

Pelvic Hydatid Cyst Mimicking Ovarian Cyst

Tshering Wangden¹, Sangay Tshering², Namkha Dorji³, Sonam Choden⁴

ABSTRACT

Introduction: Hydatid cyst is a zoonotic infection caused by dog tapeworm *Echinococcus* species. The liver and lungs are the most commonly affected organs with this disease. Rarely, pelvic organs are also involved.

Case: A 36-year-old female presented with pain in the abdomen for a 1-week duration with a normal menstrual cycle. Ultrasound revealed a bilateral ovarian mass. Laparotomy revealed left broad ligament hydatid cyst and right-sided pelvic peritoneal hydatid cyst, which were confirmed by histopathological examination. After surgical excision, the patient was given albendazole for 6 months.

Conclusion: Female pelvic hydatid cyst is a rare entity. In endemic settings, the possibility of a pelvic hydatid cyst should be kept as a differential diagnosis in an ovarian cyst in the presence of coexisting hepatic hydatid cyst and negative tumor markers.

Keywords: Broad ligament hydatid cyst, *Echinococcus*, Pelvic hydatid cyst.

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INTRODUCTION

Hydatid cyst is a zoonotic disease caused by the larval stage of tapeworm *Echinococcus granulosus* and *Echinococcus multilocularis*. This disease is endemic in animal herding communities where people are in close contact with sheep and dogs.^{1,2} Humans become infected with *Echinococcus* as accidental intermediate host after ingestion of ova passed in dog feces.³ The liver and the lungs are commonly affected but rarely affect fallopian tubes, broad ligaments, and other structures. The aim of this case report is to highlight a rare presentation of pelvic hydatid cyst which was mistaken as a case of benign ovarian cyst.

CASE REPORT

A 36-year-old para 2 abortion 1 lady from the southern part of Bhutan presented with a history of abdominal pain for 1-week duration at the emergency department with a sonogram report done at a private clinic. The sonogram showed multiple hepatic cysts, enlarged uterus with multiple cysts over the body and lower segment. She had a spontaneous miscarriage at 7 weeks period of gestation a month ago. Her menstrual cycle was regular. The patient also had contact with pet dogs in her childhood.

On general examination, she was an average-built lady, well-nourished, and not anemic. Systemic examinations were all normal. The abdomen was soft without any palpable mass. No hepato-splenomegaly was detected and there was no lymphadenopathy. She was admitted to the gynecology ward for evaluation of suspected molar pregnancy.

INVESTIGATION

On investigation her routine hematological parameters revealed the following: white blood cell $8.48 \times 10^3/\mu\text{L}$, eosinophil count 0.05×10^3 , neutrophil count 5.85%, hemoglobin 13.5 gm/dL, and platelet count $257 \times 10^3/\mu\text{L}$. Serum beta HCG was negative (1.37 IU/mL), and the liver and kidney function tests were normal. Ultrasound pelvis done on admission showed normal uterus with evidence of well-defined uniform isoechoic lesion in right adnexa measuring 7.9×3.9 cm and left adnexa showing a multiple septate

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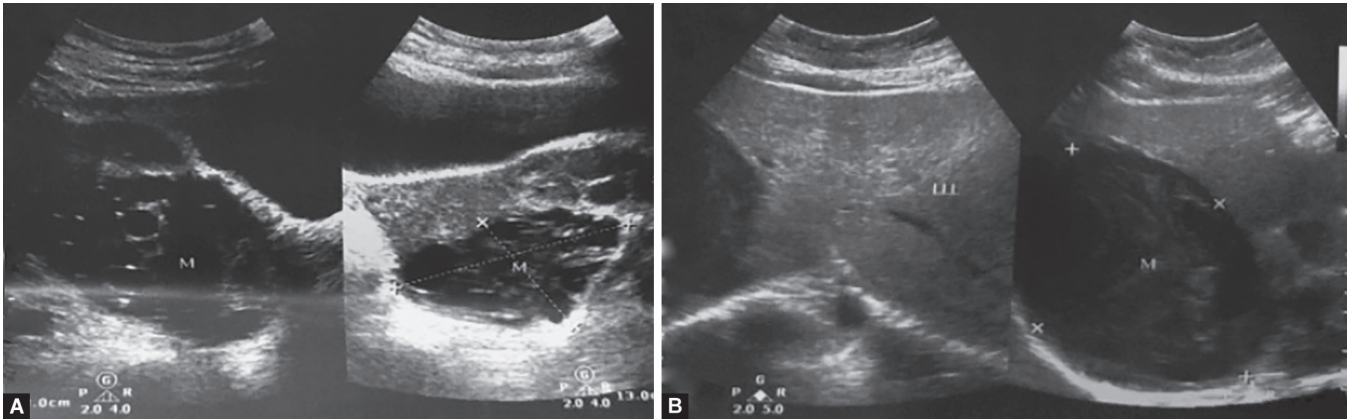
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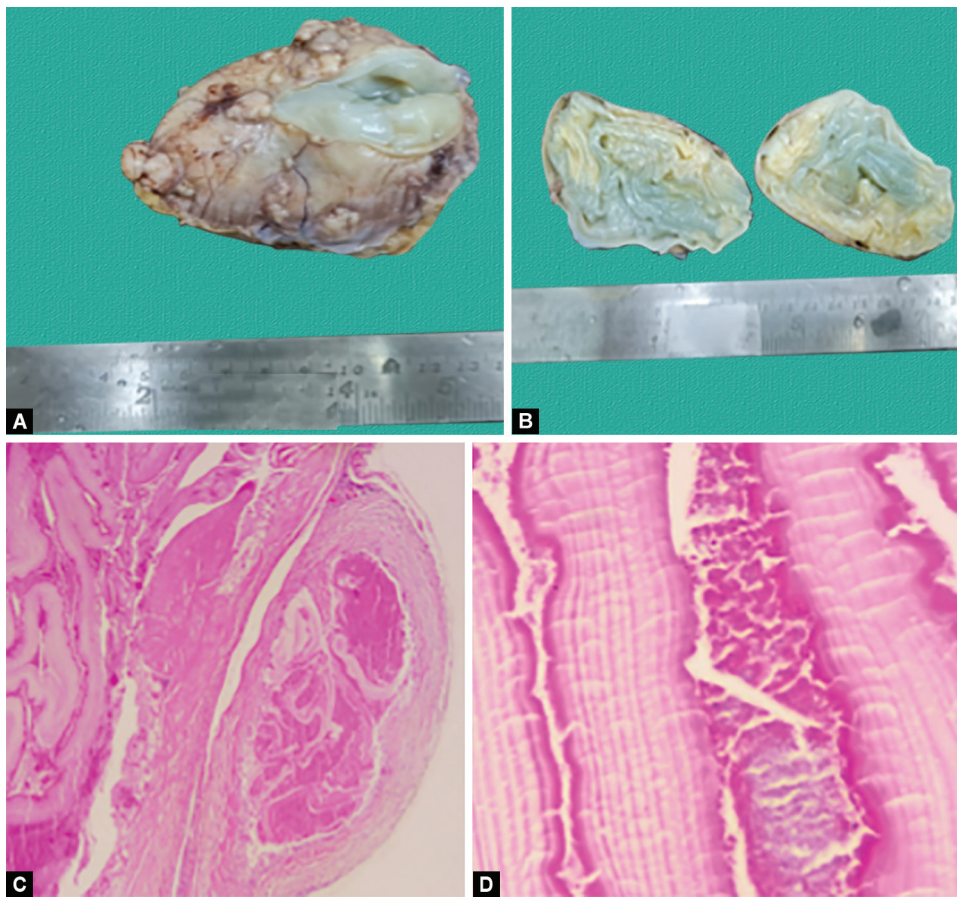
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cystic lesion measuring 10×6 cm. No free fluid was seen in the pouch of Douglas (Fig. 1A). Ultrasound scan of the upper abdomen showed a large well-defined mixed hypoechoic and hyperechoic, predominantly hypoechoic measuring 14.1×10 cm in the right lobe of the liver (Fig. 1B).

With the ultrasound diagnosis of bilateral ovarian mass, her blood for tumor marker was sent. Tumor markers were normal [CA-125–8.01 U/mL, CA 19.9–4.60 U/mL, carcinoembryonic antigen (CEA) 1.31 ng/mL]. Other serological tests like HbsAg, HIV, HCV, and RPR were nonreactive. Laparotomy was performed and intraoperatively a cystic mass $\sim 8.5 \times 5 \times 3.5$ cm was seen on the peritoneal surface just above the bladder on the right side. There was another cyst arising from the left broad ligament both anteriorly $\sim 4 \times 3$ cm and posteriorly 8×6 cm. The uterus and bilateral ovaries were normal. The peritoneal cyst was excised and removed. Left broad ligament cyst was punctured which showed clear fluid with multiple small daughter cysts (Figs 2A and B). The cyst wall could not be excised completely due to adhesion. Thorough peritoneal washing was done with normal saline. The postoperative period was uneventful. The patient was given oral albendazole 400 mg twice a day for 6 months duration. She was also advised to do a liver function test monthly. A serology test for *Echinococcus* could not be done as there was no reagent for the test. Histopathology



Figs 1A and B: (A) Ultrasound of pelvis showing lobulated mixed echogenic with internal cystic lesion representing daughter cyst suggestive of complex ovarian mass; (B) Ultrasound scan of upper abdomen showing large well-defined mixed hypoechoic and hyperechoic, predominantly hypoechoic measuring 14.1 × 10 cm in the right lobe of the liver. The cystic lesion has internal echogenicity representing hydatid sand



Figs 2A to D: Pelvic hydatid cyst gross image (A and B): (A) External surface of the cyst showing multiple nodules; (B) Cut-section of the cyst showing multiple collapsed daughter cysts. Microscopic image (C and D): (C) Section showing outer pericyst encasing multiple daughter cysts (H&E, 40x); (D) Section showing acellular lamellate ectocyst layer lined by germinal layer (H&E, 400x)

examination report confirmed hydatid cyst both in the peritoneum and the broad ligament (Figs 2C and D).

A CT scan of the whole abdomen was done postoperatively and it revealed a disseminated hydatid cyst involving the right lobe of the liver (cyst size 13.5 × 12.7 cm), spleen, peritoneal cavity, and left adnexa. Visualized lung bases were normal. She was then referred to the surgeon for further management.

DISCUSSION

Human echinococcosis (hydatid disease) is caused by *Echinococcus* species. Depending on the organs involved, symptoms of hydatid cyst can present several years after the initial exposure and infection. Primarily, the liver and the lungs are involved in 50–70% and 20–30%, respectively.¹ Pelvic hydatid cyst is a rare presentation.

Usually, the patients were presented with pressure symptoms like urinary retention and constipation. The commonest mechanism of pelvic hydatid cyst is via secondary dissemination from hepatic capsules to intraabdominal ligaments and lymphatics.^{1,4} The diagnosis of hydatid cyst is based on clinical findings, serology, and imaging techniques.⁵ There are well-described sonographic appearances of hydatid cyst irrespective of the organs involved. A hydatid cyst appears as a well-defined anechoic lesion with posterior acoustic enhancement while a daughter cyst is seen as hypoechoic to anechoic cyst inside the mother cyst.⁵ The larval stage of *Echinococcus* species with scolices appears as “hydatid sand” on sonography. On slight disturbance, the hydatid sand gets dispersed in the cyst and appears as falling snowflakes known as “snowstorm” signs.⁵ Cyst wall also appears as a double echogenic line. On maturation, the endocyst separates from the wall of the cyst and appears as an undulating floating membrane. Complete separation of endocyst is sonographically described as a “water lily sign.”⁵ Definite diagnosis of hydatid disease is through histopathological examination of the fluid and histology.⁶

So far, there is no single best treatment for hydatid cyst.⁷ Multiple therapeutic options are cited according to the disease profile.⁷ Surgical treatment of symptomatic hydatid cyst is total surgical resections. Since there is a risk of spreading infection due to cyst rupture, surgeons recommend proper visualization of the cyst followed by instillation with cysticidal agents such as hypertonic saline, cetrimide, or 70–95% ethanol to kill the germinal layer and daughter cysts before optimal resection.⁸ Other treatment options include a long course of antihelminthics like albendazole.

Pelvic hydatid cysts in women may be mistaken for the cysts of the genital organs because they arise in the pelvic cellular tissues. Pelvic echinococcosis may simulate malignancies and mimic a multicystic ovary. A hydatid cyst in the broad ligament may simulate a pedunculated fibroid or a para ovarian cyst. A pelvic hydatid cyst is in most cases diagnosed intraoperatively, but the disease should be taken into consideration in cases of cystic tumors of unclear origin, especially in endemic regions and in persons with a positive history of keeping pets.⁹ The clinical drawback, in this case, is not considering pelvic hydatid cyst in the absence of negative tumor markers and coexisting hepatic cyst. Both hepatic and pelvic hydatid cysts could have been dealt with at the same

setting surgery if the diagnosis of hydatid disease was kept as a differential diagnosis.

CONCLUSION

Sonographers should have adequate sonographic acumen to diagnose hydatid cysts. In the absence of negative tumor markers for malignant ovarian cysts, clinicians should be aware of pelvic hydatid cysts especially in the presence of multiple or multiloculated hepatic cysts.

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