
# Description of a Clinical Case of a Girl with Allergic Enterocolitis and Lactase Deficiency, Complicated with Protein-Energy Malfunction and Anemia

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ABSTRACT

**Summary:** Introduction. Food protein-induced enterocolitis syndrome (FPIES) is a disease characterized by an allergic reaction to food that affects the gastrointestinal system. People with FPIES experience excessive vomiting and diarrhea, which usually develops about 2 to 6 hours after eating the offending food. The most common triggers for the episode are milk, soy, and rice in children, but the disorder is associated with a wide range of dietary proteins. This article describes a clinical case of a child with allergic enterocolitis and lactase deficiency complicated by moderate protein-energy deficiency and moderate anemia. In this case, the main trigger is cow's milk.

**Results.** The child has been sick since birth. She was always restless and cried a lot. I was breastfed until 2.5 months and weighed 5 kg. Because she was restless, was switched to formula milk and stopped breastfeeding. Gradually, the child began to gain weight poorly. Transferred to another Nan comfort mixture. The child's anxiety continued. The stool was not independent, it was induced with the help of glycerin, and it was green with mucus and undigested. Because of the NSG conclusion, the parents thought maybe their daughter was restless because of neurology and went to the hospital in Bukhara in the neurology department. After neurological treatment, the child's condition did not change; anxiety continued. They showed it to a pediatric gastroenterologist, the gastroenterologist prescribed Isikol Baby, and a positive effect was observed. Then, for complete treatment, they went to the Republican Specialized Scientific and Practical Medical Center and the child was hospitalized in the pediatric gastroenterology department, where he remained for 10 days. Based on the examination, allergic enterocolitis with lactase deficiency, complicated by moderate protein-energy deficiency and moderate anemia, a concomitant complication of perinatal damage to the central nervous system, and vegetative-visceral dysfunction syndrome was established. In the department, the girl was prescribed a

medicinal mixture Friso Frisolac Gold PEP AC with deeply split casein intended for children with an allergy to cow's milk proteins, Isikol Baby and was given symptomatic drug therapy.

**Conclusions.** This clinical case of allergic enterocolitis with lactase deficiency and vegetative-visceral dysfunction syndrome shows that allergic enterocolitis can be accompanied by lactase deficiency and a child in the early months of life is not always restless for a neurological reason; constipation in an infant is already a reason to contact a pediatric gastroenterologist. Early diagnosis is very important to prevent complications of various diseases, both gastroenterological (PEM, hepatomegaly, anemia) and neurological (complications of PCNSL).

**Keywords:** allergic enterocolitis, lactase deficiency, children, PEM, anemia, therapeutic mixture, vegetative-visceral dysfunction.

Food protein-induced enterocolitis syndrome (FPIES) is a non-immunoglobulin E (IgE) mediated gastrointestinal food hypersensitivity that manifests as profuse, repetitive vomiting, sometimes with diarrhea, leading to dehydration and lethargy in the acute setting, or chronic, watery diarrhea with intermittent vomiting, leading to weight loss, failure to thrive, dehydration, and metabolic derangements in a chronic form. This disease primarily affects infants. It is most commonly caused by cow's milk (CM) or soy protein, although other foods can be triggers.

A number of gastrointestinal disorders in children have been attributed to immunologic reactions to dietary proteins. Immunologic reactions to dietary proteins may be classified as IgE mediated, non-IgE mediated (T cell), or mixed (IgE and T cell mediated). The entire gastrointestinal tract can be affected, from the mouth to the rectum. Most of these disorders affect a specific region of the gastrointestinal tract, such as eosinophilic esophagitis (EoE), eosinophilic gastritis, food protein-induced enteropathy, enterocolitis, or proctocolitis. FPIES has some features that overlap with the other non-IgE-mediated gastrointestinal allergic disorders, food protein-induced enteropathy, and proctocolitis.

Lactose intolerance is when the gut can't break down lactose. This problem happens because there isn't enough lactase in the small intestine.

Lactose is a sugar present in all breastmilk, dairy milk and other dairy products. It makes up 5-7% of breastmilk, infant formula and dairy products.

Lactase is an enzyme. Enzymes break down the nutrients in food so the body can use them.

Lactose is important for your baby's health and development. It provides around 40% of your baby's energy needs and helps them absorb calcium and iron.

Causes of lactose intolerance:

There are 3 main causes of lactose intolerance.

Lactase non-persistence (hypolactasia)-this happens when your child's lactase enzymes gradually start to decrease. This is genetic and very common – about 70% of people have this type of lactose intolerance. Symptoms can start after the age of 5 years, but they're usually more noticeable in teenagers and young adults. Children can usually still tolerate small amounts of lactose in their daily diets.

Congenital lactase deficiency (alactasia)-this happens when babies are born with no lactase enzymes at all. This is genetic and extremely rare. Babies with this kind of lactose intolerance have severe diarrhoea from the first day of life and fail to thrive. They need a special diet from the time they're born so they can grow and develop well.

Secondary lactose intolerance-this can happen if a child's digestive system is upset by infections like gastroenteritis, which can temporarily damage the lining of the stomach and small intestine. This kind of lactose

intolerance is short term and usually improves after a few weeks.

Conditions like coeliac disease can also lead to secondary lactose intolerance. Once these conditions are being managed properly, lactose intolerance should be less of a problem.

We present our own observation of a child with allergic enterocolitis and lactase deficiency complicated by moderate protein-energy deficiency and moderate anemia.

The patient was 6 months old, her parents contacted the Russian National Medical Research Center for Medical Treatment, according to the mother: lack of appetite, vomiting after each feeding, weight loss, severe anxiety, and the sound of rumbling from the abdomen. From the anamnesis: a child from the first pregnancy, first birth. Pregnancy proceeded against the background of toxicosis and anemia.

Unrelated marriage. The birth proceeded without complications. The girl was born through physiological labor at the 39th week of gestation with a weight of 3,200 g, body length 49 cm. She was immediately attached to the breast. Up to 2.5 months The mother fed only breast milk and weighed 5 kg. She was always restless and cried a lot. Due to the fact that she was restless, she was switched to formula milk and stopped breastfeeding. Gradually, the child began to gain weight poorly. Transferred to another Nan comfort mixture. The child's anxiety continued. The stool was not independent, it was induced with the help of glycerin, it was green with mucus and undigested.

Because of the NSG conclusion, the parents thought maybe their daughter was restless because of neurology and went to the hospital in Bukhara in the neurology department. After neurological treatment, the child's condition did not change; anxiety continued. They showed it to a pediatric gastroenterologist, the gastroenterologist prescribed Isikol Baby, and a positive effect was observed. Then, for complete treatment, they turned to the Republican Specialized Scientific and Practical Medical Center and the child was hospitalized in the department of pediatric gastroenterology.

The general condition is serious, the severity is based on severe anxiety and neurological symptoms. The child is restless while eating. The skin is pale, there are rashes, seborrheic dermatitis. Turgor elasticity is low. There are signs of dehydration. Subcutaneous tissue is poorly developed and evenly distributed. Medium muscle. Large fontanel 0.5 x 0.5 cm, soft edges. The tongue is clean, the appetite is good, they give a solution of NAN optipro 30-40 ml with a syringe. No harsh crackles in the upper part. The pulse is rhythmic and precise. The abdomen is swollen due to gas. soft on palpation, the child is restless. Diuresis is smooth, inside, but liquid in glycerin, mucous, indigestible. FV – 4800 g in clothes. FR - 60 cm MRI - 2 SD.

Complete blood count (CBC): Hemoglobin (HB) - 84.0 g/l - [E:130-160 A:120-140] Red blood cells (RBC) - 3.0 10^12/l - [E:4, 0-5.0 A:3.9-4.7] Color index - 0.8 - [0.85-1.05] Mean erythrocyte volume (MCV) - 74.5 µm^3 - [80-100] Hemoglobin in 1 erythrocyte (MCH) - 27.8 pg - [30-35] Hemoglobin concentration in erythrocytes (MCHC) - 373 g/l - [320-360] Anisocytosis of erythrocytes - 14.7% - [11.5-14 .5] Hematocrit (HCT) - 22.6% - [E:35-49 A:32-45] Platelets (PLT) - 412 10^9/l - [180-320] Mean platelet volume (MPV) - 10 .2 µm^ 3 - [3.6-9.4] Platelet anisocytosis (PDW) - 16.3% - [1-20] Thrombocrit (RST) - 0.42% - [0.15-045] Leukocytes ( WBC) - 10.5 10^9/l - [4.0-9.0] Segmented neutrophils - 39.5% - [47-72] Eosinophils - 0.2% - [0.5-5] ] Basophils - 0.1% - [0-1] Monocytes - 8.7% - [3-11] Lymphocytes - 51.5% - [19-37] Erythrocyte sedimentation rate (ESR) - 5 mm/h - [E: 2-10 A:2-15].

Biochemical blood test: total protein - 53 g/l - [<3 years 46-70 > 66-85 years] Glucose - 3.7 mmol/l - [3.2-6.1] Bilirubin Total - 5.8 µmol /l - [3.4-20.5] Bound bilirubin - 1.4 µmol/l - [0.86-5.3] Free bilirubin - 4.4 µmol/l - [1.7-17.1] ALT - 16 units/day - [<40] AST - 28 units/day - [<35] LDH Lactate dehydrogenase - 256 units/day - [225-450] Active phosphatase IF - 459 units/day - [<15 years <644 15-17 years old<483]

Coagulogram: Prothrombin time/index/ - 15\71 sec/% - [14-19] INR - 1.20 sec - [0.85-1.15] Fibrinogen - 2.8 g/l - [2-4]

Plasma tolerance to heparin - 4.58 min - [3-7] Recalcification time - 114 sec - [60-120] Thrombo test - 4 st - [IV-VI] Ethanol - negative.

General analysis of stool and determination of helminths: Form - idol Color - green neutral oil - ++ fatty acids - ++ soap - + Mucus - + Leukocytes - 25-30

Neurologist - PPNS, vegetative-visceral dysfunction syndrome.

Ultrasound of the abdominal organs (liver, gallbladder, pancreas, spleen): Liver: Contours: smooth, clear Right lobe: PZR 73 mm Left lobe: CCR 45 mm Echostructure of the parenchyma: homogeneous, fine-grained Echogenicity: average Portal vein up to 3 mm IVC mm Vascular the drawing is distinct Gallbladder: The contours are even and clear. Dimensions: Length - 25 mm Thickness - 12 mm Wall thickness: up to 2 mm Contents: homogeneous Pancreas: due to pneumatosis, visualization is difficult.

Spleen: Smooth, clear contours Dimensions: Length 48 mm Thickness 22 mm Echostructure: homogeneous, splenic vein 2 mm Echogenicity: average Conclusion: At the time of examination there were echo signs of Hepatomegaly (+1.0 cm). Pneumatosis intestinalis. Colitis?

Ultrasound of the brain in children (up to one year old) (04/20/2022) Conclusion - NEURSONOGRAPHY Age 3 months: The pattern of convolutions and sulci is clear, the brain parenchyma is medium, homogeneous, the subarachnoid space of the convexital surface, not expanded - 2.2 mm. Interhemispheric fissure (in mm) 2.4 mm. Lateral ventricles: V1 V2 Depth of anterior horns 2.2 mm 2.2 mm Depth of bodies: 2.2 mm-2.2 mm, Depth of temporal horns mm PPP -8.1 mm Width V3 - 1.3 mm Width V4 - 1.4 mm Greater occipital cistern - 1.4 mm Choroid plexuses smooth, hyperechoic, heterogeneous, due to cystosis on the left. Periventicular area: Echogenicity - increased Echostructure - homogeneous. Subcortical nuclei and thalamus Echogenicity _ average. The echostructure is homogeneous. Conclusion: Echo signs of preserved PPP against the background of pronounced hypoxic changes in the brain. Pseudocyst of the left cerebral plexus.

Ultrasound of the urinary system - kidneys, ureters, bladder (UVP): Indicator - Normal Topography + + normal at the ThXII-LIII level Respiratory mobility + + normal 20-40 mm Fat capsule (capsula adiposae), the echostructure is normally echo-homogeneous Fibrous capsule (capsula fibrosae), the thickness is normally traced throughout, 1.5-3.0 mm Contours smooth smooth normally smooth, clear Dimensions Length x thickness x width 64x30mm 66x30mm (age-specific indicators) Parenchyma thickness apical segment 6 mm 6 mm normal 1.2-2.5 cm anterior-superior segment normal 0.8-1.8 cm anterior-middle segment normal 0.8-2.0 cm lower segment normal 1.2-2.5 cm posterior segment normal 0.8-1.8 mm.

Echogenicity of the parenchyma of the media by degrees: 0, I, II, III normally 0 degree The echostructure of the parenchyma is homogeneous (normally homogeneous), pyelocaliceal system (PUS) Pelvis Expanded Not dilated normally without dilatation The upper group of calyces is normal without dilatation. The middle group of calyces is normal without dilatation The lower group of calyces is normal without dilatation Presence of stones in the mandibular joint is not normally visualized Ureter The upper 1/3 is not normally visualized The middle 1/3 is not normally visualized The lower 1/3 is not normally visualized.Conclusion: at the time of examination, no pathology of MVS was detected.

***Clinical diagnosis:***

*Main: Allergic enterocolitis caused by cow's milk protein. (ICD 10 K 52.2). Reactive hepatitis.*

*Complicated: Moderate protein-energy deficiency. Moderate anemia.*

*Concomitant diagnosis: Vegetative-visceral dysfunction syndrome. Complications of PCNSL.*

The child was in the pediatric gastroenterology department for 10 days. The girl was prescribed a medicinal mixture Friso Frisolac Gold PEP AC with deeply split casein intended for children with allergies to cow's milk proteins, Izikol Baby and received symptomatic drug therapy. The child has gained

600 grams of weight over time. Calm. The mother was given further recommendations for the management of the child.

**Conclusions.** This clinical case of allergic enterocolitis with lactase deficiency and vegetative-visceral dysfunction syndrome shows that allergic enterocolitis can be accompanied by lactase deficiency and a child in the early months of life is not always restless for a neurological reason; constipation in an infant is already a reason to contact a pediatric gastroenterologist. Early diagnosis is very important to prevent complications of various diseases, both gastroenterological (PEM, hepatomegaly, anemia) and neurological (complications of PCNSL).

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