C. There are symptoms of intoxication, nausea and vomiting. Abdominal pain. Sudden imperative feeling of defecation ends with a loud passage of flatus and spitting stool. Stool is liquid, watery, bulky and frothy, with a pungent odor, up to 5–15 times a day. The rotavirus is more common.

The disease is common in infants. It is accompanied by prolonged fever, severe intoxication. Stool is liquid, yellow-green color, with mucus and fetid odor. Symptoms of dehydration develop rapidly. The liver and spleen are enlarged.

The body temperature increases to 38 °C. Cramping abdominal pain. Stool is loose, liquid with mucus, bulky, watery, bright-yellow color. The anus is closed. There is an irritation around the anus and on the buttocks. It occurs in children under 1 year.
<table>
<thead>
<tr>
<th>Enteritis Syndrome, intoxication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intestinal yersiniosis</strong></td>
</tr>
<tr>
<td>Temperature of the body increases from the first day of the disease to subfebrile digits. Rash is maculopapular, located in the axillae, chest, morbilliform rash in the joints. Symptoms of intoxication, nausea, vomiting, generalized abdominal pain. Stool is porridge-like, with a small amount of mucus 3-6 times a day. The disease is often accompanied by respiratory syndrome, hepatosplenomegaly.</td>
</tr>
<tr>
<td><strong>Campylobacteriosis</strong></td>
</tr>
<tr>
<td>Temperature increases, symptoms of intoxication, nausea, repeated vomiting, and anorexia. Abdominal pain becomes worse before defecation. Stool is liquid, watery, frothy, mixed with mucus and blood.</td>
</tr>
<tr>
<td><strong>Dysentery</strong></td>
</tr>
<tr>
<td>Body temperature increases to 38-39 °C. Stool is loose with mucus and blood; abdominal pain is cramping. The abdomen is sunken, spasm of sigma. Tenesmus. «Rectal spasm». There are sphincteritis and compliance of the anus.</td>
</tr>
<tr>
<td><strong>Salmonellosis, colitic form</strong></td>
</tr>
<tr>
<td>It occurs in infants, prematurity and being bottle-fed. Disease begins acutely. Vomiting, abdominal pain, loose stools with admixtures of mucus and blood. The liver is enlarged. Unlike to dysentery there is no the tenesmus and compliance of the anus.</td>
</tr>
<tr>
<td><strong>Giardiasis</strong></td>
</tr>
<tr>
<td>The body temperature is normal. There is moderate pain in epigastrium. Abdominal murmur. Stool is liquid, watery, without mucus and blood, mixed with undigested food. Giardia are detected in the feces.</td>
</tr>
</tbody>
</table>
### Syndrome of gastroenterocolitic intoxication

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholera</td>
<td>Acute onset of the disease, with occurrence of liquid stools, colorless, watery and bulky with floating flakes, like «rice water», with no specific smell, mixed with mucus and blood, up to 3–10 times a day. Vomiting starts later than diarrhea. Temperature is reduced or subfebrile. There may be imperative feeling of defecation at night.</td>
</tr>
<tr>
<td>Simple dyspepsia</td>
<td>Acute onset of the disease. Regurgitation, vomiting, stop of weight gain and diarrhea are typical. Stool becomes more frequent up to 5–8 times a day. Stool is not formed, liquid, yellow-green with mucus and white lumps, with an unpleasant odor. There is a fecal stream during expressed aerogenesis. There is skin irritation around the anus.</td>
</tr>
<tr>
<td>Paratyphoid A, B</td>
<td>Acute onset of the disease, with a rise of body temperature, headache, chills, pain in the abdomen. Stool is loose, bulky, slimy, with a pungent odor, as a «swampy slime.» From the first days there are catarrhal signs, hyperemia of face, injection of scleral vessels, roseolous or maculopapular rash. The liver and spleen are enlarged.</td>
</tr>
<tr>
<td>Dysbacteriosis</td>
<td>It is more common in infants. The disease develops gradually. The stool becomes bulky, loose, sometimes frothy, with white lumps, and sour smell. There are regurgitations, meteorism, murmurs in the parts of the alimentary tract, steatorrhea, weight loss, diarrhea with putrid fermentation. Symptoms of polyhypovitaminosis.</td>
</tr>
<tr>
<td>Syndrome of malabsorption</td>
<td>The disease is detected either after the introducing of complementary foods, or after the introducing of milk and manifests by persistent diarrhea, abdominal distention, vomiting, regurgitation, that leads to hypothyrophy. Symptoms disappear after the elimination of intolerate food. There is no intoxication. The respond to therapy is poor.</td>
</tr>
</tbody>
</table>
DIAGNOSTIC ALGORITHMS: SALMONELLOSIS

AFFECTED ORGANS AND SYSTEMS

Splenomegaly

Oliguria

Enlargement of the liver, jaundice

Thirst, dry mucous membranes and skin, weight loss

Sudden pallor of the skin, tachycardia, muffled heart sounds, decreased blood pressure

Fever during 3–5 days, flaccidity, weakness, anorexia, coma, convulsions

Abdominal pain, persistent repeated vomiting, loose stools with mucus, blood and green, coated tongue, distention, induration and tenderness of the colon

GASTRINTESTINAL

CARDIOVASCULAR SYSTEM

CENTRAL NERVOUS SYSTEM

METABOLISM

KIDNEYS

LIVER

Splenic

Hematological studies

Sero logic studies

Cytological examination

Bacteriological studies of feces, vomit, blood, bile, urine

CLINICAL VARIANTS

Gastric, gastroenterological, enteral, gastroenterocolitis, enterocolitis, typhoidal, Haskel, cholera-like, transient bacteriocidal mixed

Prolonged carrying

Toxicosis with exsiccosis

Higher frequency of severe forms

Dyspeptic forms

Toxic-septical forms are more common

Nonpercutaneous

PECULIARITIES IN 1 YEAR OLD CHILDREN

DIAGNOSTICS
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF CHOLERA

Yes

Watery diarrhea, vomiting, exicciosis

Acute onset of a triad of symptoms: rising of body temperature, vomiting and diarrhea. Vomiting precedes diarrhea, repeated, lasts — 1—2 days. The number of bowel movements/defecation — from 10 to 15 times a day. Stool is loose, yellow, without any pathologic additives, sometimes discolored or turbid pale. Duration of diarrhea is 3—6 days. Rotavirus is detected by electron microscopy

Rotavirus
gastroenteritis

Enteropathogenic
escherichiosis

Acute onset of disease. Feces are watery, yellow or orange in color, with an admixture of a small amount of clear mucus, bulky, unformed “porridge-like”/“water-gruel” — excrements are mixed with water, spitting, diapers are entirely moisten with them. After liquid absorption, mucus disappears and stool often seems normal. Vomiting 1—2 times a day. The rapid development of toxicosis with exicciosis. Bacteriological confirmation/verification of the diagnosis is the growth of the colonies E. Coli

Salmonellosis
(gastroenteritis syndrome)

Acute onset of disease, with pain in upper abdomen, repeated vomiting, the temperature rising to 38—40 °C, general weakness. Tongue is thickly coated, dry. The abdomen is moderately distended. Stool is up to 5 times a day, porridge-like or liquid, bulky, undigested, sometimes watery or frothy, with a significant amount of spinach color like “pond scum”, foul-smelling. Developing of symptoms of toxicosis and exicciosis is gradual. Salmonella is found in feces, vomit mass and other substances. Increasing of salmonella antibodies level in the patient’s blood

Death cap mushroom
(amanita phalloides) poisoning

Acute onset of disease, temperature of the body is normal. Diarrhea starts suddenly, often at night. Defecation urge is painless, there isn’t abdominal pain. At first hours, feces are formed, then — watery, bulky, turbid white, with floating flakes like “rice-water”. There aren’t pathological admixtures. Acute/severe/sharp weakness develops, adynamia. Bulky repeated vomiting without nausea. Vomit mass like to “meat slops”. Conditions of dehydration, hypokalaemia and oliguria make rapid progress. Identification of cholera vibrio/Koch’s bacillus is based on microscopic investigations of patient’s biological media/discharges

Cholera
Watery diarrhea, vomiting, exiccosis

<table>
<thead>
<tr>
<th>No</th>
<th>Botulism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acute onset of disease. Regurgitations, stopping of the weight gain and diarrhea are noted. Loose stool is up to 5–8 times a day. Consistence of the fecal matters is not homogenous, liquid, yellow green colored, with admixtures of mucus and white flecks with bad smell. Meteorism provokes streaming of the excrements during defecation. There is an irritation around anus. Offensive breath, abdominal distention, coated tongue. No fever presented. There are dietary variations in medical history/personal history.</td>
</tr>
</tbody>
</table>

|    | Acute dyspepsia |
|    | Guiding symptoms are abdominal and dyspeptic. Pain is moderate, localized in antecardium, around the umbilical region. Appetite disorders, nausea, unstable stool, up to 3–4 times a day. Stool with moderate amount of mucus, without blood, with admixtures of indigested food. Loss of appetite, asthenia. Diagnosis is based on finding/detecting of cyst or vegetative form of parasite in direct smear of feces. |

|    | Giardiasis |
|    | Acute onset of disease with the evaluation of the temperature of the body to 38–39 °C. Symptoms of intoxication are manifested. Nausea, vomiting, abdominal pain. Stool is from 2–3 to 15 times a day, often with admixtures of mucus, blood. Abdomen is moderately distended. The liver and spleen are enlarged. There may be catarhal symptoms, polymorphous eruption on the skin around the joints, on the hands and feet. Diagnosis is based on Yersinta detecting in patient’s biological media/discharges. |

|    | Intestinal yersiniosis |
|    | Acute onset of disease, with increasing the temperature of the body up to 38–39 °C. Headache. Abdominal pain is cramping without distinctive localization. Stool is loose, becomes watery/liquid, with admixtures of mucus and blood. At first day, feces are formed, after 2–3 days feces mass disappear completely, stool becomes mucous as like as «rectal spitting», scanty, with blood streaks. Tenesmus and compliances of the anus. |

|    | Dysentery |
DIAGNOSTIC ALGORITHMS: CHOLERA

CHOLERA
- El-Tor
- Gihoshima
- Summer
- Inaba
- Ogawa

SEASONALITY

TRANSMISSION MECHANISM

AFFECTED ORGANS AND SYSTEMS
- Gastrointestinal tract
- Cardiovascular system
- Central nervous system
- Metabolism
- Kidneys

CLINICAL SYNDROMES
- Gastroenteric
- Hypovolemic shock
- Toxicosis with exosites

CLINICAL SYMPTOMS
- Muscular hypotonia, drowsiness, rapid heart sounds muffled
- Oliguria, anuria
- Tachycardia, hypotension, cyanosis of the nasolabial triangle, acrocyanosis
- Hoarseness, lower blood pressure, dry skin, severe weakness, weakness, dizziness, hypothermia, thirst, weight loss, convulsions, muscle weakness
- Profuse vomiting, watery stool, abundant with muddy-white flakes floating reminiscent of "rice water" stool frequency 3-10 times a day and more

CLINICAL FORMS
- Typical
- Haemorrhagic
- Subclinical
- Algid state
- Severe
- Moderate/severe
- Mild
- Hypertonic and "dry cholera"
**STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF TYPHOID FEVER**

<table>
<thead>
<tr>
<th>Yes</th>
<th>Intoxication. Syndrome of rash. Generalized lymphadenopathy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low grade fever, weakness, distress. There is punctate rash on extensor surfaces of the joints, derriere, abdomen, the hips, without any changes on the skin. Catarrhal signs of the upper respiratory tract occur at the same time with the rash. The occipital lymph nodes are enlarged. CBC: leucopenia, lymphocytosis, plasmacytosis</td>
</tr>
<tr>
<td></td>
<td>Expressed catarrhal period: purulent discharge from the nose, conjunctivitis, cough. Filatov-Koplik spots. There are menocelis and papular eruption phases. Period of rash is followed by a period of pigmentation, then defurfuration (defurfuration). CBC: leucopenia</td>
</tr>
<tr>
<td></td>
<td>Fever, the symptoms of respiratory catarrh, hyperplasia of lymphoid/adenoid tissue of oropharyngeal cavity. Cervical lymphadenopathy. Blenosis of the eyes: blennophthalmia/catarrhal conjunctivitis, follicular conjunctivitis, membranous conjunctivitis. There are no changes in CBC</td>
</tr>
<tr>
<td></td>
<td>Florid symptoms of intoxication. Long duration. Pharyngoscopy reveals changes of necrotic tonsillitis (Henoch’s angina in the throat). Hepatosplenomegaly. Oculoglandular form — purulent conjunctivitis. There are mononuclear changes (shifts in the blood). Thrombocytopenia, hemolysis (decreasing of blood coagulability). Serological examinations reveal increasing antibody titer</td>
</tr>
<tr>
<td></td>
<td>Acute onset, herpetic eruption on the lips. Abdominal pain, gaseous distention, diarrheal syndrome, borborygmus in the ileocecal region, nausea, and vomiting. Catarrhal signs of upper respiratory tract. Hepatosplenomegaly. Exanthema. The results of Widal test (Widal reaction) are negative. Studying of blood cultures and serologic examinations indicate the presence of specific antibodies</td>
</tr>
<tr>
<td></td>
<td>Prolonged fever, headache. Specific toxicity — somnolentia, hallucinations, delirium, loss of consciousness. The skin is pale and dry. Typhoid maculopapular rash on the skin of the abdomen. The middle of the tongue is coated with thick brown plaque, the tip and sides are clean, red. There are teeth indentations. Diarrhea syndrome — pea soup stools is up to 8—10 times a day. There is no nausea or vomiting. Hepatosplenomegaly. Positive Widal reaction</td>
</tr>
</tbody>
</table>
### Intoxication. Syndrome of rash.
#### Generalized lymphadenopathy

<table>
<thead>
<tr>
<th>Disease</th>
<th>Clinical Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lymphogranulomatosis</td>
<td>The course of disease is prolonged (for months). The temperature curve has the undulating nature. Hyperplasia of lymph nodes of all groups: lymph nodes are enlarged to the V–VII sizes, they are dense, matted together, and they aren’t freely movable. Lymph node biopsy reveals mirror-image cells/Sternberg cells.</td>
</tr>
<tr>
<td>Acute leukemia</td>
<td>The sharp/acute skin pallor, marked angioedema/bleeding, enlarged spleen. The number of red blood cells and hemoglobin is reduced, accelerated ECR (erythrocytes sedimentation rate). Results of sternal puncture: increasing of myelocaryocytes, reducing of megalakaryocytes, myelopoiesis disorders. The amount of blast elements is sharply increased; the number of intermediate progenitor and mature forms of the cells of myeloid lineage is reducing.</td>
</tr>
<tr>
<td>Toxoplasmosis</td>
<td>Prolonged low-grade fever, lymphadenopathy, the liver and the spleen are enlarged. Sharp muscle pain, generalized arthralgia without visible changes in the joints. Chorioretinitis, progressive myopia. Changes in the autonomic nervous system. X-ray test reveals calcifications in the brain. Serological examination reveals growth of <em>Toxoplasma</em> antibody titer.</td>
</tr>
<tr>
<td>Brucellosis</td>
<td>Fever, expressed catarrhal signs of the upper respiratory tract, the manifestations of diffuse bronchitis. Anorexia, dyspepsia, colitis, significant enlargement of the liver and the spleen. Slow regress of the symptoms. Hypochromic anaemia. A significant increasing of ESR, leukocytosis is more common. Abdominal pain. Causative agents are revealed by blood, bone marrow, feces, and bile examinations. Serological method/antibody-mediated method: Wright-test shows increasing of antibody titer to 1:100.</td>
</tr>
<tr>
<td>AIDS</td>
<td>Prolonged low-grade fever, undue fatiguability, lymphadenopathy, weight loss, obstructive cough without reversal, diarrhea syndrome. Upper gastrointestinal events with Candida (there is an oral and oesophageal candidiasis). Pneumocystic pneumonia. Dysfunction of the central nervous system (injury of the central nervous system). Kaposi’s varicelliform eruption. Reducing number of T4 lymphocytes.</td>
</tr>
</tbody>
</table>
**Typhoid Fever**

**Affected Organs**
- Central nervous system
- Gastrointestinal tract
- Cardiovascular system
- Skin
- Blood
- Other organs

**Signs and Symptoms**
- Fever, headache, delirium, confusional state, foot eczema
- Diarrhea, constipation, anorexia, constipation, or a Paddock’s symptom, voiceless tongue, dicrotic pulse
- Bradycardia, dry skin, rash, typhoid fever symptoms
- Fever, toxicosis, exanthem, the early appearance of rashes, maybe absent, dyspepsia, tachycardia, leukocytosis

**Characteristics in Children of Early Age**
- Acute onset, shortening of the period of clinical disease, repeated vomiting, toxicosis with exanthem, the early appearance of rashes (maybe absent), dyspepsia, tachycardia, leukocytosis

**Complications**
- Meningitis
- Encephalitis
- Stomatitis
- Parotitis
- Hemorrhage
- Pneumonia
- Cholecystitis

**Methods of Diagnostics**
- Blood culture
- Stool culture
- Urine culture
- Indirect hemagglutination test
- Widal’s reaction
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSTICS
OF VIRAL DIARRHEA

Yes

The syndrome of watery diarrhea

Retraction of the abdomen, vomiting, spasmodic abdominal pain, spasm of the sigmoid colon, blood-streaked stool with mucus, "rectal" spit. Compliance of the anus

Dysentery

Hepatosplenomegaly, abdominal distension, abdominal pain (epigastric or generalized abdominal), a stool as a "spinach" or "frogspawn", persistent vomiting, long-term intoxication (up to 7 days)

Salmonellosis

The disease occurs predominantly in children of the 1 year of life. Acute onset with the gradual development of symptoms, temperature is long and wavy; vomiting is infrequent, but prolonged; distention, rumbling along the small and large intestines; bright yellow enteral stool. Dehydration symptoms develop often

Campylobacter, enteropathogenic form

Abdominal pain (in the intestine more in the ileocecal region), distention, borborygms, loose stool with harsh odor which is profuse and slimy. Polymorphous eruption (roseolous, maculopapular, papular-roseolous)

Paratyphoid

Nausea, repeated vomiting 1–2 times a day, abdominal pain is spasmodic localized around the umbilicus or in the right iliac region. Borborygmus, diffuse tenderness along the small intestine, ileum and caecum. Loose watery stool with mucus and greens and sometimes blood

Intestinal yersiniosis

Vomiting: initially with contaminant of food, then watery with mucus. Stool is watery, profuse, of yellow color with harsh odor. Stool may be muddy whitish or pityroid. Pain in the epigastric or umbilical region has permanent nature. It is characterized by imperative desire for stool accompanied by borborygms and ends with loud discharge of gases and splash-stool

Rotavirus infection
The syndrome of watery diarrhea

<table>
<thead>
<tr>
<th>No</th>
<th>Cholera</th>
</tr>
</thead>
<tbody>
<tr>
<td>At first there is diarrhea after that vomiting, dehydration, frequent stools (without counting) in form of rice-water and odorless. It occurs mostly in young children with rapid onset and elevation of body temperature</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>Boliusim</th>
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<tbody>
<tr>
<td>Ocular symptoms join. Diarrhea is without pathological impurities, nausea and vomiting. In severe forms of respiratory disorders there are pareses of the tongue muscles, soft palate and myasthenia. Pale skin, dullness of heart sounds, systolic murmur</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>Simple dyspepsia</th>
</tr>
</thead>
<tbody>
<tr>
<td>It occurs mainly in infants. Short vomiting, loose stools with yellow mucus, with whitish flecks (calcium soaps), sour smell. Elevation of body temperature. Diet leads to normalization of the state</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>Poisoning by amanita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mushroom poisoning often happens in august. There is sudden severe cutting pain in the abdomen, uncontrollable vomiting. Very frequent watery stools may be with mucus, sometimes blood. There is eating mushrooms in the anamnesis</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>Poisoning by poisons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact with toxic chemicals, repeated vomiting and loose stool with mucus of fecal character. Pain is sharp, constant or spasmodic of cutting character in the abdomen. Impairment of consciousness may appear</td>
<td></td>
</tr>
</tbody>
</table>
DIAGNOSTIC ALGORITHMS: VIRAL DIARRHEA

ETIOLOGY

SEASONALITY

FORMS

CHARACTERISTIC OF FORMS

COURSE
**STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF DYSBACTERIOSIS**

<table>
<thead>
<tr>
<th>Yes</th>
<th>Syndrome of diarrhea. Intoxication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hepatosplenomegaly, abdominal distension, abdominal pain (epigastric or around the abdomen), stool as “swamp slime” or “frogspawn”, persistent vomiting, long-term intoxication (up to 7 days)</td>
</tr>
<tr>
<td></td>
<td>Retraction of the abdomen, vomiting, cramping abdominal pain, spasm of the sigmoid colon, stools with mucus, blood streaks, “rectal spit”. Compliance of the anus</td>
</tr>
<tr>
<td></td>
<td>It occurs predominantly in children younger than 1 year old. Acute onset with gradual development of symptoms, long, wavy temperature, infrequent, but prolonged vomiting, bloating, abdominal sounds along the small and large intestines; enteritis stool of bright yellow color, symptoms of dehydration often develop</td>
</tr>
<tr>
<td></td>
<td>Children suffer from it more often than adults. It starts acutely; stool is profuse, liquid and watery, without any admixtures of mucus and blood, of dull whitish color. Vomiting is rare. Abdomen sounds are loud. The urge to defecate has an imperative character. Renal failure, acidosis. Dehydration. The pain is in the epigastrium and umbilical region. During winters</td>
</tr>
<tr>
<td></td>
<td>The disease is more common in young children. It develops gradually. The stool becomes profuse, liquid, sometimes with white foamy flecks, sour smell. Posseting, meteorism, abdomen sounds in various parts, steatorrhea, weight loss, diarrhea with putrid fermentation often occur. Symptoms of polyhydropoaminosis</td>
</tr>
</tbody>
</table>
### Syndrome of Diarrhea. Intoxication

**Cholera**

Diarrhea and then vomiting, dehydration, frequent stools (times out of number) in the form of rice-water and odorless. It is the most common in young children, with rapid onset and increase of body temperature to high numbers.

**Botulism**

1. Neuroparalytic syndrome: visual impairment, dry mouth, dilated pupils with a reduction or even nonreactive for the light, convergence and accommodation. Sometimes anisocoria, paralysis of accommodation may occur. The «netting» appears before the eyes. Ptosis, diplopia. 2. Paresis of the facial muscles, resulting in amimia, masklike face. Dysphagia. Then paresis and paralysis of skeletal muscles of the trunk and extremities manifest.

**Simple dyspepsia**

It occurs in infants and is associated usually with the introduction of feeding up, or transfer the child to bottle feeding. In these cases, the rapid introduction of supplementary food is not appropriate for the quality or quantity of food of the child's age, leads to functional impairment of the intestine. No intoxication, posseting. A child is relatively calm. Stool is softening, without pathological impurities. After the elimination of the nutritive cause all disorders rapidly disappear.

**Celiac disease**

The stool includes increased amounts of fats. It is bulky and porous, grayish, occasionally becomes liquid, watery. Multiple stool. Loss of weight, big belly. Extended and elongated colon, which remains the same after the disappearance of the main symptoms.

**Megacolon**

The disease begins in newborns since birth. Belly is big, intractable, stable constipation. Subcutaneous veins are dilated, umbilicus is protruded. The child is pale, emaciated, arms and legs are disproportionate. The child struts from peers. Digital anus examination gives a sense of increased sphincter tone of the rectum.
METHODS OF DIAGNOSIS

Study of stool microflora

1. degree — anaerobic flora prevails over the aerobic flora, opportunistic flora is replaced with atypical variants, 10^10 — 10^11.

2. degree — opportunistic flora is replaced with atypical variants, 10 — 10^1.

3. degree — opportunistic pathogenic flora dominates, opportunistic flora increases rapidly.

Decrease in humoral and cellular indicators from moderate to severe ones, depending on the degree.

Differential diagnosis

Opportunistic pathogenic acute intestinal infections

Acute bacterial and viral intestinal infections

Nonspecific ulcerative colitis

Treatment

Diet depending on the child's age with the inclusion of preparations with bifidobacteria

Enzyme preparations — abomin, pancreatin, festal, smekta, mezim forte

Bificol, colibacterin, lactobacterin, bifidumbacterin, complex immunodrugs, specific bacteriophages

Preventive measures

Rational use of antibiotics

Rational nutrition with restriction of the use of refined products

Prevention of intestinal infections
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF INTESTINAL YERSINIOSIS

**Diarrhea syndrome.**
**Intoxication syndrome, rash**

**Enterovirus infection, intestinal form**

Acute onset of the disease with fever up to 38 °C. It happens most often in children younger than 2 years. Cough, runny nose, congestion of the mucous oropharynx appear. In 1–3 days pain in the abdomen and diarrhea for 5–10 times a day sometimes with mucus occur. Often there is repeated vomiting. There is the presence of multiform maculo-papular rash all over the body, and hyperemia of the body, especially of the face and neck.

**Pseudotuberculosis**

Acute onset of the disease with fever up to 38–40 °C, headache, chills, muscle and joint pain. Mild catarhal signs. Nausea, vomiting, and epigastric pain. There is a loose stool 2–3 times a day enteritic-like. Rash outbreaks at once, and has either a punctate or maculopapular character. It is located in the abdomen, in the axillary regions, on the lateral surfaces of the body, it is confluent around the large joints.

**Salmonellosis of septic form**

The disease occurs in newborns, premature babies and infants. Acute onset of diseases, with the temperature rise. There are suppurative foci in various organs. It occurs on the background of frequent stool. Headache, vomiting, loss of appetite, bloating. Hepatosplenomegaly. Roselous-papular rash is not severe.

**Paratyphoid A**

Acute onset of the disease, headache, chills, pain in the abdomen. Bowel disorders, distension. From the earliest days there are catarhal signs, hyperemia of face, injection of scleral vessels, conjunctivitis. At its height roseoolous or maculeopapular rash appears for several days.

**Intestinal yersiniosis**

Acute onset of the disease. It starts acutely with short-term body temperature rise up to 38–39 °C. Symptoms of intoxication are marked. Nausea, repeated vomiting and abdominal pain. Stool is from 2–3 to 15 times a day often with mucus and blood. The abdomen is moderately distended. Sometimes the liver and spleen are enlarged. Sometimes there are catarhal signs, in some cases there is polymorphous eruption on the skin around the joints, on the hands, feet.
Diarrhea syndrome.
Intoxication syndrome, rash

The disease develops gradually. Stool is profuse, liquid, sometimes frothy with white lumps. Frequent possetting, meteorism, abdominal sounds in the various parts, deficient body weight gain. There is no intoxication. The rash is absent

The disease begins acutely; fever, vomiting, sore throat occur. In a few hours there is a punctate rash on unchanged skin, which spreads very rapidly on the face, neck, trunk and limbs. It is characterized by a bright localized from the hard palate hyperemia (catarrhal, follicular, necrotic tonsillitis). Diarrheal syndrome is absent

It begins acutely with a temperature rise to 38.5–39 °C, upper respiratory catarrh and conjunctivitis appear. There are grayish-white spots on the buccal mucosa. Maculo-papular rash occurs in 4–5 days, which is manifested in three stages: 1 day — face, neck, 2 day — trunk, arms, 3 day — legs. Bowel disorders are not observed

Acute onset of the disease. There may be possetting, vomiting, deficient body weight gain, diarrhea. Stool is more frequent up to 5–8 times a day. Consistency of feces is heterogeneous, liquid, slime green color, with mucus and white lumps, with an unpleasant odor. During aero-genesis stool is thrown like a jet. There is no fever or rash

Acute onset of the disease with temperature rise up to 38–39 °C that lasts at least for 3 days. Vomiting is single or repeated. Headache, pain in the abdomen. Stool quickens, it becomes liquid, with mucus and blood. At first the stool has a fecal character, then in 2–3 day feces disappear completely, the stool becomes poor, so-called «rectal spit» is a lump of mucus and blood. Tenesmus is marked. There is no rash
METHODS OF DIAGNOSIS

- Bacteriologic culture of feces
- Bacteriologic culture of urine
- Bacteriologic culture of blood
- Bacteriologic culture of mucus
- The reaction of indirect
- Enzyme immunoassay
- Agglutination test

DIFFERENTIAL DIAGNOSIS

- Pseudotuberculosis
- Typhoid and paratyphoid infection
- Salmonellosis
- Shigellosis
- Enterovirus infections
- Measles
- Acute abdomen
- Brucellosis
- Scarlet fever
- Rheumatism
- Virus hepatitis
- Rubella
- Septis

PRINCIPLES OF TREATMENT

- Antibiotic treatment
- Desamation
- Rehydration
- Nonsteroidal preparations
- Corticosteroids
- Vitamins
- Antihistamines
- Diet

PREVENTIVE MEASURES

- Sanitary and hygienic regime
- Early identification of sources of infection
- Isolation of patients
- Work in the focus with the contact persons
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF PSEUDOTUBERCULOSIS

**Yes**

**Punctate rash syndrome.**
**Intoxication, catarrhal syndrome**

- Catarrhal symptoms. Micropunctate rash is followed by peeling of the skin. Tachycardia, often vomiting. Bright redness of throat — "flaming" fauces. Lamellar skin flaking, especially on the fingers. Tonsillitis, lymphadenopathy, "strawberry" tongue. The rash does not leave the pigmentation. Pale nasolabial triangle. Rash is heavily on the cheeks, on the sides of the trunk, below abdomen, flexor surfaces of the extremities. The rash is on the hyperemic skin. **Scarlet fever**

- Catarrhal signs. The rash is multifocal, punctate, maculose-papular, hemorrhagic, often around the joints, on the hands, feet (symptoms of "gloves" and "socks"). Joints inflammation (swelling, redness, tenderness and limitation of motion). Myocarditis. Hepatosplenomegaly. Nausea, vomiting, abdominal pain, heavy sweating, high fever with large daily scale, full-blown jaundice, diarrhea. Loose stool, often with mucus, green, sometimes with blood. **Intestinal yersiniosis**

- Body temperature is increased, sometimes with the symptoms of intoxication. Joint pains, icteric sclerae, mucous membranes of the oropharynx, and then the skin. Aching pain is in the right hypochondrium, some person has itching. Hepatosplenomegaly. At the end of the pyretic period urine becomes dark and stool becomes discolored. Symptoms of dyspepsia occur. In the blood there is leukopenia, neutropenia, relative lympho- and monocytosis, increased direct bilirubin, thymol test is increased, prothrombin index is reduced. **Hepatitis A**

- Acute onset of the disease with fever, catarrhal signs. Lymphadenopathy — cervical, back cervical nodes, located behind sternocleidomastoid muscle by chain. Tonsillitis, hepatosplenomegaly. There are atypical mononuclear cells in blood. Alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase are increased. In the throat there are necrotic changes of tonsils. Plaque is not completely rubbed between the glass slides. It does not bleed when it is removed, can be easily removed. If you try to remove incrustations with tweezers they tear and crumble. Maculosis rash. **Infectious mononucleosis**

- Acute onset of the disease, fever increases to 38–40 °C, the symptoms of intoxication, muscle and joint pains, catarrhal signs. There are pains on swallowing, dizziness, nausea, vomiting, abdominal pain often in the right iliac region or in the epigastrium. Sometimes loose stool may be for 2–3 times a day. Puffiness and redness of face, neck, pale nasolabial triangle. Conjunctival hyperemia and vascular injection of sclera. Hyperemia of the pharynx, symptoms of "hood", "gloves", "socks." Micropunctate hyperemic rash occurs sometimes on unchanged skin. Skin itching. Localization is the abdomen, axillary regions, on the lateral surfaces of the body. Hepatosplenomegaly. **Pseudotuberculosis**
<table>
<thead>
<tr>
<th>Punctate rash syndrome.</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intoxication, catarrhal syndrome</td>
<td></td>
</tr>
</tbody>
</table>

**Maculo-papular rash, large spotted rash, catarrhal symptoms, subfebrile temperature. Staging of rash on the hyperemic skin is typical.** After the rash disappears, brown hyperpigmentation of the skin persists for several days. Filatov–Koplik’s spots, conjunctivitis. Sometimes croup syndrome, rash is prone to be confluent.

**Body temperature is subfebrile. The rash is small maculosis, sometimes papular, not abundant, doesn’t leave pigmentation and desquamation after fading. It is not confluent. Rash hasn’t staging. Occipital and back cervical lymph nodes are swollen. Conjunctivitis is weak. In blood there is leukopenia, relative lymphocytosis, plasma cells (10–30%)**

**It begins acutely with temperature rise, symptoms of intoxication, abdominal pain, bloating, increased bowel sounds and pain along the intestine, in the ileocecal region. Catarrhal signs, hyperemia of face and injection of scleral vessels, conjunctivitis, herpetic eruption on the lips. Roseolous rash or maculo-papular rash, hepatosplenomegaly, sweating. In the blood there is normocytosis, neutrophilia, increased erythrocyte sedimentation rate. In severe cases complications are possible.**

**Menocelis, malaise, temperature rise, usually up to subfebrile, itchy skin, increased peripheral lymph nodes. Rash is confluent, it hasn’t any stages, it is associated with drug administration (often sulfanilamides, antibiotics, etc.). In the blood there is moderate eosinophilia. The rash is usually on the extensor surfaces.**

**Acute onset of the diseases, high fever up to 39 °C and above. Rash is small maculo-papular. Headache, muscle pain, scleritis, catarrhal signs. Vomiting and abdominal pain may be often. Localization of the rash is on a face, body, sometimes on hands and feet. The rash is located on the background of unchanged skin. There is no staging, it does not leave pigmentation and desquamation.**
DIAGNOSTIC ALGORITHMS: PSEUDOTUBERCULOSIS

Etiology
Seasonality
Mechanism of transmission
Affected organs and systems
Clinical forms
Clinical signs and symptoms

Pseudotuberculosis bacteria
Winter-spring
Pseudotuberculosis bacteria

Cardiovascular system

Cough, runny nose, subfebrile temperature, ARVI
No clinical signs, the diagnosis is based on laboratory tests
Malaise, subfebrile temperature, ephemeral rash
Sepsis
Lesions of the organs and systems
Combination of symptoms
Liver enlargement, tenderness on palpation, icteric sclerae, ochroderma, dark urine, in blood conjugated bilirubin fraction is increased
Joint pain, swollen joints, hot to the touch, mostly in wrist, elbow, phalangeal joints
Nausea, vomiting, abdominal pain, bowel disorders, dry tongue coated with salbura; by the end of the second week of illness there is a raspberry tongue
Punctate scarlet fever rash (skin on the chest, elbow, groin, armpits), white dermatoglyphism, coarsely spotted papular rash (on the face, nasolabial triangle; abdomen, back, around the joints), petechial, hemorrhagic rash, erythema

Droplet

Respiratory system

Blood

Spleen

Liver

Generalized

Combined

Icteric

Arthralgie

Abdominal

Scarlet fever-like

Gastrointestinal tract

Lymphatic system

Skin

Joints

Eyes

Catarrhal

Subclinical

Suppressed

Eyes

Droplet

Respiratory system

Spleen

Liver

Generalized

Combined

Icteric

Arthralgie

Abdominal

Scarlet fever-like

Gastrointestinal tract

Lymphatic system

Skin

Joints

Eyes

Catarrhal

Subclinical

Suppressed

Eyes

Droplet

Respiratory system

Spleen

Liver

Generalized

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Skin

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Eyes

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Respiratory system

Spleen

Liver

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Abdominal

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Catarrhal

Subclinical

Suppressed

Eyes

Droplet

Respiratory system

Spleen

Liver

Generalized

Combined

Icteric

Arthralgie

Abdominal

Scarlet fever-like
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF VIRAL ENCEPHALITIS

Yes

Intoxication. Impaired consciousness. Convulsions. Focal symptoms

Severe headache, especially in the fronto-temporal region, dizziness, pain in the abdomen, legs, and sometimes bleeding from the nose. Repeated vomiting, temperature is 38–40 °C, impaired consciousness, sopor-comatose state, convulsions. Hyperemia of the face, chest. On the spot of the bite there is a local reaction — a little redness and infiltration of the underlying tissues with regional lymphadenitis. Enlargement of the liver, flaccid proximal paralysis or paresis of the upper limbs, the symptom of «sagging neck», «Sprengel's deformity», meningeal symptoms

Tick borne encephalitis

Prolonged clinical course, prolonged fever, convulsive activity, hypertension-hydrocephalic syndrome. Child has problems with psychophysical development. Febrile reaction has the irregular wavy character. Often the secondary bacterial infection follows. Anxiety, poor sleep, weight loss, poor appetite, frequent possetting, fontanelle bulging, separation of cranial sutures, increasing of the head size

Cytomegaloviral encephalitis

Acute onset of the disease, with body temperature rise, malaise, headache. Herpetic eruption appears on skin, gingivostomatitis is in the anamnesis. There are neurological symptoms. Impaired consciousness, moderate meningeal syndrome, rarely local clonic-tonic convulsions, repeated many times during the day. Hemiparesis and hemiplegia, amnesia, aphasia, neurosis-like syndrome and syndrome of liquor hypertension. There are the lesions of cranial nerves and motor oculi nerves. There is a herpes simplex virus isolated in the cerebrospinal fluid. Changes are typical for serous meningitis in CSF analyses

Acute encephalitis caused by herpes simplex virus

Acute onset of the disease, with body temperature rise to 39–40 °C. Chill, headache, nausea, vomiting, meningeal symptoms, scleritis, catarrhal conjunctivitis. Patients are obtundate, indifferent, unresponsive to examination and surrounding. Rarer: excitement with delusions, hallucinations, loss of consciousness, muscle hypertension, which makes the patient lie with the throw back head and adducted towards the abdomen legs. Mono- or hemiparesis, flaccid paralysis, disturbance of breathing, swallowing, the fall of cardiovascular tone. Hyperkinesis of the facial muscles and upper limbs, sweating, and the lability of the cardiovascular system. In CBC: leukocytosis, neutrophilia, lymphopenia, eosinopenia, increased ESR. Lymphocytic cytosis, slight increase of protein

Japanese encephalitis

Epidemic (lethargic) encephalitis

Catarrhal signs, body temperature rise, headache, chills, nausea, vomiting. Oropharynx is hyperemic, sleep disturbance occurs early. Patients are sleepy during the day and suffer from insomnia at night (inversion of sleep), ocuomotor disturbances — ptosis, impaired convergence, diplopia, paralysis of accommodation, flaccidity or loss of pupillary response. Face is masklike, mimic is sluggish. Vestibular disturbances are dizziness, unsteady gait, nystagmus. Vegetative disturbances are sweating, hypersalivation, hyperkinesis. In CBC: moderate neutrophilic leukocytosis, increased ESR
Intoxication. Impaired consciousness. Convulsions. Focal symptoms

It occurs usually in 7–9 days after vaccination at high body temperature, at the height of the general and local reaction. Generalized tonic-clonic spasms of varying duration — from a few seconds to several hours. Anxiety, shudder, motor automatism, tremor of limbs, the recovery of reflexes or anisoreflexia, pyramidal signs. In older children there is a hallucinatory-delirious syndrome, psychosensorial disorder, cataleptic phenomena. CSF is not changed.

Intoxication, body temperature rise to 39–40 °C, anxiety, repeated vomiting is not related to ingestion, it does not bring relief. Generalized convulsions, severe headache, dizziness, somnolence, lassitude, hyperesthesia, positive meningeal symptoms, bulging of anterior fontanelle, position of «pointing dog», cranial nerves damage, vestibular disorders. Purulent: CSF is turbid, follows with rare drops, neutrophils predominate. Protein is increased, sugar is normal or reduced. Intracranial pressure is increased. Serous: CSF is clear, under the pressure. Initially cytosis is neutrophil-lymphocytic, then lymphocytic. Protein, sugar, chlorides usually do not elevated. Reaction is negative or weakly positive.

Loss of consciousness, nausea, vomiting, headache, cerebral symptoms. The disease manifests suddenly. Oculomotor disturbances (strabismus, «floating» eyeballs, abnormal pupillary response, size and shape of the pupils, the dissociation of reflexes, paresis of facial muscles, arterial hypertension, convulsive syndrome).

The disease is caused by injuries, aneurysms. Cerebrospinal fluid is bloody, during defecation there is a xanthosis. The pressure is 250–400 millimeter of water. Rate of fluid outflow is over 70 or like a jet. Cytosis is in the early days in accordance with red blood cells count, 5–7 days after it is 0.015–0.12. There is no sugar. Puncture brings considerable relief.

Motor excitement, impairment of consciousness, convulsions, leisure of nervous system. Flattening of the nasolabial folds, the deviation in the tongue direction, increased tendon reflexes, anisoreflexia, foot clonus, nystagmus, tremor, ataxia, light hyperkinesis, hemi-monoparesis, oculomotor disturbances. In younger children cerebral symptoms are expressed more clearly, they are often cerebellar.
VIRAL ENCEPHALITIS

ETIOLOGY
- Epidemic encephalitis
- Endemic encephalitis
- Cytomegalovirus encephalitis
- Measles encephalitis
- Chickenpox encephalitis
- Rubella encephalitis
- Postvaccinal encephalitis

CLINICAL SYNDROMES
- Meningal
- Encephalitic
- Paralytic
- Toxic

CLINICAL SYMPTOMS
- Tripod sign, headache, neck stiffness, Kernig's sign, Brudzinsky's symptom
- Oculomotor disturbances, syndrome of focal brain lesions, hyperkinesis, static and locomotor ataxia, epileptiform fits
- Monoparesis, hemiparesis, facial paralysis
- Fever, dyspeptic disorders, impairment of consciousness

METHODS OF DIAGNOSIS
- Serological reactions, HGR, lumbar puncture, virological and bacteriological study of CSF, the study of biological fluids (stool, throat swab, CSF), CBC, urinalysis, blood culture, studies of platelets, tuberculin tests, serum electrolytes, blood glucose, blood urea and blood creatinine, cranial X-ray, chest, X-ray, EEG
In the clinical findings there is jaundice, anemia, enlargement of the spleen. Hb decreases to 40–50 g/L, bilirubin increases (50–75 μM/L). The diameter of erythrocytes decreases, and the thickness increases. The form is spherical. The content of reticulocytes is increased.

Marked anemia (70–90 g/l). Enlargement of the spleen. Jaundice is due to indirect bilirubin. Defect in erythrocyte membrane — colourless part of the center is limited by two curved lines.

Significant enlargement of liver and spleen accompanied by jaundice. The increase of bilirubin is due to the direct fraction. In the blood there are increased reticulocytes, anisopoikilocytosis, «target like» erythrocytes and multiple basophilic inclusions in them.

Jaundice, severe weakness, arthralgia, abdominal pain, pain in heart, lower back are characteristic features. Temperature of the body is increasing. The liver and spleen are enlarged. Bilirubin is 40–60 μM/L due to the indirect fraction. Hemoglobin is decreased. The number of reticulocytes is increased; macrocytosis, microspherocytosis; osmotic resistance of erythrocytes is reduced.

Gradual beginning, weakness, moderate jaundice, headache, abdominal pain, hepatosplenomegaly. Excretion of hemosiderin by urinary way. Hemoglobin during the exacerbation is reduced to 30–50 g/l. Bilirubin is increased moderately due to the indirect fraction. Leukopenia. The iron content in blood is reduced. Dark urine is due to the absence of erythrocytes in it. Gregersen's benzidine test is +. Proteinuria is full-blown.

In the anamnesis there is a contact with the HAV patient about 15–30 days before. Preicteric period is 5–7 days. Variants of preicteric period are flu-like, dyspeptic, asthenovascular. During icteric period improvement is observed. In blood there is leukopenia, neutropenia, relative lympho- and monocytosis. ESR is 2–4 mm/h. Increase in total bilirubin due to the direct fraction. The thymol test is increased. Reducing of PTI. Increased ALT, AST.

In the anamnesis there is blood transfusion and operative dental procedures. Preicteric period is more marked, often joints are painful. Urticaria. During icteric period there is deterioration, bradycardia, and hypotension. Increased direct bilirubin, increased ALT, AST, dysproteinemia, reducing of thymol test, reducing of PTI. In blood serum there is HB_Ag, HB_Ag, anti HB_c, anti HB_e, anti HB_s.

Anamnesis is the same as that of HBV (parenteral way). Often it is without icteric course. Gradual onset, fatigue, asthenia, enlargement of liver and spleen. Clinically it is milder than HBV. In the blood serum there is anti HCV, HCV RNA.
In the anamnesis there is an acute HBV. The liver is moderately enlarged, edge is thick and sharp. There are signs of portal hypertension. Before ascitic and ascitic periods are long-term. There are changes in the protein fraction, the indicators of Sublimate and thymol tests. HbsAg may be detected.

In the anamnesis there is a chronic hepatitis. The liver is enlarged. The edge is thick. The spleen is enlarged. The period prior to the ascitic one is short. Portal hypertension is marked. Abdominal pain, joint pain, itchy skin, dyspeptic symptoms. Significantly increased bilirubin, ALT, AST, aldolase, HbsAg is detected more often.

From anamnesis there is often cholestatic variant of HBV. The liver is moderately enlarged, sensitive, edges are sharp. Portal hypertension is moderate. Abdominal pain, often in the right hypochondrium. Weakness, decreased appetite, itchy skin. Increased bilirubin and cholesterol, alkaline phosphatase, AST, ALT, thymol test.

In anamnesis there is alcoholism, alcohol abuse. In laboratory analysis there is leukocytosis, increased activity of alkaline phosphatase, cholesterol, lipoproteins-B. Bilirubin and amino transferase dissociation.

In the anamnesis there is a treatment with medicines, more often when the drugs are prescribed for a long time and in high doses. More often they are anti TB preparations of the 2 series. It develops by the end of the month from the start of medicines receiving. Nausea, vomiting, heartburn. Allergic disorders. Thymol test is negative.

In the anamnesis there is blood transfusion for 45–180 days prior to the illness. Preicteric period is 7–14 days. There is a feeling of heaviness in the right hypochondrium. Arthralgia is often. Fever precedes by jaundice. Spleen is often enlarged. Courvoisier's symptom is negative. Increased total bilirubin, AST, ALT, alkaline phosphatase, thymol test, cholesterol is decreased or increased. Test with galactose is +, urine reaction to urobilin is +

In the anamnesis there is an asthenia before the onset of jaundice, pain in the liver, which is slowly progressive with girdle sensation. Courvoisier's symptom is often +. Gall-bladder is not painful. Bilirubin is increased due to the bound fraction. Alkaline phosphatase, thymol test are negative or weak positive. Blood cholesterol is sharply increased, test with galactose is negative.

In the anamnesis there are attacks of gallstone disease. Acute onset. Pain in liver, full-blown, paroxysmal, with typical radiation to the right shoulder and scapula. High fever with large daily fluctuations. Courvoisier's symptom is often +. Gall-bladder is painful on palpation. Thymol test is negative. Cholesterol is normal or slightly increased. Reaction to urobilin is negative. Concretions may be in the gall-bladder.

Jaundice is moderate or weak, painful episodes are missing. It is important that epidemiological data and full-blown eosinophilia are up to 15–20% or more. Confirmation is the detection of parasites or their eggs.
<table>
<thead>
<tr>
<th>Clinical symptoms</th>
<th>Diabetic coma</th>
<th>Hypoglycemic coma</th>
<th>Hypothyroid coma</th>
<th>Cardiogenic shock</th>
<th>Uremic coma</th>
<th>Thyrotoxic crisis</th>
<th>Insult</th>
<th>Alcoholic coma</th>
<th>Addisonian crisis</th>
<th>Hepatic coma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Slow</td>
<td>Acute</td>
<td>Slow</td>
<td>Acute</td>
<td>Slow</td>
<td>Relatively slow</td>
<td>Acute</td>
<td>Relatively slow</td>
<td>Slow</td>
<td>Gradual</td>
</tr>
<tr>
<td>Behavior</td>
<td>Passive</td>
<td>Excited</td>
<td>Passive</td>
<td>Excited</td>
<td>Excited</td>
<td>Excited (sometimes)</td>
<td>Excited</td>
<td>Passive</td>
<td>Excited</td>
<td>Excited</td>
</tr>
<tr>
<td>Arterial pressure</td>
<td>Low</td>
<td>Increased</td>
<td>Low</td>
<td>Increased</td>
<td>Increased</td>
<td>Increased</td>
<td>Low (norm)</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Pulse</td>
<td>Rapid, weak</td>
<td>Rapid, tense</td>
<td>Slow</td>
<td>Rapid, arrhythmic</td>
<td>Rapid, tense</td>
<td>Slow</td>
<td>Rapid, tense</td>
<td>Rapid, tense</td>
<td>Tachycardia</td>
<td>Tachycardia</td>
</tr>
<tr>
<td>Skin, mucous</td>
<td>Pale, dry</td>
<td>Hyperemia, wet</td>
<td>Pale, dry</td>
<td>Wet, acrocyanosis</td>
<td>Sallow, dry</td>
<td>Hyperemia, wet</td>
<td>Hyperemia, wet</td>
<td>Hyperpigmentation</td>
<td>Icterus, dryness</td>
<td>Icterus, dryness</td>
</tr>
<tr>
<td>Skin turgor</td>
<td>Decreased</td>
<td>Normal</td>
<td>Solid edema</td>
<td>Pitting edema</td>
<td>Marked edema</td>
<td>Decreased</td>
<td>Norm</td>
<td>Norm, decreased</td>
<td>Decreased</td>
<td>Decreased</td>
</tr>
<tr>
<td>Reflexes</td>
<td>Areflexia</td>
<td>Reinforced</td>
<td>Reduced</td>
<td>Normal</td>
<td>Reinforced</td>
<td>Reinforced</td>
<td>Reduced</td>
<td>Reinforced</td>
<td>Reinforced</td>
<td>reinforec</td>
</tr>
<tr>
<td>Breath</td>
<td>Kussmaul respiration</td>
<td>Normal</td>
<td>Infrequent</td>
<td>Frequent</td>
<td>Frequent</td>
<td>Stenorous</td>
<td>Laborious</td>
<td>Frequent</td>
<td>Kussmaul respiration</td>
<td>Kussmaul respiration</td>
</tr>
<tr>
<td>Pupils</td>
<td>Mydriatic</td>
<td>Mydriatic</td>
<td>Mydriatic</td>
<td>Normal</td>
<td>Small</td>
<td>Mydriatic</td>
<td>Anisocoria</td>
<td>Small</td>
<td>Normal</td>
<td>Mydriatic, react poorly to light</td>
</tr>
<tr>
<td>Smell</td>
<td>Acetone</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>Ammonia</td>
<td>Normal</td>
<td>Alcohol</td>
<td>Normal</td>
<td>Normal</td>
<td>Hepatic smell</td>
</tr>
<tr>
<td>Tone muscles</td>
<td>Decreased</td>
<td>Increased</td>
<td>Decreased</td>
<td>Decreased</td>
<td>Cramps</td>
<td>Increased</td>
<td>Cramps</td>
<td>Decreased</td>
<td>Increased</td>
<td>Cramps</td>
</tr>
<tr>
<td>Abdominal symptoms</td>
<td>Vomiting, pain, tension of the muscles</td>
<td>Nausea</td>
<td>Sometimes pain</td>
<td>Sometimes nausea, vomiting, pain</td>
<td>Nausea, hiccup</td>
<td>Vomiting, pain, tension of the muscles</td>
<td>Nausea, vomiting</td>
<td>Pain, nausea, vomiting</td>
<td>Hepatomegaly, ascites</td>
<td></td>
</tr>
</tbody>
</table>
## Step Diagnostics and Differential Diagnosis of Comatose Conditions

### Guiding Symptoms

- Impairment of consciousness (loss)
- The absence of algesia
- The absence of other reflexes

<table>
<thead>
<tr>
<th>Signs</th>
<th>Coma</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Onset</strong></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td>Eclamptic; hypoglycemic; apoplectic</td>
</tr>
<tr>
<td>Gradual</td>
<td>Hepatic; uremic; thyrotoxic diabetic; adrenal</td>
</tr>
<tr>
<td><strong>Antecedents</strong></td>
<td></td>
</tr>
<tr>
<td>Ictericousity</td>
<td>Hepatic; hemolytic</td>
</tr>
<tr>
<td>Multiple vomiting</td>
<td>Hepatic; diabetic; thyrotoxic</td>
</tr>
<tr>
<td>Attack of convulsions</td>
<td>Epileptic; eclamptic;</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>Diabetic</td>
</tr>
<tr>
<td>Severe headache</td>
<td>Meningeal; apoplectic</td>
</tr>
<tr>
<td>Tremors, sweating, chest pain, invariable behavior</td>
<td>Hypokalemic; pate; apoplectic</td>
</tr>
<tr>
<td><strong>Position in bed</strong></td>
<td></td>
</tr>
<tr>
<td>Opisthotonos</td>
<td>Meningeal</td>
</tr>
<tr>
<td>Lateral jack-knife position</td>
<td>Meningeal; uremic</td>
</tr>
<tr>
<td><strong>Symptoms</strong></td>
<td></td>
</tr>
<tr>
<td>Marks of a blow</td>
<td>Epileptic; posttraumatic</td>
</tr>
<tr>
<td>Fever</td>
<td>Hepatic; diabetic;</td>
</tr>
<tr>
<td></td>
<td>meningeal; apoplectic</td>
</tr>
<tr>
<td>Exophthalmos</td>
<td>Thyrotoxic</td>
</tr>
<tr>
<td>Acetone-odour</td>
<td>Diabetic</td>
</tr>
<tr>
<td>Uraroma</td>
<td>Uremic</td>
</tr>
<tr>
<td>Arterial hypertension</td>
<td>Eclamptic; uremic; apoplectic</td>
</tr>
<tr>
<td>Attrition murmur</td>
<td>Uremic</td>
</tr>
<tr>
<td>Hepatomegaly</td>
<td>Hepatic; uremic; anemic</td>
</tr>
<tr>
<td>Splenomegaly</td>
<td>Hepatic; anemic</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Thyrotoxic; uremic; adrenal; apoplectic</td>
</tr>
<tr>
<td><strong>Breathing</strong></td>
<td></td>
</tr>
<tr>
<td>Kussmaul respiration</td>
<td>Diabetic; uremic</td>
</tr>
<tr>
<td>Biot’s respiration</td>
<td>Uremic; meningeal</td>
</tr>
<tr>
<td><strong>Skin</strong></td>
<td></td>
</tr>
<tr>
<td>Pale</td>
<td>Uremic; anemic</td>
</tr>
<tr>
<td>Hyperemia</td>
<td>Alcoholic; adrenal; apoplectic</td>
</tr>
<tr>
<td>Bronze color</td>
<td>Adrenal</td>
</tr>
<tr>
<td>Icterus</td>
<td>Hepatic; hemolytic</td>
</tr>
<tr>
<td>Watery</td>
<td>Hypoglycemic; alcoholic</td>
</tr>
<tr>
<td>Dry</td>
<td>Diabetic; uremic; adrenal</td>
</tr>
<tr>
<td>Petechiae, marks of scratching</td>
<td>Diabetic; uremic; hepatic</td>
</tr>
</tbody>
</table>
**STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS**
**OF CEREBRAL EDEMA'S DEGREES**

<table>
<thead>
<tr>
<th>Specific symptoms</th>
<th>Degree I</th>
<th>Degree II</th>
<th>Degree III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central nervous system</td>
<td>Precoma: stupor and inconstant psychomotor agitation</td>
<td>Lesion of the middle areas of the brain</td>
<td>Brainstem lesion or terminal state</td>
</tr>
<tr>
<td>Degree of consciousness manifestation</td>
<td>Clear, sleepiness, lethargy</td>
<td>No</td>
<td>No, nonreactive for intensive stimuli</td>
</tr>
<tr>
<td>Character of convulsions</td>
<td>Twitching of some muscle groups</td>
<td>Clonicotonic attacks</td>
<td>Abrupt, tonic</td>
</tr>
<tr>
<td>Muscular tone</td>
<td>Decreased motion activity</td>
<td>Severe hypertonus to the degree of opisthotonos</td>
<td>Decreased, no motion activity</td>
</tr>
<tr>
<td>Tendon reflexes</td>
<td>Brisk or norm</td>
<td>High</td>
<td>Not observed</td>
</tr>
<tr>
<td>Meningeal signs</td>
<td>Induced</td>
<td>Easily induced</td>
<td>Loss of vital centers (unresponsive pupils, swallowing, respiratory response, etc.)</td>
</tr>
<tr>
<td>Focal symptoms</td>
<td>None</td>
<td>Cranial nerves disorders</td>
<td></td>
</tr>
<tr>
<td>Body temperature</td>
<td>Febrile</td>
<td>Hectic increase</td>
<td>Hectic or hypothermia</td>
</tr>
<tr>
<td>Circulatory insufficiency</td>
<td>Degree I</td>
<td>Degree I–II</td>
<td>Degree II–III</td>
</tr>
<tr>
<td>Central venous pressure</td>
<td>High</td>
<td>High or low</td>
<td>Deeply decreased, unmeasured</td>
</tr>
<tr>
<td>Respiratory system</td>
<td>Hyperventilation</td>
<td>Hyperventilation</td>
<td>Hypoventilation, abnormal patterns of breathing to the degree of pulmonary arrest</td>
</tr>
<tr>
<td>Diuresis</td>
<td>Decreased by a third</td>
<td>Oliguria</td>
<td>Oligoanuria</td>
</tr>
<tr>
<td>Electrolytic balance</td>
<td>Respiratory alkalosis</td>
<td>Respiratory alkalosis or subcompensated metabolic acidosis</td>
<td>Uncompensated respiratory alkalosis or decompensated metabolic acidosis</td>
</tr>
<tr>
<td>Disseminated intravascular coagulation (DIC)</td>
<td>Stage of hypercoagulability</td>
<td>Stage of hypercoagulability or consumption coagulation</td>
<td>Stage of hypercoagulability or consumption coagulation</td>
</tr>
</tbody>
</table>
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF NEUROTOXICOSIS

Yes

Neurological disorders. Intoxication

Temperature rise, sharp headache, anxiety, persistent vomiting, nuchal rigidity, positive Brudzinski's, Kernig's, Lessage's signs. The cerebrospinal fluid is profuse, clear, rare. Puncture gives relief

Meningitis syndrome

Hemotonia, its duration is different, body temperature increases up to 38-40 °C, deterioration in general condition, severe headache, anxiety, yelps, insomnia, excitation, recurrent vomiting. The meningeal signs are positive. There are high pressure, clear color, lymphocytic pleocytosis is up to 800 cells, the content of protein is normal or reduced in the cerebrospinal fluid

Meningitis syndrome

First of all, under hyperthermic syndrome should be understood as white hyperthermia. In the setting of high temperature (39-40 °C) the evident hemodynamic disturbances are marked including tachycardia, paleness or gray skin color, cyanosis of the limbs. Legs and arms feel cold

Hyperthermic syndrome

Encephalitic reactions include cerebral disorders including generalized convulsions, delirium, hallucinations, psychomotor agitation, various degrees of consciousness impairment that occur in children in infectious diseases and various toxic conditions. The most typical features of the encephalitic reactions have no etiological specificity, cerebral type of disorders, and the result without persistent cerebral defect

Encephalitic syndrome

The main clinical manifestations of cerebral edema are convulsive status and cerebral coma. Usually the initial convulsions are clonic or clonic-tonic. Increasing degree of impaired consciousness are observed synchronous rising of tonic convulsions. Decerebrate rigidity, spontaneous exotropia, vertical nystagmus, frequent pupillary dilation is the characteristic for the upper parts of brainstem lesions. Strabismus becomes convergent (Hertwig–Magenie’s symptom), nystagmus is horizontal in the process of the lower parts of the brainstem lesions. Symptoms: damage of the respiratory and vasomotor centers

Cerebral edema
**Neurological disorders. Intoxication**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tetanus</strong></td>
<td>Tonic convulsions can be observed in the earliest stage. Later they get tetanic character. They can be caused by insignificant nervous irritation, after stopping irritation slight relaxation of muscles occurs. Spasmodic muscular action of mastication muscles (lockjaw). The child cannot take a nipple. Facial skin is wrinkled. Upper limbs are bent at the elbows and wrists and pressed to the chest. Lower limbs are outstretched. Lips are pursed and served as proboscis. Spinal lordosis.</td>
</tr>
<tr>
<td><strong>Subarachnoid hemorrhage</strong></td>
<td>Onset of convulsions in the first hours and days of life, its character is partial or general tonic or clonic, depending on the location of hemorrhage, often recurring. Tense fontanelle, open eyes, paralyses, paresis, loss of innate reflexes of sucking, swallowing, often Biot’s respiration, slow and arrhythmic pulse.</td>
</tr>
<tr>
<td><strong>Laryngospasm</strong></td>
<td>It presents with convulsions of laryngeal muscles that occur either independently or they can be terminated by eclampsia or tetany. It is manifested in the sudden emergence of laryngostenosis with inspiratory dyspnea, inspiratory retraction and stentorous breathing.</td>
</tr>
<tr>
<td><strong>Hysterical convulsions</strong></td>
<td>They are infrequent and occur mainly in older children before and during puberty most often in girls. They are tonic, primarily affect trunk muscles, sometimes simulate sham decerebrate rigidity. A child remembers everything; pupils are not miotic and well reactive to light.</td>
</tr>
<tr>
<td><strong>Spasmophilia</strong></td>
<td>It occurs mainly in young children, it is characterized by tendency to the tonic and tonic-clonic convulsions. It is more often observed in spring. Rickets signs are present. There are some typical signs in a latent form of diseases: Chvostek’s facial sign, Trousseau’s sign and Maslow’s symptom (when slightly pricking the spasmodhic baby’s skin it results in marked inspiratory apneuia). Laryngospasm often occurs in explicit form. Laboratory results: there is a reduction of calcium level below 0.9 mmol/l.</td>
</tr>
</tbody>
</table>
EMERGENCY MEDICAL CARE ALGORITHM: NEUROTOXICOSIS IN CHILDREN

NEUROTOXICOSIS

- Antipyretic therapy
  - "Red" hyperthermia
    - Physical methods of cooling,
      paracetamol 10 mg/kg,
      analgin* 50% — 0.1 ml/year,
      diphenhydramine hydrochloride 1% — 0.1 ml/year
  - "White" hyperthermia
    - Lytic cocktail, improvement of microcirculation — i/v rheopolyglucin* 10 ml/kg intravenous, detoxification

- Treatment of the meningeal and convulsive disorders
  - Dehydration therapy
    - Lasix* 1% — 2 mg/kg,
      magnesium sulfate 25% — 0.1 ml/kg,
      10% albumin,
      FFP (fresh frozen plasma),
      rheopolyglucin* 10 ml/kg
      prednisolone 2–5 mg/kg
  - Anticonvulsant therapy
    - Seduxen* — 0.5% 0.5 ml/kg,
      Sodium 20% — 50–100 mg/kg

- Treatment of the hyperventilation, encephalitic, cardiovascular syndromes
  - Neurovegetative block:
    lytic cocktail (aminazin* 2.5% — 1 ml,
    droperidol 0.25% — 1 ml,
    suprastin* 2% — 1 ml,
    0.25% novocaine* — 8 ml) — 0.1–0.4 ml/kg
  - Ineffectively
    - Ganglionic blocking agent:
      pentamin* 5% of 1–4 mg/kg
      benzohexonium* 2.5% of 1–2 mg/kg
EMERGENCY MEDICAL CARE ALGORITHMS: INFECTIOUS-TOXIC SHOCK

Infectious-toxic shock

Convulsions

Sodium 20% 100 mg/kg
Seduxen* 0.5% — 0.3–0.5 ml/kg

Correction of the vascular syndrome

Dopamine 10 mcg/kg/min,
rheopolyglucin 10 ml/kg IVBD.
Polyglucin 3 ml/kg by stream infusion to restore blood pressure

Correction of the thrombohemorrhagic syndrome

Heparin 15 U/kg/h/i/v
Contryle* 500—1000 U/kg i/v
FFP (fresh frozen plasma) 10 ml/kg

Correction of the syndrome of toxic edema,
prevention of acute renal failure (ARF)

Broad-spectrum antibiotics,
not stimulating toxicosis
(levomycin—sodium succinate* 100 mg/kg i/v,
azithromycin 10 mg/kg i/v)
Prednisolone:
Stage I. 10 mg/kg
Stage II. 20 mg/kg
Stage III. 30 mg/kg (where 2–3 mg/kg i/v before polyglucin)
Vitamin C* — 10 mg/kg i/v
Lasix 1%* — 2 mg/kg i/v
Magnesium sulfate 25% — 0.2 ml/kg i/v
Cocarboxylase — 4–8 mg/kg i/v

Ineffectively

Curantyl 3–5 mg/kg
«Titration» of noradrenaline

Aminophylline 2.4% — 2–4 mg/kg
# Step Diagnostics and Differential Diagnosis of Infectious-Toxic Shock in Meningococciosis

<table>
<thead>
<tr>
<th>Yes</th>
<th>Acute circulatory insufficiency syndrome and metabolic disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This disease develops during 1–2 days. The syndrome of general intoxication predominates over gastrointestinal disorders. The main manifestations of shock are tachycardia in association with hypotension, diuresis decreasing. The signs of disseminated intravascular coagulation are not observed. Infectious-toxic shock occurs in the setting of isotonic hypohydration with potentiation of corresponding pathological changes.</td>
</tr>
<tr>
<td></td>
<td>Infectious-toxic shock in salmonellosis</td>
</tr>
<tr>
<td></td>
<td>Infectious-toxic shock in leptospirosis</td>
</tr>
<tr>
<td></td>
<td>Infectious-toxic shock in influenza</td>
</tr>
<tr>
<td></td>
<td>Infectious-toxic shock in malaria</td>
</tr>
<tr>
<td></td>
<td>Infectious-toxic shock in meningococciosis</td>
</tr>
</tbody>
</table>

Infectious-toxic shock often occurs after beginning of antibacterial therapy with the bactericidal action drugs and proceeds initially like Jarish–Herxheimer reaction. Then hypotension predominates, renal failure develops soon afterwards.

Infectious-toxic shock is observed in case of complications of bacterial pneumonia. Shock proceeds severely due to the microcirculation disturbance, severe metabolic disorders caused by hypoxia and acidosis. Acute cerebral insufficiency develops and edema — brain swelling with cerebral hypertension — develops soon afterwards.

Marked typical symptoms: nausea, vomiting, liquid stool. The patient has Banti's syndrome, yellowish or darkened skin.

It develops during a day from the beginning of generalization. Pain is in muscles, joints and abdomen. Petechial skin rash is observed, severe punctate papular elements may be present. Hemorrhage is in the conjunctiva. Blood pressure is within normal range and slightly increased in arterial hypertension.
Acute circulatory insufficiency syndrome and metabolic disorders

Dehydration shock

It develops in the setting of fluid loss due to profuse diarrhea and profuse recurrent vomiting. It is characterized by signs of dehydration (impairment of skin turgor, xerosis), mainly cramps in legs. Shock reaction develops less critical. Hemodynamic disorders develop with rising of dehydration. The relative density findings of plasma and hematocrit are severely increased.

Anaphylactic shock

It develops percutely with introducing of drugs or using of food. There are allergic reactions in the case history. Arterial hypotension, bronchospasm, pronounced respiratory failure, disorder of consciousness, skin vegetovascular reactions, clonic convulsions. Nausea, vomiting, abdominal pain, pain in the region of the heart, dizziness may be present. It is characterized by pant, dyspnea, urticarial eczema, palpebral edema, facial edema. Disseminated intravascular coagulation is not marked.

Acute heart failure

It develops with the background of chronic heart pathology. It is characterized by acrocyanosis, jugular venous distention and dilation of cardiac borders, signs of stagnation in the pulmonary and systemic circulation. Pulse in spite of tachycardia is the sufficient strength of the pulse, arrhythmic. Arterial blood pressure decreases more slowly. Central venous pressure is increased.

Acute adrenal insufficiency

It is characterized by abdominal pains without peritoneal signs. Abdominal pains occur prior to developing of arterial hypotension and breaking-out of hemorrhagic rash; they are gradually progressive, not arrested by analgesics.

Wound shock

In anamnesis there is an evidence of any traumatic effect. A patient is lethargic; skin is pale and cyanotic color. Peripheral circulation is impaired. Cervical veins, limb veins are collapsed. Respiratory rate slows down. Arterial blood pressure is decreased; a great drop in temperature. Diuresis is reduced up to anuria.
### STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF VARIETY OF DEHYDRATION

**Diarrhea, Vomiting, Intoxication**

<table>
<thead>
<tr>
<th>Systems</th>
<th>Water-deficient</th>
<th>Salt-deficient</th>
<th>Isotonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General condition</td>
<td>Moderate severity, severe</td>
<td>Always severe</td>
<td>Severe, mostly severe</td>
</tr>
<tr>
<td>2. Nervous system</td>
<td>Anxiety, fever, sleep disturbance, hands tremor</td>
<td>Retardation, adynamia, sopor, coma, convulsions</td>
<td>Mostly retardation, flaccidity, sleep disturbance, sometimes anxiety, fever</td>
</tr>
<tr>
<td>3. Vomiting</td>
<td>Occasionally</td>
<td>Recurrent, persistent, sometimes «coffee-grouns»</td>
<td>Infrequent, recurrent</td>
</tr>
<tr>
<td>4. Stool</td>
<td>Liquid, moderate</td>
<td>Frequent, bulky, watery. Enteroparesis</td>
<td>Liquid with mucus</td>
</tr>
<tr>
<td>5. Thirst</td>
<td>Full-blown</td>
<td>Not observed</td>
<td>Poorly marked or not observed</td>
</tr>
<tr>
<td>6. Exicosis</td>
<td>Moderate, moderate weight loss</td>
<td>Full-blown, rapid weight loss</td>
<td>Rapidly increasing, marked weight loss</td>
</tr>
<tr>
<td>7. Predominant loss of liquid</td>
<td>Intracellular, later extracellular</td>
<td>Extracellular</td>
<td>Intracellular, extracellular</td>
</tr>
<tr>
<td>8. Body temperature</td>
<td>High</td>
<td>Tendency to hypothermia</td>
<td>Subfebrile</td>
</tr>
<tr>
<td>9. Skin</td>
<td>Warm, pale, elastic is kept</td>
<td>Loose, cold, sometimes doughlike, sallow-grey with a cyanotic discoloration</td>
<td>Pale with cyanotic discoloration, skin laxity</td>
</tr>
<tr>
<td>10. Skin fold</td>
<td>It gets into folds easily, it straightens adequately</td>
<td>It is sometimes thickened, plastilina-like, it straightens slowly or «upright fold»</td>
<td>Doughlike consistency, it straightens slow</td>
</tr>
<tr>
<td>11. Mucosae</td>
<td>Clear, dry</td>
<td>It is frequently covered with mucus</td>
<td>Dry</td>
</tr>
<tr>
<td>12. Arterial pressure</td>
<td>It remains normal or increased for a long time</td>
<td>Low</td>
<td>Slightly decreased</td>
</tr>
<tr>
<td>13. Diuresis</td>
<td>It is normal at the beginning</td>
<td>Hypouresis, oligoanuria</td>
<td>Reduction, oligo-/anuria</td>
</tr>
<tr>
<td>14. Content of sodium in the blood serum</td>
<td>Above 155 mmol/l</td>
<td>Below 135 mmol/l</td>
<td>Within normal range</td>
</tr>
<tr>
<td>15. Hemocentration</td>
<td>Insignificant</td>
<td>Full-blown</td>
<td>Significant</td>
</tr>
<tr>
<td>16. Possible cause of death</td>
<td>Block of the intracellular respiratory enzymes</td>
<td>Circulatory inefficiency</td>
<td>Circulatory inefficiency</td>
</tr>
</tbody>
</table>

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STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF DEGREES OF TOXICOSIS WITH EXSICOSIS

<table>
<thead>
<tr>
<th>Symptoms of exiccosis and laboratory findings</th>
<th>Degree I</th>
<th>Degree II</th>
<th>Degree III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Health assessment</td>
<td>Moderately severe</td>
<td>From moderate severe to severe</td>
<td>Very severe</td>
</tr>
<tr>
<td>2. Vomiting frequency</td>
<td>1–2 times</td>
<td>Recurrent</td>
<td>Multiple</td>
</tr>
<tr>
<td>3. Stool frequency</td>
<td>Infrequent</td>
<td>Up to 10 times a day, enteritic</td>
<td>More than 10 times, watery diarrhea</td>
</tr>
<tr>
<td>4. Thirst</td>
<td>Moderate</td>
<td>Full-blown</td>
<td>Hydroedipsia</td>
</tr>
<tr>
<td>5. Skin fold</td>
<td>Quick straightening</td>
<td>Slow straightening</td>
<td>“Upright fold”</td>
</tr>
<tr>
<td>6. Visible mucous</td>
<td>Wet</td>
<td>Slightly dry and hyperemic</td>
<td>Dry, bright</td>
</tr>
<tr>
<td>7. Anterior fontanelle</td>
<td>Normal</td>
<td>Slightly sunken</td>
<td>Sunken</td>
</tr>
<tr>
<td>8. Eyebulbs</td>
<td>Elastic</td>
<td>Soft</td>
<td>Hollow eyes</td>
</tr>
<tr>
<td>9. Heart sounds</td>
<td>Loud</td>
<td>Slightly muffled</td>
<td>Muffled</td>
</tr>
<tr>
<td>10. Blood pressure</td>
<td>Normal or slightly increased</td>
<td>Systolic — normal, diastolic — increased</td>
<td>Decreased</td>
</tr>
<tr>
<td>11. Tachycardia</td>
<td>No</td>
<td>Moderate</td>
<td>Tachycardia</td>
</tr>
<tr>
<td>12. Cyanosis</td>
<td>No</td>
<td>Moderate</td>
<td>Full-blown</td>
</tr>
<tr>
<td>13. Consciousness, environmental response</td>
<td>Normal</td>
<td>Excitement or sleepiness, flaccidity</td>
<td>Altered state of consciousness</td>
</tr>
<tr>
<td>14. Pain reaction</td>
<td>Significant</td>
<td>Insignificant</td>
<td>No observed</td>
</tr>
<tr>
<td>15. Voice</td>
<td>Normal</td>
<td>Leptophonia</td>
<td>Of ten aphonía</td>
</tr>
<tr>
<td>16. Diuresis</td>
<td>Normal or rare slightly decreased</td>
<td>Hypouriesis</td>
<td>Oligoamuría</td>
</tr>
<tr>
<td>17. Respiration</td>
<td>Normal</td>
<td>Moderate dyspnea</td>
<td>Toxic</td>
</tr>
<tr>
<td>18. Body temperature</td>
<td>Normal</td>
<td>Often increased</td>
<td>Often below normal</td>
</tr>
</tbody>
</table>
EMERGENCY MEDICAL CARE ALGORITHMS: EXCICOSIS IN CHILDREN

**Water-deficient**

- **I degree**
  - Oral rehydration (total liquid = body weight × 75)
    - I stage 6 hours
    - II stage 80–100 ml/kg/day

- **II degree**
  - Oral rehydration + IV. (total liquid in kids up to 1 year = body weight × 200, in older children = body weight × 170)
  - KCl 7.5% = 2–3 ml/kg. Glucose : salt = 2:1

- **III degree**
  - Total liquid = body weight × 300 (up to 1 year), body weight × 220 (up to 5 years), in older children = body weight × 175.
  - KCl 7.5% = 2–3 ml/kg. Glucose : salt = 1:1

**Salt-deficient**

- **I degree**
  - Oral rehydration (total liquid = body weight × 75)

- **II degree**
  - Total liquid in kids up to 1 year = MT × 200, in older children = body weight × 170, from 6 years = body weight × 110.
  - KCl 7.5% = 2–3 ml/kg. Glucose : salt = 1:2

- **III degree**
  - Total liquid = MT × 300 (up to 1 year), body weight × 220 (up to 5 years), in older children = body weight × 175.
  - KCl 7.5% = 3–4 ml/kg. Glucose : salt = 1:3

**Isotonic**

- **I degree**
  - Oral rehydration (total liquid = body weight × 75)

- **II degree**
  - Total liquid = MT × 200 (up to 1 year), body weight × 170 (up to 5 years), in older children = body weight × 110.
  - KCl 7.5% = 2–3 ml/kg. Glucose : salt = 1:1

- **III degree**
  - Total liquid = body weight × 300 (up to 1 year), body weight × 220 (up to 5 years), in older children = body weight × 175.
  - KCl 7.5% = 2–3 ml/kg. Glucose : salt = 1:1
EMERGENCY MEDICAL CARE ALGORITHMS:
ACUTE STENOSING LARYNGOTRACHEITIS IN CHILDREN

ACUTE STENOSING LARYNGOTRACHEITIS

Stage I
- To talk away the child’s fears (to pick up a child in arms, when necessary — sedation: diazepam 0.5 mg/kg, phenobarbital 5–10 mg/kg)
- Access of fresh air, humidification of respiratory air (shower, pack-sheet, tent of moisture recovery)
- Distractive procedures
- Warm alkaline water
- Inhalations with normal saline

Stage II
- Humidification of respiratory air
- Inhalations with adrenalin
- Distractive procedures
- Sedation
- Corticosteroids
- Oxygenotherapy
- Mucolytics (bromhexine, ambraxol, acetylcysteine)
- Antibioprophylaxis

Stage III
- Treatment in resuscitation and intensive care unit
- Oxygenotherapy
- Inhalations with adrenalin (1 time)
- Direct laryngoscopy
- Orotracheal intubation
- Prednisolone 5–7 mg/kg IM or IV
- Antibiotics
STEP DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS
OF VIRAL GROUP

Yes

Hoarseness, Cough, Fever

The disease begins with moderate temperature rise, the appearance of low intoxication, gross "barking" cough and slight hoarseness. Then there is inspiratory dyspnea, noisy breathing, hoarse voice, up to aphonia. During inhalation there is retraction of the chest compliant places.

Diphtheria of larynx (true croup)

Temperature rises up to 38.5–39.5 °C, profuse runny nose, which is slimy at first, then it is slime-purulent, hoarse voice, obsessive, dry cough, photophobia, conjunctival hyperemia, eyelid edema, scleritis. There are grayish-white dots with the size of a poppy seed, surrounded by a ed border on the buccal mucosa in the molar teeth, on the mucous membrane of lips and gums.

Measles

Acute onset of the disease with temperature rise, the appearance of mild symptoms of intoxication and catarrhal symptoms. The general condition suffers moderately. Sore throat, stuffiness in nose, slimy nasal discharge, then it is slime-purulent. Among the good health, usually at night, the baby suddenly wakes up from the gross "barking" cough. Hoarseness, noisy breathing are quickly attached and laryngeal stenosis develops.

False croup (parainfluenza)
Hoarseness. Cough. Fever

The disease begins slowly, with dry cough, slight rise of temperature, little cold. Then within 1–2 weeks cough increases, it becomes obsessive, reprises appear. During the spasmodic cough a sick person becomes red, turning blue, the veins on his neck are bulged and his eyes are engorged, his head is stuck out, the tongue is lolling out to the limit. The attack ends with viscus, ropy expectoration and vomiting.

Pertussis

The disease begins with cough, which gradually increases and sometimes becomes spasmodic with reprises. There is no hoarseness. The body temperature does not rise. Moderate catarhal phenomena.

Parapertussis

The disease develops gradually, with dry nonproductive cough, which then becomes productive with the mucous or muco-purulent expectoration. Prolonged exhalation, difficulty breathing. Moderate intoxication. The subfebrile temperature.

Acute non-obstructive bronchitis

Gradual beginning with the development of chronic obstructive bronchitis. Semicough, taking pertussis-like character, bright, not very viscus expectoration, then it is more viscus, mucopurulent. There is no hoarseness. It is characterized by chronic bilateral pneumonia with abscess formation and bronchiectasis. Symptom of respiratory and cardiovascular failure, physical development delay.

Mucoviscoidosis (pulmonary form)

The disease begins with a loose tissue edema — lips, neck, eyelids, etc. (periodic edema), allergic urticaria — itching urticarial rash over the body. There is mucous discharge from nose. Cough, hoarseness. Edema of the larynx

Allergic edema of the vocal cords

Long-term development of the disease. Chronic dry, hoarse cough, change of voice, often inspiratory dyspnea with stridor develops

Papillomas of larynx
EMERGENCY MEDICAL CARE ALGORITHMS: PULMONARY EDEMA

PULMONARY EDEMA

- Raised position of the upper part of the trunk and dependent position of the legs
- Dehydration — furosemide — 2 mg/kg
- Corticosteroids (in solution of continuity of the capillary wall by substances)
- Oxygen therapy

Further activities

- Patient transportation to the in-patient department of the intensive therapy
- Digitalization during 2–3 days
- Intubation and artificial pulmonary ventilation (APV) in the regime of positive end-expiratory pressure

Other activities

- Dopamine and dobutamine (3–5 or 5–10 mg/kg/min)
- Nitroglycerin (0.1–0.7 mg/kg/min)

Pulmonary edema causes removal

Hemodialysis in case of kidney failure development

Primary disease treatment
TREATMENT ALGORITHM:
COMMUNITY-ACQUIRED PNEUMONIA IN 7–15 YEARS OLD CHILDREN

<table>
<thead>
<tr>
<th>Form-etiology</th>
<th>Prescriptions</th>
<th>Effect</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atypical cough, in homogeneous boundary: <em>M. pneumoniae</em> <em>C. pneumoniae</em></td>
<td><em>Sumamed</em>*, erythromycin, other macrolides, doxycycline (&gt;8 years)*</td>
<td>t &lt; 38 °C in 1–2 days</td>
<td>7–10 days</td>
</tr>
<tr>
<td>Typical homogeneous focus, patchy opacity: pneumococcus</td>
<td><em>Perox</em>: macrolide—<em>sumamed</em>*, amoxicillin, cephalosporin</td>
<td>t &lt; 38 °C in 36–48 days</td>
<td>5–7 days or 2 day after decreasing of temperature</td>
</tr>
<tr>
<td></td>
<td><em>No</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IV, I.M.: penicillin, cefazolin, lincomycin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TREATMENT ALGORITHM:
TYPICAL COMMUNITY-AQUIRED PNEUMONIA IN 6 MONTHS – 6 YEARS OLD CHILDREN

Severity — etiology

Mild: no toxicity, focus or homogeneous infiltration of 2–1 segments, with no destruction and pleuritis Streptococcus pneumoniae (sometimes + without capsular H. influenzae), less mycoplasma

Administration

Sumamed* or oral penicillin

Effect

t < 38 °C, improvement in appetite after 24–36 hours

Terms

5–7 days or 2–3 days after normalization of temperature

Severe: toxemia, confluent infiltration, pleuritis or destruction of Pneumococcus or H. influenzae type b

Intravenously, intramuscularly: penicillin, ampicillin, augmentin*, cefuroxime (+ aminoglycoside)

Effect

t < 38 °C or improvement of appetite reduced infiltration, effusion and leukocytosis cystosis

Terms

7–10 days or 2–3 days after normalization of temperature and then oral preparations

Intravenous: cephalosporin 3, aminoglycoside + ceftazolin, vancomycin, chloramphenicol

No

No
TREATMENT ALGORITHM:
TYPICAL COMMUNITY-AQUIRED PNEUMONIA IN 1–6 MONTHS OLD CHILDREN

Severity — etiology

Atypical dyspnea,
t < 38 °C, cough,
diffuse changes
Often — C. trachomatis
Rarely — Pneumocystis carinii

Administration

Sumamed*

Effect

Reduction of dyspnea after 2–3 days

Terms

3 days of sumamed*

No

Co-trimoxazole

Reduction of dyspnea

Individually

Per os: augmenting:
Intravenous:
ampicillin + oxacillin,
cefuroxime, ceftriaxone,
cefotaxim

No

Cefazolin + aminoglycoside,
carbapenems, vancomycin

The criteria are the same

5–7 days or 2–3 days after normalization of temperature

7–10 days or 3–4 days after normalization of temperature

Typical
t < 38 °C, dyspnea > 50 per minute,
toxicosis, infiltrate in the X-Ray
Pattern: E. Coli, other intestinal bacteria, Staphylococcus
**THE CLINICAL FEATURES OF TYPICAL AND ATYPICAL COMMUNITY-ACQUIRED PNEUMONIA IN CHILDREN DURING THE FIRST MONTHS OF LIFE**

<table>
<thead>
<tr>
<th>Sign</th>
<th>Typical</th>
<th>Atypical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>Significant, t &gt;38 °C</td>
<td>No or subfebrile</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>No or imperceptible</td>
<td>Significant</td>
</tr>
<tr>
<td>Cough</td>
<td>Productive</td>
<td>Begins with cough, hard and progressive cough</td>
</tr>
<tr>
<td>Rales</td>
<td>No or localized</td>
<td>Diffuse</td>
</tr>
<tr>
<td>Percussion</td>
<td>Often shortened</td>
<td>Box sound</td>
</tr>
<tr>
<td>X-ray pattern</td>
<td>Often unilateral focus, or infiltration, involvement of the pleura</td>
<td>Ambilateral multiple foci with interstitial tissue damage</td>
</tr>
<tr>
<td>Causative agent</td>
<td><em>E. coli</em>, <em>staphylococci</em>, rarely <em>pneumococci</em>, <em>H. influenzae</em></td>
<td><em>C. trachomatis</em>. Less frequently — <em>Pneumocystis</em>. <em>M. pneumoniae</em> and <em>U. urealyticum</em> are arguable</td>
</tr>
</tbody>
</table>

**INITIAL TREATMENT IN HOSPITAL-ACQUIRED PNEUMONIA**

<table>
<thead>
<tr>
<th>Therapy before pneumonia</th>
<th>Probable causative agent</th>
<th>Recommended medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was not conducted</td>
<td><em>Pneumococcus</em>, <em>mycoplasma</em></td>
<td>Parenterally: penicillin, ampicillin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Internally: macrolide — <em>sumamed</em></td>
</tr>
<tr>
<td>Penicillin, ampicillin</td>
<td><em>Staphylococcus</em>, <em>mycoplasma</em></td>
<td>Intramuscularly, intravenously: <em>oxacillin</em>, <em>lincomycin</em>, <em>cefazolin</em>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Per os</em>: macrolide — <em>sumamed</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>amoxicillin</em> — <em>clavulanate</em></td>
</tr>
<tr>
<td>Macrolide</td>
<td><em>Resistant flora</em></td>
<td><em>Resistant pneumococcus</em>, <em>H. influenzae</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Per os</em>, intramuscularly, intravenously: <em>oxacillin</em>, <em>lincomycin</em>, <em>cefazolin</em></td>
</tr>
<tr>
<td>Cephalosporin—1 generation, oxacillin, lincomycin</td>
<td><em>E. Coli</em>, other <em>Gr (−)</em> flora, resistant <em>Staphylococcus</em></td>
<td>Parenterally: <em>augmentin</em>, <em>2nd—3rd</em> generation of cephalosporins, aminoglycoside, vancomycin, combinations of drugs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Parenterally: penicillin, ampicillin; if it is with no effect: <em>ureidopenicillins</em>, <em>rifampicin</em>, <em>karbopenem</em>, <em>vancomycin</em>, <em>aminoglycoside</em> in high doses*</td>
</tr>
<tr>
<td>Aminoglycoside</td>
<td><em>Pneumococcus</em>, or <em>Gr (−)</em> flora, resistant <em>Staphylococcus</em></td>
<td></td>
</tr>
<tr>
<td>Aminoglycoside + cephalosporin of 2–3 generations</td>
<td>*Resistant Gr (−) flora, resistant <em>Staphylococcus</em></td>
<td>Parenterally: <em>carbapenems</em>, <em>ureidopenicillins</em>, <em>rifampicin</em>, <em>vancomycin</em>, <em>aztreonam</em>, <em>timetin</em>, <em>aminoglycoside</em> in high doses*</td>
</tr>
</tbody>
</table>

*Gentamicin 15 mg/kg/day, amikacin 30–50 mg/kg/day.*