

Primary Ovarian Hydatid Cyst: A Rare Encounter Causing Diagnostic Dilemma

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Hydatid cyst is a disease caused by inoculation of larval form of *Echinococcus granulosus* in human organs. Human is the intermediate host whereas dog is the definitive host. The most common site of involvement is liver (60-70%) followed by lung (25%). Female reproductive system is the least common site of occurrence. Most of them are secondary to infection in liver or peritoneal rupture. Primary hydatid disease in ovary is very rare constituting less than 0.5% of all hydatid cases. We present a case of primary ovarian hydatid cyst in 48 years old female who was provisionally diagnosed as ovarian tumour; however, hydatid cyst of ovary was diagnosed incidentally during histopathological examination.

Keywords: Hydatid cyst; *Echinococcus granulosus*; ovary.

1. INTRODUCTION

Hydatid cyst is a zoonosis caused by a tape worm *Echinococcus granulosus*. It is endemic in

Mediterranean region, South America, Middle East and East Africa [1]. Hydatid cysts are mostly found in liver (63%), lung (25%), muscle (5%), bones (3%), kidney (2%), brain (1%) and spleen

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(1%). It is rare in pelvis (0.2-2.25%) [2]. Hydatid cyst in organ other than liver is usually asymptomatic unless cyst enlarges and causes pressure effect [3]. Primary ovarian hydatid cyst is rarely reported in articles and mistaken clinically as ovarian tumor. We presented here a case of primary hydatid cyst of left ovary.

2. PRESENTATION OF CASE

A 48 years old female patient presented with gradually enlarging swelling in lower abdomen for last 2 years associated with pain. On abdominal palpation, mass was 20 weeks of gestational age in size, with restricted mobility. Peripheral blood examination showed mild leucocytosis (13700/cmm) with eosinophilia (15%). Ultrasonography showed unilocular cyst, measuring 96x74x51mm with internal debris, in the pelvis. Left ovary could not be visualised separately. Liver, kidney, spleen showed normal echopattern. No free fluid was detected in abdomen. CA125 level was not raised. Liver function tests were within normal limit. Preoperative diagnosis of benign ovarian cyst was made. Left salpingo-oophorectomy was done and intact specimen was sent for histopathological examination. Grossly, tissue composed of ovary with attached cyst, altogether measuring 9x7x4 cm. Attached fallopian tube measures 3 cm in length. On cut section it was a thick wall cyst containing mucoid fluid with vesicular structures attached in the inner wall (Fig. 1). Microscopic examination revealed an ovarian cyst lined by thick laminated eosinophilic

cuticular layer with scolex. Adjacent ovarian tissue showed features of fibrosis, inflammation and giant cell reaction (Figs. 2 and 3). Histopathological features confirmed the diagnosis of hydatid cyst of ovary.

3. DISCUSSION

Primary echinococcosis is a very rare disease in female reproductive system (0.5%) [4]. Dog, fox and other carnivorous are the definitive hosts. Sheep is the intermediate host. Human is the accidental intermediate host who acquires infection by ingestion of oncosphere eggs released in faeces of definitive host. In the duodenum, hexacanth embryo hatches out of egg, penetrates mesenteric vessels, carried to liver and lodges in hepatic sinusoids (which acts as first filter). Finally it is transported to lungs (which act as second filter) and systemic circulation causing hydatid disease in other organs [5].

There is no specific age predilection. Most of the patients present with menorrhagia, pain, obstructed labour, lump in abdomen, infertility and retention of urine [6]. Ultrasonography and CT scan are frequently used for diagnosis. Ultrasonography is cost effective in diagnosing hydatid cyst but less accurate than CT scan which has 90% sensitivity [7]. Radiography shows cystic lesion with or without visible cyst wall, internal echoes and internal septation. Mural calcification of cyst wall is indicative of *Echinococcus* infection [8].

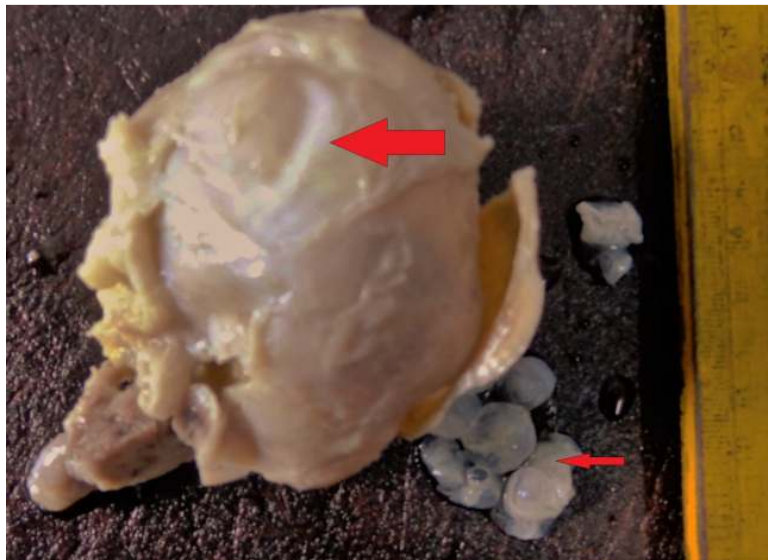


Fig. 1. Photograph of surgical specimen of ovarian hydatid cyst (thick arrow) with daughter cysts (thin arrow)

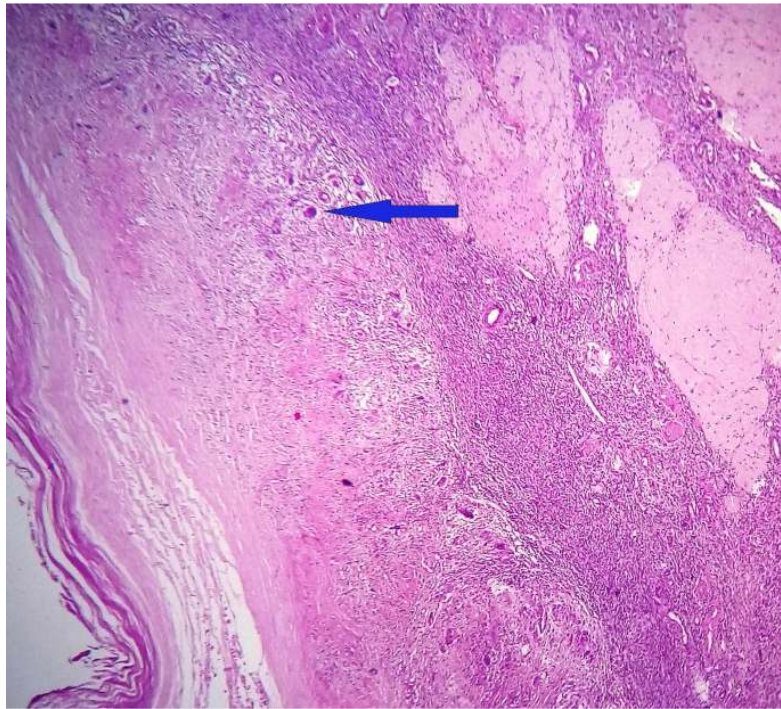


Fig. 2. Photomicrograph shows an ovarian hydatid cyst with ectocyst and giant cell reaction (arrow) in the ovarian stroma (H & E, mag x100)

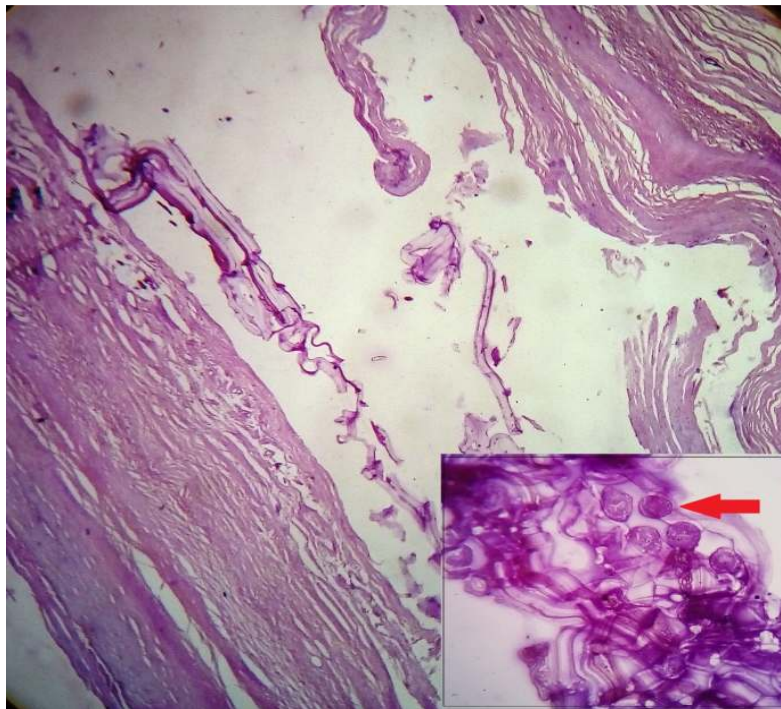


Fig. 3. Photomicrograph of inner endocyst and outer ectocyst of hydatid cyst (H & E, mag x100). Inset shows photomicrograph of laminated cuticular layer and scolices (red arrow), (H & E, mag x400)

It is usually confused with other benign lesions of ovary, like benign ovarian tumor, haemorrhagic ovarian cyst, uterine myoma because of nonspecific clinical features and associated atypical radiological findings [9]. Serological tests like immunoglobulin G antibody detection by ELISA and indirect hemagglutination tests are also used which have 85% sensitivity [10]. Though FNAC is considered to be effective in diagnosing hydatid cyst, risk of spillage obviates its need [11]. In our case, as it was suspicious of ovarian neoplasm, FNAC was not done.

Several researchers have studied the role of IL-4 & IL-10 which help in persistence of parasite in host body by regulating host versus agent immune response in *Echinococcus* infestation. It may ultimately help in designing targeted therapy against *Echinococcus granulosus* [12].

Surgical treatment is preferable, which may be either radical or conservative. Total cystectomy is the gold standard technique [1]. Most common complications are anaphylactic reaction due to cyst rupture and secondary infection which can be reduced by pretreatment with albendazole and mebendazole as they sterilize daughter cysts. After surgery, recurrence rate is only 2% [13]. Histopathological findings are confirmatory of diagnosis.

4. CONCLUSION

Though the incidence of hydatid disease in ovary is very low, clinicians should keep high index of suspicion when dealing with cystic lesion of ovary as during FNAC or surgery intraperitoneal spillage may cause dissemination or anaphylactic reaction deteriorating the prognosis. Hence, hydatid cyst of ovary should always be included as a differential diagnosis while dealing with cystic ovarian lesions even in nonendemic geographic areas.

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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