INTESTINAL INFECTIOUS DISEASES IN CHILDREN: DYSENTERY AND SALMONELLOSIS — ETIOLOGY, CLINICAL SIGNS, TYPES, DIAGNOSIS, TREATMENT AND PREVENTION

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Abstract

Today, dysentery and salmonellosis account for a significant proportion of infectious diseases affecting children, particularly intestinal infections. This article is intended to improve nurses' knowledge of these diseases, support the early identification and timely, effective treatment of intestinal infections in children, and help them develop the skills needed to provide assistance in emergencies. The article discusses the causes, clinical signs, types, diagnosis, treatment and prevention of dysentery and salmonellosis.

Keywords: Intoxication, hyperthermia, dyspepsia, diarrhoea, flatulence, tenesmus, gastritis, enteritis, enterocolitis, exicosis, toxicosis, oral, parenteral, rehydration, infectious-toxic shock.

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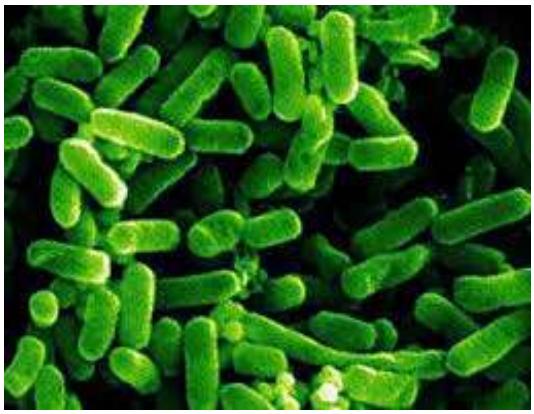
Dysentery

Dysentery is an acute infectious disease characterized by acute gastrointestinal disturbances, intoxication and dehydration. Dysentery (shigellosis) has been known for a long time and, according to the source text, accounts for 70% of all intestinal infectious diseases occurring in children. The causative agents are dysentery bacteria, which include types named after various scientists, such as Grigoriev–Shiga, Shtutzer–Schmitz, Lardzh–Sachs, Flexner and Sonne. Of these, only the Grigoriev–Shiga type produces exotoxin; the

others produce endotoxins. Dysentery bacteria are susceptible to sunlight, high temperatures and disinfectant solutions. They are more resistant to low temperatures and can survive for 15–30 days in food products, 9–10 days in water and up to three months in soil. Dysentery microorganisms live in the intestines of patients or carriers and may continue to be excreted into the environment in faeces for up to three months.





Dysentery may be transmitted through poor-quality food, contaminated vegetables and fruit, dishes, clothing and water.

Flies and cockroaches, as with other intestinal infections, also play an important role in the spread of dysentery.

Children who have not been vaccinated, are frail, or suffer from rickets, anaemia or hypotrophy are often affected by dysentery.

Pathogenesis. Dysentery microorganisms enter the body through the mouth. After passing from the stomach into the small intestine, most of the microorganisms are destroyed; the toxins released as a result pass through the intestinal walls into the blood. As dysentery toxins are eliminated from the body through the mucous membrane of the large intestine, they cause inflammation and sensitisation. This creates favourable conditions for dysentery bacteria to penetrate the intestinal mucosa, enter the mucosal and submucosal follicles, and multiply. In addition to acting directly on the intestinal walls, toxins produced in the body circulate in the blood and cause systemic intoxication. Clinical signs: The incubation period lasts from 2–3 days to 5 days. Symptoms include an elevated body temperature (38–40°C), frequent diarrhoea, blood and pus in the stool, weakness, reduced appetite, dry mouth and vomiting.

Regardless of whether dysentery is mild, moderate, severe or extremely severe, it poses a significant risk to a child's health because it can sometimes become chronic and worsen the patient's general condition. Several classifications of dysentery are currently used. According to severity, it may be mild, moderately severe or severe; according to its course, it may be acute (up to 1–1.5 months), prolonged (up to 1.5–2 months) or chronic (lasting more than 3–4 months). In mild dysentery, the patient's general condition does not change significantly and body temperature is usually normal, although it may occasionally rise to around 37–37.5°C for a short time. The patient may have 5–8 bowel movements per day. In moderately severe disease, signs of general intoxication are clearly evident. Body temperature rises to 38–39°C, the patient vomits, loses their appetite and experiences intermittent abdominal pain, especially before defecation. Bowel movements may occur up to 10–12 times a day, with mucus and blood in the stool.





In severe dysentery, the patient's general condition deteriorates markedly and the overall symptoms of the disease become pronounced. The patient may vomit repeatedly, and a high temperature (39–40°C) may persist for several days. Signs of intoxication and severe toxicosis appear, and convulsions may occur. Diarrhoea becomes persistent, with mucus and blood in the stool; bowel movements may occur 30–50 times a day.

Diagnosis. Diagnosis is based on the symptoms, epidemiological circumstances and various laboratory tests. According to the source text, the main methods for confirming the diagnosis are bacteriological examination of stool and the Widal test. Treatment. Diet is important in the treatment of the disease. The diet is planned according to the child's

general condition and the degree of intoxication. In cases of very severe intoxication, the source recommends water or tea and dried bread; infants may receive expressed breast milk or kefir.



To improve digestion, the child is given pancreatin and abomin. In addition to agents used to reduce intoxication, sulphonamide preparations may be used according to the child's age to act specifically against the dysentery pathogen.

When the disease is accompanied by complications, antibiotic preparations (ampicillin, oxacillin and ampiox) and cephalosporins are prescribed. Because prolonged or irregular use of antibiotics may cause dysbiosis, vitamins are also prescribed alongside these medicines. In addition to vitamins and enzymes, biological preparations such as bifidumbacterin, lactobacterin, bificol and colibacterin may be prescribed during dysentery treatment to help prevent dysbiosis. Prevention. As with other intestinal infectious diseases, prevention of dysentery requires compliance with sanitary and hygiene rules. Patients should be identified promptly and isolated from healthy people, and children who have been in contact with them should be monitored.

Nurses should monitor these children's stools and record their observations in a special register. If further cases occur in a children's group, all children should undergo bacteriological testing. Children with mild dysentery may be treated at home. Those with moderately severe or severe dysentery must be hospitalised. Before discharge, the patient undergoes bacteriological testing and may return home only if the result is negative. Preventing intestinal infections requires compliance with personal hygiene rules, implementation of sanitation and disinfection procedures, and continuous public health education for parents and the wider population.





Salmonellosis

Salmonellosis belongs to the group of acute intestinal infectious diseases and is caused by microorganisms known as Salmonella.

The Salmonella bacillus was first discovered by the scientist Salmon in 1885. The source text states that approximately 2,000 types were known at the time it was written.

Epidemiology. Many domestic animals infected with salmonellosis, as well as animals carrying Salmonella, serve as sources of infection. Patients with salmonellosis and bacterial carriers also play an important role in its spread. Salmonella leaves the patient's body and enters the environment mainly through faeces. It may also spread through urine and saliva, and when a patient vomits. The main route of transmission is foodborne: Salmonella bacteria enter the human body with various food products. Transmission from mother to foetus through the placenta has also been reported. Salmonellosis is often transmitted through meat and other animal products. If many children consume contaminated animal products at the same time, outbreaks may occur in children's groups. In infants, salmonellosis may spread through contact with people who have close contact with the child or through toys. Bacterial carriers and patients with unrecognised or mild clinical symptoms may contribute to this route of transmission.

Pathogenesis. The development of the disease depends greatly on the child's immunobiological status, age, the number of microorganisms entering the body and their pathogenic properties. Salmonella begins to multiply in food products. After entering a child's body with these products, the bacteria multiply more rapidly and produce

endotoxins. Endotoxins affect all organs, particularly damaging the gastrointestinal tract. Salmonella mainly multiplies in the small intestine and damages the intestinal lymph nodes; it may then enter the bloodstream and disrupt the function of various organs. Local changes in salmonellosis mainly occur in the small intestine and range from catarrhal inflammation to ulcer formation.

Clinical presentation. Depending on the route of transmission, salmonellosis is divided into foodborne toxic infection and contact forms. In the first form, clinical signs appear 8–36 hours after contaminated food is consumed. The child's temperature rises to 39–40°C, and headache, abdominal pain, vomiting and diarrhoea develop. The disease presents as acute gastroenteritis or gastroenterocolitis. Dehydration (exicosis) develops rapidly. The stool is watery and may contain mucus and blood. Convulsions may occur in infants. This form is more common in older children. The contact form can have various presentations, including typhoid-like, septic, dysentery-like and dyspeptic forms, as well as forms with other clinical signs. According to severity, salmonellosis may be mild, moderately severe or severe. In mild cases, the patient's general condition changes little and body temperature rises minimally or not at all. Abdominal pain, nausea and diarrhoea may occur.

In severe salmonellosis, body temperature rises to 38–40°C, abdominal pain is intense, the patient vomits frequently and has frequent diarrhoea, and widespread body aches and general intoxication (toxicosis) occur.

The typhoid-like form of salmonellosis mainly occurs in older children, particularly school-age children.

The patient experiences a severe headache, body temperature rises to 39–40°C, vomiting and marked weakness occur, and signs of meningism may appear. The child's mental state may change and delirium may develop; enlargement of the liver and spleen is also observed in many patients. The septic form of salmonellosis mainly occurs in infants. The disease begins acutely with a high fever and may soon lead to signs of inflammation of the meninges and pneumonia. This form is characterised by septicopyaemic changes in the child's body, such as purulent meningitis, pneumonia and osteomyelitis. Throughout

the illness, the child may have stools containing mucus and sometimes blood. The dysentery-like form of salmonellosis occurs in children of almost all ages. It begins acutely, with fever, abdominal pain, vomiting and diarrhoea containing blood and pus; all the characteristic signs of colitis may appear. In many cases, the severity of intoxication does not correspond directly to the frequency of diarrhoea: even when toxicosis is severe, diarrhoea may not be proportionately frequent. Some children continue to have diarrhoea even after the illness has passed. Diagnosis. Diagnosis of salmonellosis requires consideration of the epidemiological circumstances, the main clinical signs, characteristic stool changes and laboratory findings. Bacteriological examination is central to laboratory diagnosis. Testing should be carried out from the onset of the disease until the temperature returns to normal. Detection of Salmonella in the blood helps confirm the diagnosis. Bacteriological examination of stool is also important and is most effective during the first week of illness.

Bacteriological examination of urine, bile and vomit may also be used for diagnosis. In differential diagnosis, salmonellosis should be distinguished from dysentery (shigellosis), gastroenteritis, enterocolitis and other gastrointestinal diseases. In addition to characteristic clinical signs, bacteriological test results are important. Treatment. Patients with salmonellosis should be treated in an infectious diseases hospital. According to the source text, patients with mild disease require bed rest for 1–2 weeks, while those with severe disease may require 2–3 weeks. During the first days, the diet is adjusted according to the degree of intoxication. Patients may be given Ringer’s solution, 5% glucose solution and Rehydron. The source recommends 100–150 ml of fluid per kilogram of body weight per day, given in small amounts at frequent intervals. After the fluid-only diet, infants are given milk in small quantities, starting with 10 ml. Older children may be given thin rice dishes, kissel, kefir and vitamins. Food intake is gradually increased as the patient’s general condition improves. At the height of the disease, when severe intoxication is present (persistent vomiting and frequent diarrhoea), the source describes intravenous drip administration of Haemodes, rheopolyglucin, 5–10% glucose solution and physiological saline. If cardiac function is impaired, cardiac glycosides such as strophanthin, corglycon

and digoxin may be used according to the child's age. Nursing care. Timely diagnosis, isolation of patients from other children, proper storage of food products and compliance with hygiene rules are important in preventing the disease. Since salmonellosis also occurs in animals, proper veterinary inspection of animals and meat products is important for prevention.

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