



Case Report: An Unusual Case of systemic Hydatid Disease.

KEYWORDS

Dr. Saurabh Chaudhuri

Associate Professor, Department of Radiodiagnosis and Imaging, Bharati Hospital and Research Centre, Pune

Dr. Priscilla Joshi

Professor and Head, Department of Radiodiagnosis and Imaging, Bharati Hospital and Research Centre, Pune

Dr. Mohit Goel

Resident, Department of Radiodiagnosis and Imaging, Bharati Hospital and Research Centre, Pune

Dr. Wasim Siddiqui

Resident, Department of Radiodiagnosis and Imaging, Bharati Hospital and Research Centre, Pune

ABSTRACT This case documents an unusual case of systemic Hydatid disease in a 36 year old male who presented with chief complains of generalized abdominal pain and breathlessness since 4 months. HRCT thorax and CECT abdomen reveals well defined rounded enhancing lesions with multiple septae in right lung, right lobe of liver, spleen, anterior abdominal wall and peritoneum, consistent with systemic hydatid disease.

INTRODUCTION:

Hydatid disease is a cyclo-zoonotic parasitic infection caused by *Echinococcus granulosus*. This disease is usually found in liver and lungs but no organ of body is immune. Location at unusual sites in the body can have atypical presentations and can pose a diagnostic challenge. A high index of suspicion, radiological investigations as well as histopathological examination is necessary in establishing the diagnosis of hydatid disease at unusual sites in the body.

CASE REPORT:

A 36 year old male presented with generalized abdominal pain and breathlessness since 4 months. HRCT Thorax & CECT Abdomen were performed on 16 slice PHILIPS CT scanner before and after administration of IV contrast. Different window settings were used for mediastinum, lungs and abdomen and the images were post processed for edge enhancement.

Multiple well defined large, rounded, cystic lesions with isodense content and multiple enhancing septae within were noted in the middle lobe and lower lobe of right lung. Similar cysts were also noted in right lobe of liver (segment VI and VII), spleen, along the anterior abdominal wall and the peritoneal cavity. A large well defined isodense collection was also noted along the entire length of anterior abdominal wall with a daughter cysts in its posterior wall.

Small amount of free fluid was also noted in perihepatic and peri splenic region.

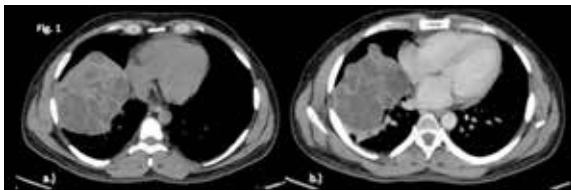


Fig.1- Axial NCCT (a) and CECT (b) images show a hypodense cystic mass with multiple daughter cysts and enhancing septae in the middle and lower lobes of right lung.

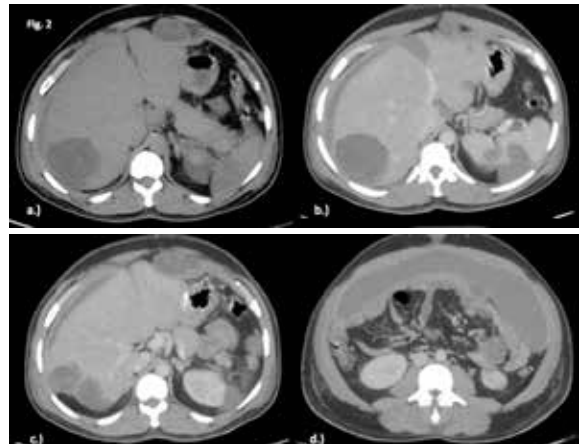


Fig.2- NCCT (a) and CECT (b & c) abdomen show similar cystic lesions with internal septae and daughter cysts in the segment VI & VII of liver, anterior abdominal wall and spleen. Small amount of free fluid is noted in the perihepatic region. (d) CECT abdomen axial image shows a large cystic collection along the anterior abdominal wall along with a daughter cyst in its posterior wall.

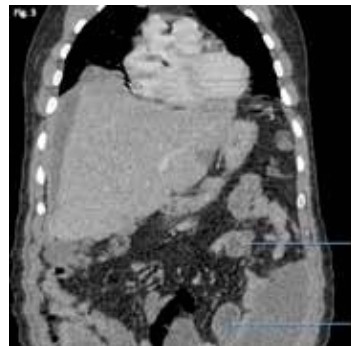


Fig 3- CECT abdomen coronal images shows a cystic lesions with enhancing septae in the peritoneal cavity.

DISCUSSION:

Hydatid disease, a common parasitic disease that is caused by the larval stage of *Echinococcus granulosus*, has varied modes of presentation (1). In humans, hydatid disease in-

volves the liver in approximately 75% of cases, the lung in 15%, and other anatomic locations in 10% (2-6). It rarely involves the brain, heart, bone, or other organs (3). There have been reports of rare areas of hydatid cyst involvement in the body (7). There have also been reports of disseminated peritoneal hydatid cysts, but they have been attributed to a previous history of blunt trauma or liver surgery for hydatid cyst disease (8). This case involved a rare spontaneous dissemination of hydatid disease in the lungs, liver, and the peritoneal cavity, with no previous history of trauma or surgery (9, 10).

The adult *Echinococcus granulosus* resides in the small bowel of the definitive hosts (dogs or other carnivores). Gravid proglottids release eggs that are passed in the feces. After ingestion by a suitable intermediate host (under natural conditions, these would be sheep, goats, swine, cattle, horses, and camels), the egg hatches in the small bowel and releases an oncosphere that penetrates the intestinal wall and migrates through the circulatory system into various organs, especially the liver and lungs. In these organs, the oncosphere develops into a cyst that enlarges gradually, producing protoscolices and daughter cysts that fill the cyst interior. The definitive host becomes infected by ingesting the cyst-containing organs of the infected intermediate host. After ingestion, the protoscolices evert, attach to the intestinal mucosa, and develop into their adult stages in 32 to 80 days. The hydatid cyst has three layers: outer pericyst, middle ectocyst, and inner germinal layer (the endocyst), where the scolices (larval stage of the parasite) and the laminated membrane are produced. Daughter vesicles (brood capsules), small spheres that contain the protoscolices, are formed from the germinal layer.

The appearance of the cysts on ultrasound and CT varies based on the stage of the life cycle. On ultrasound, they are classified as follows:

- A) Cystic lesion: a simple cyst in the affected organ. This appearance is not diagnostic for echinococcosis.
- B) Active cysts: multiple cysts or septae are present in the parent cyst.
- C) Transitional stage: daughter cysts may be present in the parent cyst, with hydatid sand or debris within the cyst. (The case described here is in the transitional stage.)
- D) Inactive stage: the cysts are echogenic and may be partially or completely collapsed on themselves. On CT their appearance varies: they may show a "spoke wheel" pattern or a water lily sign (where membranes appear within the matrix as serpentine linear structures, a finding that is highly specific for hydatid disease) (11). In the peritoneum, they appear as multiple cystic lesions, or with calcification when they are in the inactive or healed stage.

Compartments enable the peritoneal cavity to have a normal circulation of peritoneal fluid. In the normal abdomen without intraperitoneal disease, a small amount of peritoneal fluid continuously circulates. The movement of fluid in this circulatory pathway is produced by the movement of the diaphragm and peristalsis of bowel. It predominantly flows up the right paracolic gutter, which is deeper and wider than the left and is partially cleared by the subphrenic lymphatics.

These watershed regions in the peritoneal cavity are areas of fluid stasis: the ileocolic region, the root of the sigmoid mesentery, and the Pouch of Douglas. The spread of hydatid disease in this case was along the areas of peritoneal fluid circulation. Hence we attribute the spread of disease to possible spontaneous intraperitoneal seeding.

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