

## Primary ovarian hydatid cysts: A case series of two cases

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### ABSTRACT

Hydatid disease is caused by the adult and the larval stage of tapeworms belonging to the *Echinococcus* species. The major sites of its infection are the liver and lungs. Rarely, it affects the pelvic region including the ovary, accounting for 0.2–2.25%. The primary ovarian site is a rare finding. We report here a case series of two cases with hydatid cysts as the left ovarian and tubo-ovarian masses. In case 1, a 30-year-old woman complained about lower abdominal pain with swelling and had a 7-month-old child and amenorrhea. Ultrasonographic report exhibited multiple cysts in the ovary. In case 2, a 23-year-old female was having primary left ovarian mass and clinically reported an ovarian dermoid tumor after ultrasound scan and had abdominal lump with pain. Her vital indices were normal. The biopsy was sent for further investigation.

**Key words:** Hydatid cyst, Ovary, Primary, Rare finding

Hydatid disease is a zoonotic infection caused by *Echinococcus granulosus* tapeworms. These tapeworms belong to the Class Cestoda and Family Taeniidae and its infection is common in countries that rear sheep, cattle, and dogs near their living places. Transmission of this disease occurs through the ingestion of feces infected with eggs by the herbivores like sheep which are considered intermediate hosts. Humans can also be accidental intermediate hosts when the eggs of the parasite are accidentally eaten with food, contaminated water, infected soil, or close contact with these pet animals where the eggs hatch and develop into cysts in the internal organ of the animals and humans [1]. The larvae of their parasites pass from the intestine through the blood to all parts of the body. The most common destination of the larvae is the liver (60%) followed by lungs (15%) [1,2] but the pelvic region is mostly secondary ranging between 0.2% and 2.25% [2-4]. The human hydatidosis of the pelvic region is rare [3]. Ovarian hydatid cysts are very rare and can be primary as well as secondary [5]. This condition is misdiagnosed in the majority of cases as may be mistaken for ovarian cysts or cystic tumors of the ovary and the symptoms are usually non-specific [1]. This hydatid cyst infection is mostly identified by computed tomography, magnetic resonance imaging, ultrasound, and microscopic examination [1,6].

We here report a case series of two cases of this type of primary infection, where people are dependent on cattle rearing in India.

### CASE REPORT

#### Case 1


A 30-year-old woman was presented with lower abdominal pain along with swelling. She had a 7-month-old child and lactational

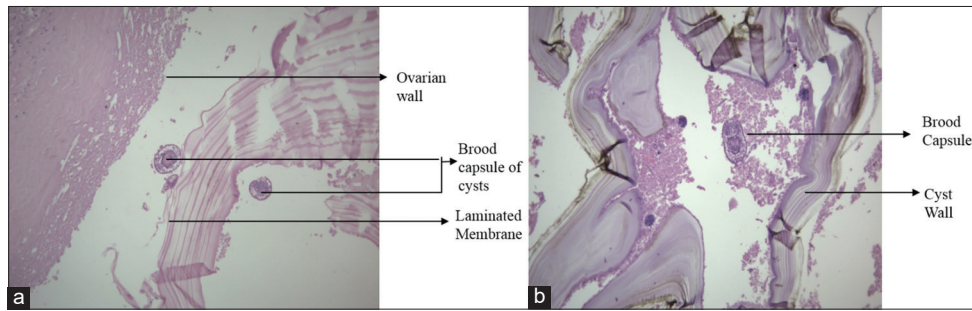


**Figure 1:** Ultrasound image of abdominal mass with ovarian hydatid cyst(s) in female patient

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**Figure 2: (a) Histopathological examination showing brood capsule of ovarian cysts and laminated membrane stained with HE,  $\times 100$  (Case 1); (b) hydatid ovarian cyst stained with HE,  $\times 100$  (Case 2)**

amenorrhea. On examination, her vital parameters were normal. Ultrasonography of the abdomen showed multiple cysts in the ovary (Fig. 1). There was no history of cyst in other parts of the body and it was suggested primary ovarian hydatid cyst. Then, the patient underwent cystectomy in which excision of the tubo-ovarian mass was done. This specimen was sent for histopathological examination. The gross specimen measured  $8.5 \times 7 \times 4$  cm and their cut section showed multiple cysts filled with clear fluid and tender coconut-like material. The microscopic examination revealed a cyst wall composed of the laminated membrane with an inner germinal layer and brood capsule. The outer surface showed a fibrous wall with chronic non-specific inflammatory infiltrate (Fig. 2a).

### Case 2

A 23-year-old female had a lower abdominal lump with pain for the past 1 year. On examination, her vital indices were normal. Biochemical and hematological profiles were within the normal range. Hemoglobin levels were 11.1 g/dl. The primary left ovarian mass was clinically diagnosed as the ovarian dermoid tumor after the ultrasound scan. The biopsy was sent for microscopic examination. The ovarian mass measured  $13 \times 9 \times 5.5$  cm. The capsule was smooth and intact. The cut surface was multiloculated cystic, cysts measuring 0.5–3.5 cm, and filled with clear fluid tender coconut-like material. On microscopic examination, the cyst wall had a laminated membrane with an inner germinal layer and brood capsule like that of case 1 with a fibrous wall outside (Fig. 2b).

### DISCUSSION

The ovary is a rare primary site for hydatid disease. This disease is prevalent in areas where livestock is raised in association with dogs mostly found in Australia, Argentina, Europe, Africa, New Zealand, Lebanon, and Greece. Hydatid cyst has three layers, pericyst, germinal layer, and laminated membrane.

These cysts expand slowly and asymptotically and thus may be large at presentation. Pain is the most common symptom of the disease, but this was absent in some cases [5]. In addition, pelvic echinococcosis with abdominal tumefactions, menstrual irregularities, infertility, and urinary disturbances was reported [2]. In our two cases, multicysts were found with brood capsules. Each cyst showed a germinal layer and laminated membrane with a thin

membrane followed by a fibrous layer with a non-specific chronic inflammatory infiltrate. The cyst was filled with clear fluid and tender coconut-like material to support the findings of earlier case reports that are present in the literature regarding hydatidosis. In the present cases, these were categorized as primary as no sites were present in the liver and other tissues were detected as suggested by clinicians. Such cases are reported in the literature as primary genital tract hydatid cysts. However, all such cases are usually due to secondary spread [3]. Thus, this disease is primary or secondary with hematogenous or lymphatic origin.

The previous literature showed several cases with hydatid disease, of which few cases were due to the involvement of the pelvic region to support our data as seen earlier [1,4,7-9]. In the literature, ovarian hydatid cysts account for 0.4–0.6% by Arora *et al.* [5] and 0.2–1% by Mohammed and Arif [1] which are extremely a rare presentation and support the findings of our cases. Badge *et al.* (2016) also detected primary ovarian hydatid cyst in their report recently.

On gross examination, there was an ovary with a wide cyst majoring 4 cm in diameter. On removal, there was a serous fluid and no daughter cyst was seen. On microscopy, there was a cyst wall having a laminated membrane. The previous studies also documented that the liver and other organs did not have a cyst on sonography [2]. Their case was, hence, labeled as a primary hydatid cyst similar to our case reports. The surgical treatment is the best option with available surgical techniques and followed with drug therapy to selected patients.

### CONCLUSION

Primary hydatid cyst of the ovary is an extremely rare finding. Hence, it should be considered as one of the differentials, while diagnosing ovarian hydatid cyst presenting as an abdominal lump.

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### AUTHORS' CONTRIBUTIONS

Doctors Sharma, Vyas, Bhavana, and Shradha done surgery and reports, respectively. These authors along with Dr. Rao and Ms.

Saifali prepared the manuscript and figures. Dr. Sandip with others finalized the study for publications as case report.

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