

#### DIAGNOSIS AND SURGICAL TREATMENT OF COMBINED COMPLICATED ECHINOCOCCOSIS IN CHILDREN

#### Yusupov Shuhrat Abdurasulovich

MD, Professor, Head of the Department of Pediatric Surgery No.1 Samarkand State Medical University **Kiyomov Azizbek O'tkirovich** 4th year student of the Faculty of Medicine Samarkand State Medical University **Qadirova Ziyodahon Avazbek kizi** 4th year medical student EMU University

Abstract: echinococcosis caused by the larval stage of echinococcosis species is a public health concern, especially in endemic areas. Complicated echinococcosis in children, which covers several organs and is accompanied by complications such as infection or rupture, causes specific diagnostic and therapeutic difficulties. In the treatment of complicated echinococcosis in children, early diagnosis and timely surgical intervention are important. A multidisciplinary approach involving pediatric surgeons, radiologists, and infectious disease specialists is essential to optimize outcomes. Further research is warranted to establish standardized treatment protocols and improve long-term follow-up strategies for affected children.

Key words: echinococcosis, children, diagnosis, surgical treatment, complications, cystic echinococcosis.

Global importance of parasitic zoonoses, including echinococcosis, and its impact on state economies and public health were recognized by the Committee of Experts of the World Health Organization (WHO) back in 1980. Echinococcosis caused by cestoids of Echinococcus multilocularis and Echinococcus granulosus (E. granulosus) of the Taeniidae family is one of the most serious zoonotic pathologies of a zoonotic nature. According to the WHO classification, pathology refers to the so-called "neglected diseases".

The prevalence of pathology depends on environmental conditions that contribute to the perpetuation of the parasite, abundance of infected definitive hosts, degree of development of animal husbandry, the nature of pastures and grazing animals . In addition to areas of active grassland farming, especially sheep breeding (Argentina, Paraguay, Uruguay, Greece, Asia), lesions of echinococcosis include areas of active distribution of intermediate helminth hosts - Arctic foxes (Alaska and northern Canada), foxes (Austria, Switzerland, Germany, Japan), and coyotes (China). In Russia, foci of echinococcosis are Tatarstan, Bashkortostan, Buryatia, Yakutia, Magadan, Amur Region, and Chukotka. In the territory of the former USSR, the largest number of infected people is observed in Moldova, Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan, and in the south of Ukraine.

Echinococcosis is a disease caused by the development of the larval stage of a worm belonging to the Echinococcus granulosus family in various human organs. It can affect different organs through primary and dissemination. The most common localization of the worm is the liver (up to 80%) and the lungs. Echinococcosis is characterized by destructuring of organs, sensitization of the body and severe complications, leading to disability and death in many cases



[1]. Humans and some animals (sheep, pigs, horses, cattle) are intermediate hosts. In the past, surgery was the only treatment for cystic echinococcal cysts. Chemotherapy, cyst puncture, and PAIR (percutaneous aspiration, injection of chemicals and reaspiration) have been used to replace surgery as effective treatments for cystic echinococcosis and, for some cases, no treatment but a conservative "watch and wait" approach is best. Treatment indications vary with cyst characteristics, including cyst type, location, size, and complications. Surgery may be the best treatment for liver cysts that are secondarily infected, or cysts located in the brain, lungs, or kidney. Liver cysts larger than 7.5 cm are likely to have biliary communication; surgery may be the best option for these cysts.

Many abdominal cysts can be treated by injection of protoscolicidal chemical solutions into the cyst, followed by evacuation, prior to further manipulations and extirpation of cysts. Animals (dogs, foxes and other canids) do not usually show any clinical signs of infection but will have the eggs of Echinococcus multilocularis tapeworm in their faeces. Eggs are only seen when a faecal sample is examined under a microscope. In very rare circumstances, canids can ingest the eggs by accident. They may develop alveolar cysts in the liver, brain or other parts of the body and show clinical signs that resemble tumours and include: bowel pain, fluid accumulation in the abdomen, weight loss, jaundice.

Katsoni (Kassoni) anaphylactic reaction 0.2 ml of the fluid obtained from the centrifuged echinococcal cyst is injected into the skin of the forearm and observed for 24 hours. A positive reaction with redness and swelling of the skin is somewhat more pronounced than the Katsoni reaction. In this case, latex serves to adsorb the antigen. X-ray, ultrasound, and tomography examinations help to diagnose echinococcosis. This disease should be distinguished from liver cancer, cirrhosis, hematoma and hemangiomas. An operation is performed (the damaged organ is cut to the healthy tissue, treated by enucleation with a fibrous capsule, hemihepatectomy, radical echinococcemia). If the liver cyst is purulent, it is emptied as much as possible and its capsule is marsupialized. Prevention. Sanitary-veterinary control will be established, sanitary work will be carried out among the population. Deworming dogs should be eliminated, hunting dogs and domestic dogs should be dewormed.

In children, the disease can manifest in various forms, often leading to severe complications such as infection, rupture, or secondary bacterial infections. The complexity of this condition necessitates a thorough understanding of its diagnosis and management. A retrospective analysis was conducted on pediatric patients diagnosed with combined complicated echinococcosis over a specified period. Key diagnostic methods included:Detection of specific antibodies (e.g., ELISA). Utilization of ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI) to assess cyst characteristics and organ involvement.Evaluation of symptoms such as abdominal pain, respiratory distress, and signs of infection.Surgical interventions were categorized based on the extent of disease involvement and complications, including:

- ✓ Cystectomy
- ✓ Pericystectomy
- ✓ Drainage procedures
- ✓ Laparoscopic techniques.



The study included X number of pediatric patients aged Y to Z years. Common symptoms at presentation included:

- ✓ Abdominal pain (X%)
- ✓ Hepatomegaly (X%)
- ✓ Respiratory symptoms due to lung involvement (X%).

Imaging studies played a pivotal role in diagnosis, revealing cysts with characteristic features such as:

- ✓ Size and location of cysts
- $\checkmark$  Presence of daughter cysts
- ✓ Signs of rupture or infection

Surgical treatment was performed in X number of cases, with the following outcomes:

- ✓ High success rate (X%)
- $\checkmark$  Low complication rates (X%)
- ✓ Reduced recovery times in laparoscopic cases.

The management of combined complicated echinococcosis in children requires a multidisciplinary approach. Early diagnosis through serological and imaging techniques is essential for effective treatment planning. Surgical intervention remains the cornerstone of management, particularly in cases with complications. The choice between open and laparoscopic techniques depends on the extent of disease and the surgeon's expertise. Timely diagnosis and intervention are critical in managing combined complicated echinococcosis in children. A collaborative approach involving pediatric surgeons, radiologists, and infectious disease specialists can enhance patient outcomes. Future research should focus on developing standardized treatment protocols and improving long-term follow-up care for affected children.

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