



## Case report

# Primary left ovarian hydatid cyst presenting as an abdominal mass – Case report

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## ARTICLE INFO

## Keywords:

Ovarian hydatid cyst  
Echinococcus  
Primary adnexal cyst  
Cystectomy  
Case report

## ABSTRACT

**Introduction:** Hydatid disease, which is most often caused by *Echinococcus granulosus*, can occur in virtually all parts of the body. The disease most frequently occurs in the liver followed by the lungs, muscles, and bones respectively. Primary ovarian hydatid cyst is a rare case.

**Case presentation:** A 28-year-old woman presented to the emergency department with vague abdominal discomfort of 8-month duration which was located to the left side of lower abdomen and pelvis associated with episodes of low-grade fever. Her past medical and surgical histories were unremarkable with no surgical operation. She had 3 vaginal deliveries and did not smoke.

**Discussion:** Hydatid disease is commonly caused by *Echinococcus granulosus*. The parasite can colonize virtually in every organ or in several organs at one time in the body. Pelvic hydatid cyst most often presents with vague abdominal pain. The diagnosis of the disease is not straightforward most of the time and requires investigations. The gold standard surgical treatment for ovarian hydatid cyst is cystectomy.

**Conclusion:** Ovarian hydatid cyst should always be considered in the differential diagnosis of pelvic masses, especially in endemic areas. Surgical treatment in the form of radical cystectomy is the treatment of choice and it is necessary to take all precautions not to spill hydatid fluid and daughter cysts inside the abdomen. Anthelmintics adjuvant chemotherapy postoperatively may decrease the recurrence rate of the disease.

## 1. Introduction

Hydatid disease which is commonly called dog tapeworm is most often caused by *Echinococcus granulosus*. It is common in the tropics and is endemic in Afghanistan [1]. *Echinococcus granulosus* is a type of parasite measuring 5-mm, having a 5–20 months lifespan within the jejunum of dogs [2]. The disease most frequently occurs in the liver (63%), the lungs (25%), muscles (5%), and bones (5%) respectively. It can uncommonly be found in the kidneys, brain, and spleen [3]. Hydatid cysts also can be found in the female reproductive organs, but it is a very rare condition and constitutes nearly 1 out of 200 hydatid cysts. So far, only a few cases of such conditions have been reported in the literature throughout the world [4]. Even though an accurate diagnosis is important, unfortunately preoperatively a conclusive diagnosis of hydatid cysts cannot be confirmed. For an ovary, being the primary site of hydatid cyst is extremely rare [4].

Based on SCARE guidelines [5], we present our case which is a 28-year-old woman who underwent surgery for her abdominal mass and

intraoperatively diagnosed as hydatid cyst of ovary. She followed up for 6 months postoperatively without any complication.

## 2. Case report

A 28-year-old woman presented to the emergency department with abdominal pain of 8-month duration which was located to the left side of the lower abdomen and pelvis and episodes of low-grade fever. Her past medical and surgical histories were unremarkable with no surgical operation. She had 3 vaginal deliveries and did not smoke. Her mental status was normal with no behavioral disorder. There was no history of bleeding disorder and also, she had no menstrual disturbance. Her family history was unremarkable and all her family members were healthy. She was of low socioeconomic status. The patient has used some over the counter medications, and she has taken antibiotics and analgesics as well, which are unknown. There has not been known drug allergy.

On physical examination, the left side of the lower abdomen was

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<https://doi.org/10.1016/j.ijscr.2021.106230>

Received 11 May 2021; Received in revised form 17 July 2021; Accepted 20 July 2021

Available online 21 July 2021

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slightly distended. Bowel sounds were normal. There was a regular, mobile and soft mass in LLQ (left lower quadrant) with slight tenderness on palpation. Percussion of the abdomen revealed dullness on the mass and shifting dullness was negative. Her vital signs were otherwise normal. The heart rate was 83 beats/min, the respiration rate was 16 breaths/min and the blood pressure was 110/70 mm Hg and the temperature was 37.2 °C.

Abdominal radiograph on the erect AP (anteroposterior) position was normal. Transabdominal sonography of pelvis and abdomen revealed a left adnexal cystic mass with septations and internal echoes. The mass was reported to be regular in outline, well defined in borders, and 9.2 × 7.3 cm in diameters. All other viscera including the liver, spleen, kidneys, right adnexa, and uterine were normal. Serum liver and renal tests, CBC (complete blood count), as well as chest radiography findings were also within normal range.

Considering the poor economic status of the patient, unavailability of CT-scan in most of the governmental hospitals in our country, and lack of medical insurance, an expletory laparotomy was offered. The patient underwent surgery and a lower midline laparotomy was performed under spinal anesthesia. Intraoperatively, there was a left adnexal regular, soft and cystic mass (Fig. 1). Swabs soaked in hypertonic solution were not used around the cyst inside the abdomen as it was thought to be a cyst otherwise than the hydatid cyst. Left adnexal radical cystectomy was performed and the cyst was completely excised without any gross spillage of its containing fluid inside the abdomen (Fig. 2). Abrupt and incidental rupture of the cyst occurred during manipulation but fortunately outside the abdomen without spillage of the fluid inside the abdomen. The fluid was rapidly suctioned.

The abdomen and the pelvis were explored without any further abnormal findings. The excised cyst was grossly examined and opened which contained a laminated membrane, hydatid fluid, and daughter cysts indicating that it is a hydatid cyst (Fig. 3A–B).

The abdomen was closed and a drainage tube was inserted into the Douglas' pouch. The operation performed by head of our department and assistances of the authors and duration was nearly 1 h with no additional bleeding except minor bleeding due to abdominal wall opening. The procedure was tolerated well with no early remarkable complication related to surgery or anesthesia. Albendazole 400 mg twice per day orally was started on 2nd postoperative day and continued for 21 days. The patient had an uncomplicated recovery and discharged from the hospital on the 4th postoperative day with all the vital signs being within normal limits. At 6-month follow-up, there were neither



Fig. 1. Left adnexal cyst being excised and its fluid contents has been aspirated after its incidental rupture outside the abdomen during manipulation.

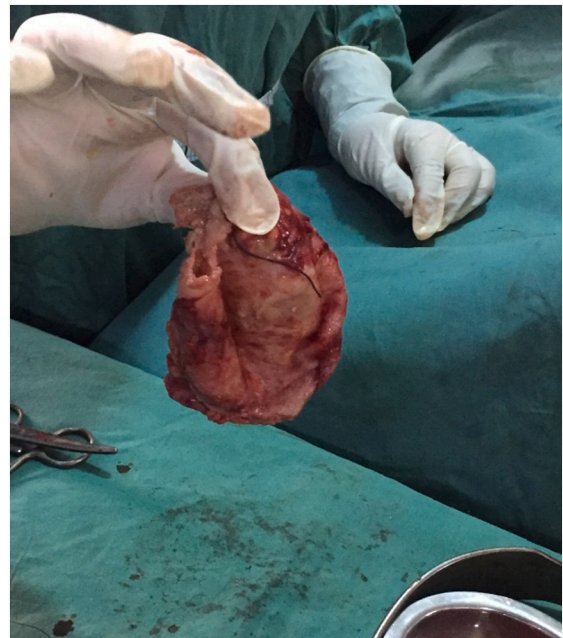


Fig. 2. Completely excised cyst without its laminated membrane and containing fluid.

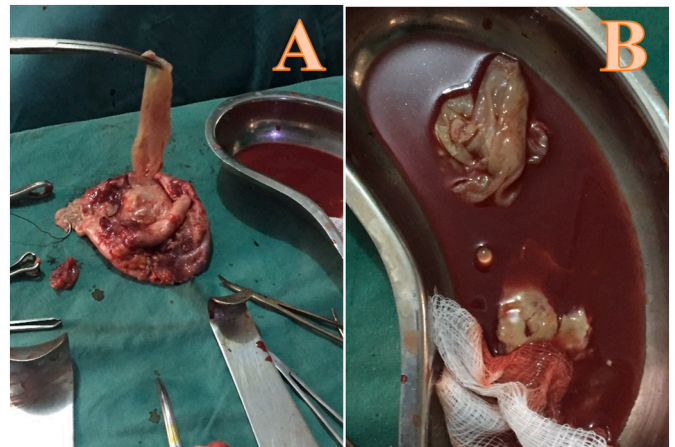


Fig. 3. A). Excised cyst with its laminated membrane; B). laminated membrane of the cyst with a daughter cyst inside a kidney dish.

signs of recurrence nor other localizations of echinococcosis which was demonstrated by abdominopelvic ultrasound and chest radiograph.

### 3. Discussion

Hydatid disease is commonly caused by *Echinococcus granulosus* and is endemic in some parts of the world, including in Afghanistan [1,6]. The dog is the host of the parasite and is the most common source of infection transmitted to the intermediate hosts which are humans, sheep, and cattle [6]. In dogs, the adult worm passes to the small intestine and the eggs are vacated by the feces. Contamination by the oral route can happen in case of close contact with the infected dogs, and the ovum will gain entry into the gastrointestinal tract of humans [7].

The parasite can colonize virtually in every organ or in several organs at one time in the body. The liver and lungs are respectively the first and second most common organs that are affected. In patients from an endemic area of hydatid disease, such as Afghanistan, hydatid cyst is one of the differential diagnoses of any cystic lesion in any part of the body

[7]. Therefore, the diagnosis of hydatid cysts of the female productive system should not be misleading as simple or complicated ovarian cysts, dermoid cyst, ovarian tumor, or pelvic infections and abscesses [8]. Unfortunately, in our case, we missed the diagnosis preoperatively considering it as a simple ovarian cyst.

Pelvic hydatid cyst presents with vague abdominal pain due to swelling, irritation, menstrual abnormalities, infertility, compression symptoms over adjacent organs like bladder and rectum and sometimes even obstructed labor [9]. Ovarian hydatid cyst can mimic either malignancy or polycystic disease [3]. In our case, the patient had presented with prolonged abdominal pain and low-grade fever without other associated symptoms.

The diagnosis of the disease is not straightforward most of the time and requires investigations. Investigations may show an eosinophilia; serological tests such as ELISA (enzyme-linked immunosorbent assay) and immunoelectrophoresis may point towards the diagnosis. Ultrasound and CT-scan of the pelvis are the investigations of choice [3,4]. Ultrasound features of pelvic hydatid cyst are similar to hepatic hydatid cyst. The classification proposed by Gharbi can be adopted for other locations. Type I appears cystic and unilocular. Type II is a fluid-filled with a floating membrane (the water lily sign). Type III has a typical honeycomb appearance. Type IV is a heterogeneous mass, and Type V is a calcified lesion [10]. CT-scan can provide additional information because of its capability for better evaluation of the cystic masses, and better demonstration of their extension in the pelvic cavity as well as an excellent depiction of the visceral organs involvement [10]. The difficulties that occur in making a correct diagnosis are due to the non-specific clinical symptoms, associated with atypical ultrasonographic and radiological findings which only show a solid ovarian mass [3]. In our case, abdominal ultrasound including the liver and other intra-abdominal viscera had been carried out preoperatively and a cyst in the left ovary was reported. Unfortunately, the case was not diagnosed accurately before the operation because of the poor economic status of the patient and lack of CT-scan in our center. Therefore, the exact diagnosis was made intraoperatively and further care was taken.

The gold standard surgical treatment for ovarian hydatid cyst is cystectomy [3]. Care should be taken to avoid from rupture of the cyst. If it happens, due to high risk of anaphylaxis or recurrence of the disease, the ruptured content should quickly remove from the surgical site [4]. Cystectomy was performed in our case as well, but during removal of the cyst, it ruptured outside the surgical site. Fortunately, all the spilled contents were quickly removed from the site.

Using anthelmintic medications such as Albendazole is effective in some cases [8]. The main benefit of anthelmintics is using as post surgical treatment, to decrease the rate of disease's recurrence [8]. Anthelmintic medication consists of Albendazole 8 mg/kg or 400 mg twice per day orally which is given for 21 days followed by drug holiday for 2 weeks [11]. This regimen can be given for maximum of 3 cycles. The main side effect of the drug is neutropenia. Indications for medical treatment include disseminated hydatid cyst; inaccessible cyst for surgery such as deep seated, multiple or recurrent cyst; patient unfit for surgery and contamination of peritoneal cavity at surgery [11]. In our case the same regimen was given for 3 cycles.

In case if the patient is not treated for her cyst, the most frequent complications that may occur, include those related to the compression of adjacent organs, perforation and infection [2].

#### 4. Conclusion

Primary hydatid cyst of ovary is a very rare surgical case which is a very uncommon location for the disease and health care providers should be aware that in endemic areas even an adnexal mass can be a Hydatid cyst. Although Afghanistan is an endemic area for hydatid disease, diagnosis of this rare case can still be misleading, due to rarity of the case. Care should be taken to differentiate this disease from other cystic pathologies during the clinical practice.

#### Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

#### Provenance and peer review

Not commissioned, externally peer-reviewed.

#### Ethical approval

This report does not contain any personal information that could lead to the identification of the patient. Therefore, it is exempt from ethical approval.

#### Funding

None.

#### Guarantor

The corresponding author is the guarantor of submission.

#### Research registration number

Not applicable.

#### CRedit authorship contribution statement

Fareed Ahmad Nazari: Conceptualization, Writing - Original draft, Investigation, Resources  
Qais Muraveji: Methodology, Validation, Supervision, Writing - Review and editing,  
Ghulam Yahia Baset: Writing - Original draft, Resources.

#### Declaration of competing interest

The following authors have no financial disclosures: Qais Muraveji, Ghulam Yahia Baset and Fareed Ahmad Nazari.

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