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STUDY OF THE PREVALENCE AND CLINICAL TYPES OF CHRONIC BILIARY TRACT DISEASES IN CHILDREN

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ABSTRACT

At the same time, the proportion of cholelithiasis in children with an upward trend is increasing.In the structure of the pathology of the biliary tract, there is a significant increase in both dysfunctional disorders and diseases of an metabolic-inflammatory nature (1). A certain role in the formation of the pathology of the biliary tract is played by congenital anomalies of the gallbladder and biliary tract.The studies carried out indicate the frequency of lesions of the biliary tract in school-age children. Comparative analysis of the data obtained in a comprehensive study allows differentiating the pathology of the biliary tract, but with a clinical manifestation, and also confirms the informative value of X-ray and ultrasound studies to clarify the diagnosis.

Purpose of the study

To assess the informativeness of various diagnostic methods used for differential diagnosis of biliary tract pathology in children.

Materials and methods

The diagnosis in our study was based on clinical and anamnestic data, laboratory findings, radiographic examination, and ultrasonography. Echographic scanning of the abdominal organs, particularly the liver and gallbladder, was performed according to standard methods. When indicated, oral cholecystography was conducted to determine the shape and function of the gallbladder, detect anatomical anomalies, gallstones, and signs of inflammatory processes.

The contents of the duodenum, including sediment and its biochemical characteristics, were analyzed using microscopy. Laboratory diagnostics of cholestasis included determination of alkaline phosphatase, total bilirubin and its fractions, cholesterol, and cytolytic aminotransferases in blood.

Results

We examined 89 school-age children diagnosed with various congenital and acquired biliary tract disorders.

- 22 were hospitalized due to presumed inflammatory gallbladder disease.
- 67 were identified during screening examinations.

Three groups of patients were identified:

1. Functional disorders of the biliary tract – 12–14%
2. Developmental anomalies of the biliary system – 35–38%
3. Inflammatory diseases (chronic cholecystitis, cholecystocholangitis) – 42–47%

Clinical manifestations

1. Functional disorders

Children most often experienced dull, moderately severe, short-term pain. In a few cases of hypermotor dysfunction, pain resembled acute attacks. Pain was localized mainly in the epigastric area (68%), less often in the right hypochondrium (20%). Pain was usually unrelated to food intake but associated with emotional stress and resolved spontaneously in 94% of cases. About 38% of patients experienced nausea, rarely vomiting.

2. Congenital anomalies of the biliary tract

Abdominal pain was often paroxysmal (64%), of moderate intensity, short in duration but recurrent.Spasmolytics were highly effective. Pain and tenderness were equally common in the epigastric area (51%) and right hypochondrium (49%).

3. Chronic cholecystitis and cholecystocholangitis

Pain was typically paroxysmal, moderately intense, short-lived, and frequently associated with consumption of fatty foods. Nausea was present in 65% of children, vomiting in 25%. Tenderness over the gallbladder region was commonly detected. A clear association with food intake was observed ($p < 0.05$). More than 80% of patients showed dyspeptic symptoms. The liver was enlarged by 2–3 cm in many patients; minimal hepatomegaly was common in functional disorders, maximal—in chronic cholecystocholangitis and biliary anomalies. In 65% of children, liver palpation was tender; in 35% the liver was enlarged and slightly firm.

Instrumental and laboratory findings

Duodenal intubation

Only 5% of children had normal biliary tract function. In **95%**, motor dysfunctions were observed:

- hypermotor dyskinesia — 38%
- hypomotor dyskinesia — 26%
- mixed — 30%

Inflammatory changes were confirmed by analysis of bile. Enzyme studies (ALP) showed altered activity in all three groups.

Ultrasonography

- Increased liver size and echogenicity in **74 children (97%)**
- Thickening of the gallbladder wall — 54%
- Motor dysfunction of the gallbladder — 73%
  - hypermotor form — 64%
  - hypomotor — 25%
  - mixed — 11%
- Presence of biliary “sludge” was noted
- Sonographic signs of cholestasis included dilatation of intrahepatic ducts

- Developmental anomalies of the gallbladder were found in **38%**:
  - S-shaped deformation — 28.5%
  - body bends — 42.8%
  - neck bends — 20%
  - neck–duct zone anomalies — 8.5%

Cholecystography

- Impaired contractility in 74 patients
- Reduced contractile ability — 54%
- Anatomical/organic changes — 36%
- In 12.3% of children, ultrasound and cholecystography results did not match

Biochemical findings

Signs of cholestasis included:

- increased alkaline phosphatase — 49.4%
- hypercholesterolemia — 50%
- elevated bilirubin — 10% Aminotransferase levels remained normal in all children, confirming intact liver parenchyma.

Clinical characteristics of chronic cholecystitis

Painful attacks occurred after physical exertion, stress, dietary errors, or intercurrent infections. Pain was located in the right hypochondrium, sometimes radiating to the right scapula, clavicle, shoulder, or left hypochondrium. Pain could last hours, days, or weeks.

Dyspeptic symptoms included:

- nausea
- heaviness in the right hypochondrium or epigastrium
- belching, bitterness in the mouth
- vomiting with bile

Stool disturbances (constipation, diarrhea), flatulence, and decreased appetite were common.

Chronic intoxication symptoms (headaches, fatigue, emotional instability, subfebrile temperature) were observed in **80%** of children.

Atypical forms (20%)

Included emotional lability, headaches, sleep disorders, tics, tremors, or subfebrile temperature with polyarthralgia or cardiac complaints.

Severity

- Mild, rare exacerbations — 28%
- Moderate severity with recurrent exacerbations — 80%

Discussion

Anatomical abnormalities disrupt bile flow and reduce gallbladder contractility, leading over time to dystrophic changes and potential gallstone formation. Ultrasound is highly informative but requires radiological confirmation in some cases. Biochemical markers alone are insufficient for reliable diagnosis of cholestasis unless more than 50% of hepatic parenchyma is damaged.

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