Case Report

Hydatid cyst of the ovary: a case report
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Introduction: Hydatid disease is a parasitic infection caused by Echinococcus granulosus. The disease is found most commonly in the liver and lungs, but no organ is immune. Patients with hydatid cysts at unusual locations present with atypical presentations and pose a diagnostic dilemma.

Case presentation: A 25-year-old woman presented with complaints of pain in the lower abdomen. Ultrasonography revealed cystic disease of the ovary. An exploratory laparotomy was done and the ovary with the cyst was removed. The diagnosis of hydatid cyst was confirmed on histopathology.

Conclusion: Primary involvement of the pelvic organs, especially the ovary, is very rare in hydatid disease. A high index of suspicion is required in order to make a correct diagnosis pre-operatively to prevent spillage of the cyst contents during surgery.

Keywords: hydatid cyst; ovary.

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Introduction
Hydatid disease is caused by Echinococcus granulosus (dog tapeworm), which lives in the intestinal tract of primary hosts such as dogs and other carnivorous animals. Transmission of the disease to humans occurs by direct contact with a primary host or ingestion of eggs from water and food sources. Humans are accidental intermediate hosts and represent a terminal event (dead end) for the parasite. From the gastrointestinal tract, the infected larvae pass to various organs and tissues where they produce cystic lesions known as hydatid cysts (Arora & Arora, 2014).

Hydatid disease is a significant health problem in India and has been reported in many states. Hydatid cysts occur most frequently in the liver, followed by the lungs, muscles, bones and rarely the spleen, pancreas and adrenals; however, no organ of the body is immune. Various studies have reported a very low prevalence of hydatid cysts in ovaries, ranging from 0.4 to 0.6 % (Bal et al., 2008; Mushitaque et al., 2012), with the majority of cases being secondary involvement due to dissemination of the cyst from the primary site, such as the liver or lungs (Cattorini et al., 2011). To date, very few cases of primary hydatid cyst of the ovary have been reported in the literature (Adewunmi & Baslingappa, 2004; Dharsandia et al., 2012; Gaym et al., 2002).

Case report
A 25-year-old woman presented to the outpatient department with complaints of fever, an abdominal lump and a dull aching pain in the right lower abdomen for 4 months. The patient did not give any history of changes in bowel or bladder habits or of any other lump elsewhere in the body. A pregnancy test was negative. On general physical examination, the patient was febrile; however,

Here, we present a case of a primary ovarian cyst in the right ovary of a young woman.

Table 1. Laboratory parameters of the patient

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemoglobin</td>
<td>10.8 g dl⁻¹</td>
</tr>
<tr>
<td>Total leukocyte count</td>
<td>13 000 dl⁻¹</td>
</tr>
<tr>
<td>Differential leukocyte count</td>
<td></td>
</tr>
<tr>
<td>Neutrophils</td>
<td>50 %</td>
</tr>
<tr>
<td>Lymphocytes</td>
<td>34 %</td>
</tr>
<tr>
<td>Monocytes</td>
<td>7 %</td>
</tr>
<tr>
<td>Eosinophils</td>
<td>8 %</td>
</tr>
<tr>
<td>Basophils</td>
<td>1 %</td>
</tr>
<tr>
<td>Erythrocyte sedimentation rate</td>
<td>19 mm in first hour</td>
</tr>
<tr>
<td>C-reactive protein in serum</td>
<td>7 mg l⁻¹</td>
</tr>
<tr>
<td>Random glucose test</td>
<td>107 mg dl⁻¹</td>
</tr>
</tbody>
</table>

Abbreviation: USG, ultrasonography.
**Fig. 1.** Hydatid cyst of the ovary with attached Fallopian tube.

**Fig. 2.** Haematoxylin and eosin-stained section showing scolices, brood capsules and hooklets.
other vital parameters such as respiratory rate and blood pressure were within normal limits. Clinical examination revealed a distended abdomen. A dull mass arising from the right pelvis could be palpated in the right lower abdomen. There was no hepatosplenomegaly, ascites or lumps anywhere else in the abdomen. The patient’s blood samples were sent for routine investigations. The laboratory results showed mild anaemia (haemoglobin 10.8 g dl⁻¹) and a raised total leukocyte count (13 000 dl⁻¹) with mild eosinophilia on a differential leukocyte count. (Table 1) Liver and kidney function tests were within normal limits.

Ultrasonography (USG) of the abdomen and pelvis revealed cystic lesion of approximately 8 × 6 × 4 cm on the right ovary, suggestive of ovarian cystic disease. The patient underwent an exploratory laparotomy, and excision of the whole ovary including the cyst with the attached Fallopian tube was done. The whole specimen was received in the pathology laboratory for examination. The gross specimen measured 8 × 5 × 4 cm. A stretched Fallopian tube with a fimbrial end could also be seen on the external surface of the ovary (Fig. 1). On cutting the specimen, thick mucoid material oozed out and there was curling of the cyst, exposing the inner layer. Direct microscopic examination of the cyst fluid revealed scolices, brood capsules and hooklets (Fig. 2). Histopathological examination of the haematoxylin and eosin-stained section revealed the pericyst, laminated hyaline ectocyst and the endocyst or inner germinal layer.

After confirmation of the hydatid cyst etiology, the patient was placed on albendazole therapy of 400 mg twice a day for 4 weeks to reduce recurrences. Regular follow-up of the patient was initially done every month for the first 6 months, followed by once a further 6 months. During each follow-up visit, a clinical history was taken and an USG examination of the patient was done. The patient was lost to follow-up after 1.5 years. Up until that point, the patient did not show any signs of recurrence on clinical history and USG examination.

**Discussion**

A hydatid cyst is formed by development of the larval stage of the parasite in the intermediate host. In humans, this occurs primarily in the liver and lungs. In certain cases, the embryo escapes the pulmonary circulation and enters the systemic circulation, from which it can enter the female reproductive system. A primary hydatid cyst of the ovary is extremely rare. Most cases occur as a result of the rupture of hepatic cysts. In the present case, a hydatid cyst was not found in the liver and there was no history of previous echinococcosis, indicating a primary ovarian cyst. Patients usually present with an abdominal mass with or without pain, the symptoms varying with the site and size of cyst and complications occur due to the enlarging mass. The difficulties that occur in making a correct diagnosis are due to the non-specific clinical symptomatology, associated with atypical USG and radiological images, where the ovarian hydatid cyst can simulate either polycystic ovarian disease or an ovarian tumour (Gaym et al., 2002; Sharma et al., 2012). The USG scan, especially if performed transvaginally, is an important imaging examination that allows recognition of the cystic aspect of the lesion. Computed tomography is superior for detection of extrahepatic hydatid cysts, as it confirms the diagnosis by revealing daughter cysts and calcifications of the cyst wall (Cattorini et al., 2011). Indirect haemagglutination tests and ELISAs have approximately 85 % sensitivity. However, the most important factor for diagnosis is an awareness of the atypical localizations of the cyst and a high index of suspicion, especially in endemic areas.

The treatment of choice in ovarian hydatid cysts is surgery, which can be either radical or conservative. However, care must be taken to reduce the risk of possible intra-operative iatrogenic cyst rupture. Administering post-operative albendazole therapy can reduce the risk of dissemination of the cyst to other organs, which can lead to recurrences (Arif et al., 2008).

**Conclusion**

An ovarian hydatid cyst is a rare finding. It can be primary or more commonly secondary. On USG, it mimics cystic ovarian disease or a solid ovarian mass. Awareness and a high grade of suspicion combined with USG and computed tomography are required to make a pre-operative diagnosis of Echinococcus cyst, which makes it possible to avoid intra-operative iatrogenic rupture. The treatment of choice is radical cystectomy with anti-helminthic therapy to prevent recurrences. Patients should be followed up regularly to detect any recurrences. Echinococcosis can appear at any site in the human body, and so should always be considered in the differential diagnosis of cystic space-occupying lesions or unidentified tumour formations in patients from endemic areas.

**References**


