

## CASE REPORT

**A Dumbbell Presentation of Hepatoperitoneal Hydatid Cyst of Liver**Mukesh Kumar<sup>1</sup>, Nidhi Arun<sup>2</sup>, Ganesh G. Gawda<sup>3</sup>, Sanjeev Kumar<sup>4</sup>**ABSTRACT**

**Introduction:** Hydatid disease (echinococcosis) is a zoonosis caused by the larval stages of cestodes belonging to the genus echinococcus. Liver is commonly involved presenting as a cyst. Very rarely the laminated membrane may herniated into the peritoneal cavity forming a “dumbbell” hepatoperitoneal cyst.

**Case report:** A 31 year old lady presented with the progressively enlarging huge abdominal lump occupying whole of the abdomen of one year duration. In USG and CECT abdomen revealed well defined hydatid cyst, occupying 2, 3 and 4 segment of liver. Main cyst filled numerous daughter cyst, 20×20cm peritoneal component with stomach and spleen displaced laterally. Midline laparotomy revealed hydatid cyst involving whole of the left lobe and the laminated membrane herniating through the inferior surface of left lobe into the peritoneal cavity.

**Conclusion:** Dumbbell peritoneal mass freely mobile in all direction attaining enormous dimension can be easily mistaken for ascites and innocent aspiration may lead to fatal anaphylaxis and death. Huge abdominal cyst with free mobility and a stalk connecting to left lobe liver makes it a unique presentation and thus reported.

**Keyword:** Dumbbell presentation, hydatid cyst, hepatoperitoneal.

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**INTRODUCTION**

Hydatid disease is a parasitic infestation that is caused by echinococcus granulosus, the life cycle of which has been well described.<sup>1</sup> Countries of the temperate zone, where sheep, goat and cattle are most commonly raised are endemic areas, such as north Africa, central Europe, the middle east Australia and south America.<sup>1,2</sup> The liver is the most frequently involved organ(75%), followed by the lung(15%). Right lobe of liver is frequently involved than left lobe.

In our patient, the hydatid cyst was located in left lobe of liver with herniation of laminated membrane (ectocyst) into the peritoneal cavity forming a “dumbbell” hepatoperitoneal cyst, presenting as huge abdominal mass with free mobility and a stalk connecting to the left lobe liver. This can be easily mistaken for ascites and innocent aspiration may lead to fatal anaphylaxis and death. This makes this an unique presentation and thus reported.

**CASE REPORT**

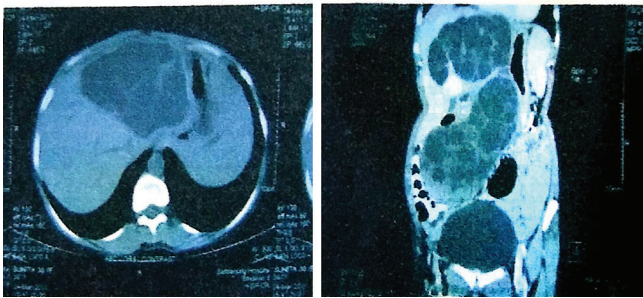
A 31 year old lady presented to General surgery OPD, in Indira Gandhi Institute of Medical Sciences, Patna, with the progressively enlarging huge abdominal lump occupying whole of the abdomen of one year duration with no other complaints nor any comorbid conditions or any previous history of liver disease. General physical examination was essentially normal except for pallor. Abdominal examination revealed intrabdominal non tender lump measuring about 18×20cm occupying umbilical and epigastric region and extending into right and left lumbar region. It was freely moving with respiration and sideways. All margins were well made out except for the upper one which disappeared under the left costal margin. Rest of the abdominal and systemic examination was essentially within normal limits. USG and CECT abdomen revealed well defined hydatid cyst, occupying 2,3 and 4 segment of liver (Fig.1). Main cyst filled numerous daughter cyst, 20×20cm peritoneal component and stomach and spleen displaced laterally. After correction of anaemia patient was taken for laparotomy. As per WHO guidelines albendazole was started 4 days prior to surgery. Midline laprotomy revealed

hydatid cyst involved whole of the left lobe and the laminated membrane had herniated through the inferior surface of left lobe into the peritoneal cavity where free space for expansion was available and the dumbbell hydatid measured more than 20x20 cms and adhered to omentum and bowel (Fig. 2). There was a pedunculated stalk connecting the peritoneal herniated component with left lobe liver. Bowel and omental adhesions were gradually separated peritoneal cavity packed with hypertonic saline.

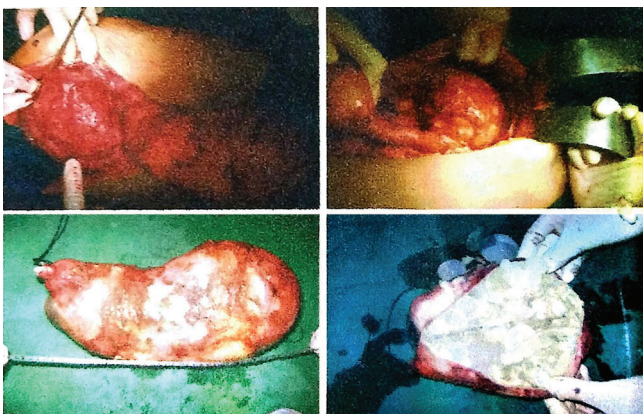
The hepatic component left lobe was deroofed and cavity sterilised with hypertonic saline and small cystobiliary communication was ligated.

Post-operative recovery was uneventful. Patient was allowed orally on the second post-operative day and drain removed on 3<sup>rd</sup> post-operative day. Patient was discharged on 5<sup>th</sup> post-op day after prescribing tab albendazole for 1 month. Patient was followed up for 3 month without any complaints.

### CECT Images



**Figure-1:** CT showing hydatid cyst occupying 2,3 and 4 segment of liver



**Figure-2:** Intraoperative view of hydatid cyst

### DISCUSSION

Hydatid disease is caused by the adult or larval stage of the cestode *Echinococcus granulosus*. Dog acts as definitive hosts and sheep or human as intermediate hosts. The adult tapeworm reside in the small bowel

of canines, produces egg which spread by the faeces. Human become infected by eating contaminated vegetables. In duodenum, ingested eggs free their larvae which enter the portal system and reach liver after crossing the intestinal wall. Although many of them are destroyed in the liver, there that survive develop into hydatid cysts. Being the first organ of passage, the liver is the most frequently infected (50%-75%), followed by lungs (20%-25%) and various other organs (15%-20%) via arterial dissemination.<sup>2,3</sup>

Once settled in the liver, larvae develops into cysts, which grows 1cm in the 1<sup>st</sup> 6month and 2-3 cm per year thereafter.<sup>4,5</sup> Usually by the fifth month, the wall of the cyst differentiates into an outer laminated non nucleated layer and an inner nucleated germinal layer. The inner layer produces Protoscolices and daughter cyst that fill the cyst interior.<sup>6</sup>

The cyst may remain asymptomatic for years. But as it increases in the size cyst may involve surrounding structure and the organs by forming fistulous tract. Complication arise when daughter cyst present inside the primary cyst disseminates into the biliary tree, pleura, bronchi or the peritoneal cavity.

A vital hydatid cyst grows in the direction of the least resistance, usually reaching the surface of the liver before it reaches enormous proportions. Outermost layer of the cyst called pericyst gets stretched and protrude from normal liver parenchyma, visible as an irregularly shaped fibrous whitish structure. Because of high intracystic pressure, both univesicular and multivesicular cysts can rupture.<sup>7</sup>

Peritoneal rupture of echinococcal cyst is rare but may occur either spontaneously or due to abdominal trauma or due to large superficial thinned out wall.<sup>8,9</sup>

Peritoneal rupture of echinococcal cyst may be silent, or present after long asymptomatic period or manifest as acute abdomen with anaphylactic shock due to disseminated secondary abdominal echinococcosis.<sup>10</sup>

Sometimes herniation of the laminated membrane called dumbbell hepatoperitoneal cysts occurs through the advential peri-cyst. The herniating membrane does not actually burst and therefore no spillage of hydatid debris occurs. The initial liver cyst remains small although the herniated, extrahepatic portion of the cyst can attain a volume of several litres. It is very rare. This condition mimics ascites, and attempts at percutaneous aspiration can lead to allergic manifestation.<sup>7</sup>

Surgical management in either symptomatic or silent rupture aims at the removal of all the cysts and profuse peritoneal lavage with scolicidal agent to prevent recurrences.

## CONCLUSION

Right Lobe hepatic hydatid is a common presentation but solely left lobe hydatid with dumbbell peritoneal mass freely mobile in all direction attaining enormous dimension easily mistaken for ascites and innocent aspiration may lead to fatal anaphylaxis and death. Huge abdominal cyst with free mobility and a stalk connecting to left lobe liver makes it a unique presentation and thus reported.

## REFERENCES

1. Orhan Z, Kara H, Tuzuner T, Sencan I, Alper M. Primary subcutaneous cyst hydatid disease in proximal thigh: an unusual localisation- a case report. *BMC Musculoskelet Disord* 2003;7:25.
2. Barnes SA, Lillemore KD. Liver abscess and hydatid cyst disease. In : Zinner MJ, Swartz SI, Ellis H (eds) *Maingot's abdominal operation*, 10<sup>th</sup> ed. Appleton & Lange, Stamford, CT 1997;PP.1513-1545.
3. Ammann RW, Eckert J. Clinical diagnosis and treatment of echinococcosis in humans. In : Thomson RCA, Lymbery AJ (eds) *Echinococcus and hydatid disease*. CAB International, Wallingford 1995;PP. 411-463.
4. Pedrosa I, Saiz A, Arrazola J et al. Hydatid disease: Radiological and pathologic features and complications. *Radiographics* 2000;20:795-817.
5. Lewall DB. Hydatid disease: Biology, pathology, imaging and classification. *Clin Radiol* 1998; 52: 863-874.
6. J. Eckert and P. Deplazes, Biological, epidemiological, and clinical aspects of echinococcosis, a zoonosis of increasing concern. *Clinical microbiology review* 2004;1:107-135.
7. Mirosiav Milicevic. Echinococcal Cysts: Cause, Diagnosis, Complications, and Medical and Surgical Treatment. In: Josef E. Fischer, editor. *Mastery of Surgery*. 5<sup>th</sup> ed,vol 1.Wolters Kluwer (india) Pvt. Ltd., New Delhi.
8. Akcan A, Sozuer E, Akyildiz H et al. Predisposing factors and surgical outcome of complicated liver hydatid cysts. *World J Gastroenterol* 2010; 16:3040-3048.
9. Gunay K, Taviloglu K, Berber E et al. Traumatic rupture of hydatid cysts: A 12-year experience from an endemic region. *J Trauma* 1999;46:164-167.
10. El Malki HO, El Mejdoubi Y, Mohsine R et al. Intraperitoneal perforation of hepatic hydatid cyst. *Gastroenterol Clin Biol* 2006;30:1214-1216.