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# A Rare Presentation of Hydatid Cyst Disease in A Child As Sepsis

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**Abstract**
This case is important due to hydatid cyst complications are uncommon in children, early recognition can be life-saving, prevents misdiagnosis, guides appropriate management, adds valuable literature for rare complications and public health and preventive relevance. A 13 year old boy was presented with history of basket ball injury while playing, fever, cold, cough, chest pain, shortness of breath, itching over body, vomiting, dizziness and fainting. Mother reports that child plays and sleeps with stray dogs. He was unwell, tachycardic, with hypotensive, raised inflammatory markers, hypoalbuminemia, for which intravenous fluids, antibiotics and supportive treatment were given. CT scan of chest at local hospital showed likely hydatid cyst of liver (5.8 x 5.4 x 6 cm ), fibroblastic bands in right lower lobe of lung, cholelithiasis and left renal calculus. In house CT chest and abdomen showed similar findings. Immune haemagglutinin / ELISA IgG echinococcal antibodies were positive (28.4). Intravenous Piperacillin, Tazobactam, and Amikacin were given for 6 days until two of his blood cultures showed no bacterial growth and clinically improved. He was given a one month course of oral Albendazole and Ursodeoxycholic acid.
For any sepsis in a child always take good history, examination and relevant investigations as it could be a complication of underlying condition. In our case it was Hydatid cyst disease.

**Keywords**: Paediatrics, Sepsis, Hydatid cyst, Echinococcus granulosus, Albendazole

## Introduction:

Cystic echinococcosis (hydatid cyst disease), caused by the larval stage of Echinococcal granulosus, remains a public health concern in many parts of India, especially in rural and livestock- rearing regions. (IJoro+2)Humans become accidental intermediate hosts through ingestion of parasite's eggs, often via contact with infected dogs, leading to the formation of cysts in viscera.
In children although pulmonary involvement is frequently highlighted, the liver is, in fact, the most common affected organ in the Indian paediatric population. A retrospective study from a tertiary care hospital in eastern India found that 78% of hydatid cysts in children were located in the liver, with half having isolated hepatic involvement. (PMC) Despite this, hydatid disease in the paediatric age group is relatively rare and often under recognised. (LWW journals+1)
Paediatric hepatic hydatid cysts may present with non-specific features- such as right upper quadrant pain, abdominal distension or malaise- and can remain clinically silent for long periods. (PMC) The

diagnosis typically relies on imaging (ultrasound, computed tomography) and is often confirmed by surgical and histopathological evaluation. (Journal of laboratory physicians+2)

Given the lower awareness, variable clinical presentation, and risk of complications such as cyst rupture, or secondary infection, reporting such cases is important. In this case report we describe an indian child presenting with sepsis as a complication of hepatic hydatid cyst, detailing the clinical course, management and follow up- emphasizing the need for a high index of suspicion in endemic areas.

**Case Presentation:**

A 13-year-old boy presented to the emergency department after sustaining a chest injury while playing basketball, followed by chest pain, shortness of breath, generalized itching, multiple episodes of non-bilious, blood-tinged vomiting, dizziness, and fainting. He had a preceding 3-day history of fever, cold, and cough. Mother reported that child plays and often sleeps with stray dogs.

Initial evaluation at a local hospital revealed chest tenderness and metabolic acidosis, for which IV antibiotics and supportive care were started. A CT thorax showed fibroblastic bands in the right lower lung lobe, a probable liver hydatid cyst (~6 cm), gallstones, and a non-obstructive left renal calculus.

On admission to the high-dependency unit, he remained febrile, tachycardic, short of breath, and had left-sided chest tenderness. Chest X-ray suggested rib fractures, though CT with bone windows later ruled these out. His inflammatory markers rose significantly (CRP 0.1 → 10.7; WBC 5420 → 13,100 with 94% neutrophils), and he developed hypotension (90/60 mm Hg). ECG and echocardiography were normal. Antibiotics were escalated to piperacillin-tazobactam and amikacin. Malaria and dengue tests were negative; renal function and ferritin were normal, but hypoalbuminemia (2.8 g/dL) was noted.

By day 3, he developed facial oedema and erythematous flushing of the chest. CECT abdomen confirmed a small liver lesion (segment 7), bilateral small renal calculi, and gallstones. Albendazole and ursodeoxycholic acid were initiated. Surgical advice favoured conservative management with follow-up imaging after one month.

He was discharged on day 5 to continue IV antibiotics locally but was readmitted the following day with headache, vomiting, and loose stools; systemic examination was normal. Intravenous antibiotics were continued until blood cultures showed no growth. Inflammatory markers and albumin levels improved. Echinococcal IgG (ELISA) was positive (28.4). Stool studies were normal.

He was discharged on day 9 with counselling on risks of hydatid cyst rupture, anaphylaxis, and related complications. He is due for folllow-up.

**Discussion:**

In our case child stared with symptoms of fever, cold and cough. On day three of illness he played basketball, where he sustained injury from basket ball over his chest while dodging, which does not look like a severe injury. In view of chest pain, vomitings, dizziness, fainting, rash over body, CT thorax was done to rule out any underlying chest injury. He might have had early sepsis or bacteremia or due to infection of cyst possibly from hematogenous or enteral spread or partial rupture from injury leading to sudden onset of above symptoms. In the literature presenting features are, high-grade fever, chills, abdominal pain, jaundice (suggesting biliary fistula), hepatomegaly, right upper quadrant tenderness, hypotension or altered sensorium in severe cases. Routine hydatid disease often remains asymptomatic-thus sudden toxicity should raise concern for sepsis, which happened in our case.

Elevated inflammatory markers ( leukocytosis, CRP, Procalcitonin) are in the literature, so also noticed in our case, however procalcitonin was not done. Liver function abnormalities, particularly cholestasis was present in literature, however it was normal in our case. Blood cultures were negative (prior antibiotics, localized sepsis) in the literature, which concurred with in our case except localized sepsis. In the literature CT / Ultrasound scan showed air-fluid levels, cyst wall thickening, debris- suggestive of infection. In our case CECT showed large hypodense lesion with detached floating membranes in left lobe of liver, another small similar lesion in right lobe of liver, bilateral gall bladder and renal calculi with scarred areas in kidneys. Ultrasound showed hepatomegaly with hydatid cyst, cholelithiasis, bilateral renal calculi and minimal inter-bowel-free fluid. Both hydatid cyst and gall stones can occur together especially in endemic regions, possibly due to compression of biliary tree, stasis of bile and stone formation; rupture into bile ducts, causing cholangitis or jaundice (may resemble gallstones clinically); rarely hydatid membranes may be mistaken for stones on ERCP. In our case gall stones could be due to above reasons, however we did not rule out cholesterol and pigment stones, which are rare in children. Literature review showed no relation between hydatid cyst and renal stones, however in our case renal stones are asymtomatic, could have been an incidental finding and further investigation was not done.

A liver hydatid cyst caused by Echinococcus granulosus may become secondarily infected due to cyst-biliary communication, leading to ascending bacterial infection; intra cystic infection from hematogenous spread or enteric translocation; cystic rupture into biliary tree, peritoneum or blood stream; and procedural contamination after aspiration or trauma. Secondary bacterial infection transforms a sterile parasitic cyst into a pyogenic abscess, triggering systemic inflammation and potential septic shock. In our case sepsis could have been due to hematogenous or enteral translocation.

## Conclusion

Sudden onset of symptoms of sepsis in a child, dog lovers, especially stray dogs in endemic areas, always suspect underlying hydatid cyst disease. This is the first case where pulmonary lesions, gall stones and renal stones ( incidental finding) are associated with hydatid disease and sepsis

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