CYSTIC ECHINOCOCCOSIS OF THE LIVER A CASE REPORT

DR. S. VENKATESWARA RAO,1 DR. BASETTY NAGARAJA,2 DR. MUCHUKOTA BABU3

1. Assistant Professor, Dept of Forensic Medicine, Sri Venkateswara Medical College, Tirupati, A.P.
2. Assistant Professor, Dept of Pathology, Sri Venkateswara Medical College, Tirupati, A.P.
3. Associate Professor, Dept of Forensic Medicine, Sri Venkateswara Medical College, Tirupathi, A.P.

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Abstract: Human Hydatid disease or Cystic Echinococcosis (CE), is strictly zoonoses caused by the larval form of Cestode Echinococcus granulosus and characterized by worldwide distribution with frequent hepatic involvement and undiagnosed throughout their lives, unless with onset of the symptoms. Ultrasonography is the main diagnostic tool, computed tomography and serology improve the accuracy of diagnosis. Surgery is the only modality applicable over the entire spectrum of the disease; systemic chemotherapy and percutaneous drainage have evolved as alternative therapies in the last three decades. Various laparoscopic techniques have also been described for safe and optimal management of this entity. The present study revealed a large sized Hydatid cyst which is detected during the medico legal autopsy (RTA) is taken for the study and Histopathologically confirmed.

Keywords: Hydatid cyst, Cestode, Echinococcus granulosus.

Corresponding Author: DR. S. VENKATESWARA RAO

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INTRODUCTION

Echinococcus species are Cestode parasites known as small tapeworms of carnivorous animals’ causes zoonotic diseases. Predominantly two species are more causative 1. Echinococcus granulosus – (EG) causes cystic echinococcosis (CE) / Cystic Hydatid disease 2. Echinococcus multilocularis causes- alveolar Echinococcosis (AE) / Alveolar Hydatid disease. CE&AE differ clinically and pathologically. Two other species E. vogeli and E. oligarthrus are rarely found in humans. Dogs are the definitive hosts, from whose excreta the vegetations get contaminated. The animals like the sheep get infected from the contaminated vegetations. Dogs get infected when they eat meat of these animals. If humans happen to ingest the eggs by virtue of their close contact with the dogs, the larvae penetrate the intestinal wall and reach many organs, mainly liver and fluid filled hydatid cyst forms.

Cyst has outer layer -ectocyst , inner or germinal layer endocyst. Ectocyst is tough, acellular, laminated hyaline membrane, appearance of hardboiled egg. If it ruptures it curls on itself thus exposing the inner layer containing brood capsule, scolics and daughter cysts. When large cysts are developed the daughter cysts develops in side and may obstruct the hepatic duct, may rupture into biliary tree and causes obstructive jaundice or cholangitis and rupture through the diaphragm it produces an emphema. The majority of the EG cysts are found in the liver, 5 to 15% in the lungs and rest in bones, brain or other organs. The cyst begins at microscopic levels and progressively increases in size and in 5 years they may achieve dimensions more than 10cm in diameter. Hydatid cyst Fluid usually clear or slightly yellowish in colour with a specific gravity (1.005 to 1.010),slightly acidic (PH 6.7) in nature, contains sodium chloride, sodium sulphate, sodium phosphate, sodium and calcium salts of succinic acid. Due to its antigenic nature it is used for casonis test, it is highly toxic when absorbed give rise to anaphylactic symptoms.

Clinical features- Asymptomatic for months and years or even longer, Right lobe of the liver is more affected . Hepatomegaly, epigasrtic pain, nausea, vomiting, cholistatic jaundice, hepatic compromise may lead to biliary cirrhosis and Budd-chiari Syndrome. If lungs are affected cough, hemoptysis,bilioptysis, Pneumothroax, pleuritis, lung abscess and parasitic lung embolism may be present . Rare but often catastrophic infestations can affect the heart or brain. In heart this can present as tumour, pericardial effusion up to tamponade, complete heart block and results sudden death. The purulent material result in death of parasitic and conversion in to a Pyogenic abscess.

If cysts rupture it causes biliary colic, cholistatic jaundice and cholangitis or pancreatitis. Rupture of liver, lungs results in anaphylactic shock reactions.
According to WHO IWGE 2001 (World Health Classification) Ultrasonography of Echinococcal
cysts are classified into 6 types :

CE1- (cystic echinococcosis-1) - Unilocular, anechoic cyst with double line sign.

CE2 - Multiseptate honey comb cyst, 

CE3a - Cyst with detached membranes, 

CE3b - Cyst with daughter cysts in solid matrix,

CE4 - Cyst with heterogeneous hypo echoic / hyper echoic contents. No daughter cysts, 

CE5 - solid plus calcified wall.

**Diagnosis:** X ray of chest and Abdomen may reveals calcified masses, Casoni’s test is useful.
Ultrasonography is the diagnostic procedure of choice. Nuclear magnetic resonance imaging
(NMR), Endoscopic retrograde cholangio pancreatography (ERCP), Indirect Hem agglutination
test (IHAT), Enzyme linked Immuno Sorbent Assay (ELISA), Polymerase Chain Reaction (PCR)
Random Amplified polymorphic DNA PCR (RAPD- PCR) or Single Stranded polymorphism PCR
(SSCP-PCR) are useful investigations. Computed tomography and serology improve the accuracy
of diagnosis in Liver hydatid cysts.

**Management:** Medical Care – Exclusive chemotherapy indicated in primary liver cyst
inoperable, cysts in multiorgans, peritoneal cysts, ruptured cysts and therapy is contra indicated
during early pregnancy, bone marrow suppression, chronic hepatic disease, large cysts with
risk of rupture. Benzimidazole compounds Mebendazole, praziquantol, Albendazole have
strong activity against EG. Among these drugs, one is choosed and to be given after fat rich
meal.

The following table Indicates management of Hydatid cyst according to WHO guidelines

<table>
<thead>
<tr>
<th>WHO Classification</th>
<th>Suggested practice</th>
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<tbody>
<tr>
<td>CE1</td>
<td>Albendazole alone if &lt; 5 cm</td>
</tr>
<tr>
<td></td>
<td>PAIR + Albendazole if &gt; 5 cm</td>
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<tr>
<td>CE2</td>
<td>Surgery + Albendazole</td>
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<tr>
<td></td>
<td>Or</td>
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<td></td>
<td>Non-PAIR PT + Albendazole</td>
</tr>
<tr>
<td>CE3a</td>
<td>Albendazole alone if &lt; 5 cm</td>
</tr>
<tr>
<td></td>
<td>PAIR + Albendazole if &gt; 5 cm</td>
</tr>
<tr>
<td>CE3b</td>
<td>Surgery + Albendazole</td>
</tr>
</tbody>
</table>
Preferred Dose of Albendazole is 10-15 mg/kg/day in 2 divided doses for 28 days/Mebendazole orally given dose is 40-50 mg/kg/day in 2 divided doses for 3-6 months. Surgical Care - Indicated in symptomatic cyst, large cysts more than size of 5cms, superficially located liver cyst, liver cysts with biliary tree communication and infected cysts. PAIR – Puncture, aspiration, injection of Helminthicide and reaspiration is the method followed widely, currently scolicidal agents are chlorhexidine, hydrogen peroxide, cetrizamide and mostly preferred option is ethanol. Laparoscopic pericystectomy is safe. Spillage of the cyst contents should be avoided during the surgery. Radical Surgery – heptectomy or pericystectomy is also followed in severe cases. Although hepatic hydatid cysts can be treated by surgery, chemotherapy and/or percutaneous aspiration, surgery remains the traditional and established treatment. PAIR is indicated patients who refuse the surgery. Health education is the best method in Prevention of the diseases.

**Case Report:**

A 66 years old man who is a shepherd, met with Road Traffic accident (RTA) and sustained Fracture of greater trochanter of the right femur with other injuries. Patient was Hospitalised at Govt General Hospital, Anantapuramu, A.P. and bed ridden for a period of 1 month and died due to due to septicaemia. During the Autopsy incidentally a yellowish coloured cyst of size 6×6 cm was seen over the middle part right lobe of the liver, which is soft, shiny, fluctuant with thick capsule formation and primarily the lesion is diagnosed as Hydatid cyst (Fig1).
Fig : 1 – Liver with Hydatid cyst (Fresh Specimen)

and cyst is carefully excised and preserved in formalin solution and sent to Department of pathology for histopathological examination. (Fig:2).

Fig :2 – Hydatid cyst of the liver- Fixed in Formalin solution
Though it is the commonest the tumour of the liver but prevalence rate is very less in Medico Legal Autopsies in Anantapuramu area, so the case is opted for the study.

**Material and methods:** - The formalin fixed cyst is sent for the HPE. Gross appearance revealed that specimen of the liver, size of 6×6 cm, with firmly attached greyish white colour cyst of size 5.5×5.5 cm with circumference of 16 cms, with thick outer layer which is encysted. C/s showed Greyish white slimy translucent content *(Fig: 3)*

![Fig: 3 – C/s Hydatid cyst of the liver.](image)

Periodical slice are taken. Slides are prepared and stained with Haemotoxin – eosin and examined under the microscope, the findings are confirmed that the sent specimen is Hydatid cyst with demonstrable layers.

**RESULTS:-**

Histo-pathology Examination - inner nucleated, Germinative layer and outer opaque, non nucleated layer are seen with outer distinctive layers of gelatine is seen and confirmed diagnosis *(Fig :4)*
DISCUSSION: -

Hepatic cysts are common, occurring in 2.5% of the population. Active cysts contain a large number of smaller daughter cysts, rupture can result in these implanting and growing within the peritoneal cavity of variable sizes. Daughter cysts can form within the primary cyst, includes multiple, communicating chambers. The endogenous formation of brood capsule and protoscolices is a prerequisite for termination of the life style. protoscolices will grow to the adult stage once ingested by the definite host. Cases are also reported the incidence of growth of the Hydatid cysts in the oral cavity, which is a unusual site. HPE - the cyst wall composed of 3 distinguishable layers outer peri cyst, intermediate ecto cyst and inner endo cyst. (Fig :5) Peri cyst is the outer host inflammatory reaction consist of fibroblastic proliferation mononuclear cells, eosinophils and giant cells. Eventually developing into dense fibrous capsule, may even calcify. Ectocyst composed of acellular, chitinous laminated hyaline material. Endo cyst is the inner germinal layer bearing daughter cysts (Brood – Capsules) and scolices projecting into the lumen. Hydatidic sand is the grain like material composed of numerous scolices present in the hydatid fluid. In addition it contains antigenic properties so that its liberation into circulation gives rise to pronounce eosinophilia may cause anaphylaxis. Histopathologically the study confirmed the diagnosis.
Fig: 5 Hydatid cyst with Layers. (H&E10X)

Medico legal Importance:-

1. Meticulous Autopsy reveals many undiagnosed diseases.
2. This is also one of the causes which results Sudden Death.

REFERENCES:-
