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Hydatid cyst of ovary mimicking ovarian neoplasm with its imprint cytology

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Summary

Background:

Hydatid disease, caused by *Echinococcus granulosus*, is a common parasitic infection of the liver. Disseminated intra-abdominal hydatid disease may occur with the rupture of the hydatid cyst into the peritoneal cavity, producing secondary echinococcosis, but occasional cases of primary peritoneal hydatid disease involving the pelvis have been reported. Occasionally, the cyst does not rupture, but instead enlarges, thus mimicking an ovarian tumour.

Case Report:

We present a 30-years-old woman with an intra-abdominal hydatid cyst that had no communication with the liver. It is therefore probably a primary case of ovarian hydatid cyst, which is very rare. An imprint smear was also taken, which revealed scolex with hooklets.

Conclusions:

The incidence of hydatid cyst in the female reproductive system is very low, constituting less than 0.5% of all hydatid cysts. Hence clinicians should consider hydatid cyst among differential diagnosis whenever a cystic pelvic mass is found.

key words:

hydatid cyst • echinococcus • ovarian cyst

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BACKGROUND

Hydatid cyst in humans is usually caused by the larval stage of *Echinococcus granulosus*. The parasite usually has a “dog-sheep” cycle, but humans become an accidental intermediate host. The most commonly involved organs are the liver (60–75%) and lungs (15–25%). Primary involvement of pelvic organs is very rare [1].

CASE REPORT

A 30-year-old woman presented to the Department of Obstetrics and Gynecology with a history of abdominal distension for 1 year. The patient had persistent dull aching pain localized to lower abdomen. There was no history of jaundice and no change in bladder habits. Pregnancy test was negative. The mass was dull on percussion, without a fluid thrill. Shifting dullness was not present, indicating either a tense collection or singular huge mass. Further investigations were conducted on the patient to address clinical suspicion of ovarian tumor. Ultrasonography of the abdomen and pelvis revealed a solid-to-cystic mass lesion. All baseline parameters were within normal limits. Exploratory laparotomy with excision of the mass was performed. The specimen was sent for histopathological examination. The gross specimen measured 6×4 cm, and a cut section showed thick mucoid material with a laminated appearance (Figure 1A, B). Histologically, the cyst showed characteristic features of a hydatid cyst made up of laminated oocyst. The endocyst with inner germinal layer was also seen (Figure 2A, B). There was

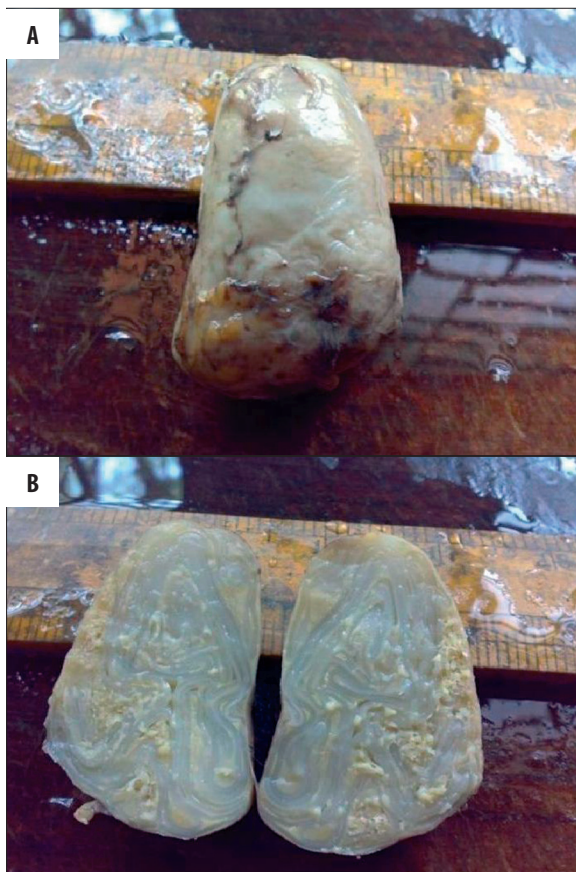


Figure 1A,B. Intact and cut surface of gross picture of hydatid cyst.

a significant collection of eosinophils, plasma cells and macrophages, along with minimal giant cell reaction. External to this remnant at the periphery, ovarian tissue was found. The patient was kept under regular follow-up and to date there has been no recurrence. An imprint smear was also prepared from the specimen and was stained with H & E stain, revealing presence of scolex with hooklets (Figure 3), which further supported diagnosis. As FNAC of hydatid cyst is contraindicated, the imprint cytology may be used as its substitute for academic purposes.

DISCUSSION

A hydatid cyst is formed by development of the parasite in the intermediate host. In humans this occurs primarily in liver and lungs. In certain cases, the embryo escapes pulmonary circulation and enters the systemic circulation, from which it can enter the female reproductive system. The incidence of hydatid cyst in the female reproductive system is very low and constitutes less than 0.5% of all hydatid cysts [2,3]. Approximately 20 cases of hydatid cyst in the female reproductive system have been reported, of which hydatid cyst giving rise to ovarian cyst constitutes only a few cases [4]. The common sites are the pouch of Douglas and the uterine cavity. Primary peritoneal echinococcosis is very rare and has been reported to occur in 2% of all abdominal hydatid diseases, usually occurring secondary to the rupture of a hepatic cyst [5,6]. The common clinical problems of hydatid cysts in gynecology are menorrhagia, obstructed labor,

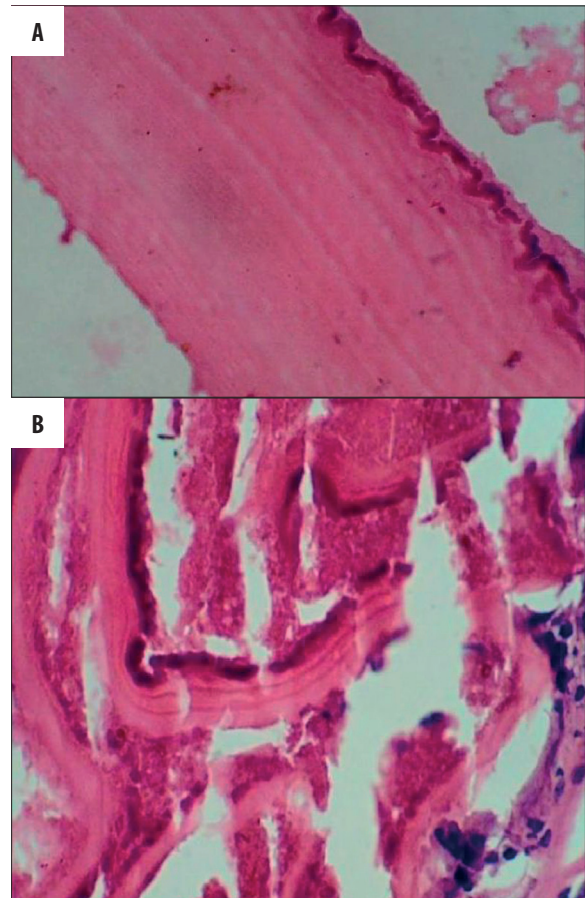


Figure 2A,B. H & E stained section showing clear, hyaline laminated membranes of hydatid cyst, 400× and 100×.

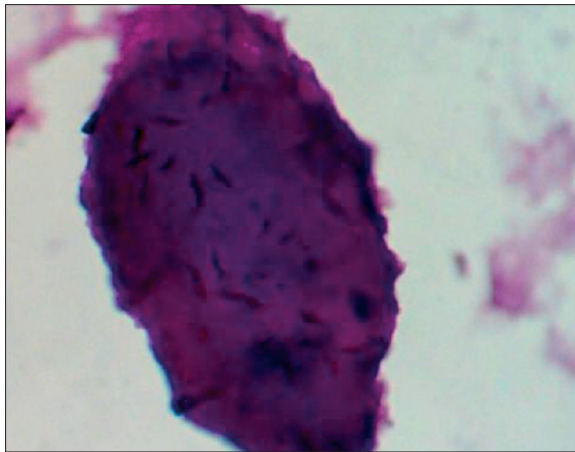


Figure 3. H & E Stained Imprint smear of the hydatid cyst showing refractile hooks in the scolex.

lump in the abdomen, sterility, and retention of urine. Such cases with features of benign ovarian neoplasm are rare. Preoperative diagnosis may be possible by clinical findings, imaging studies and laboratory tests, including echinococcal titers [1,5,6]. Pelvic echinococcosis in women remains difficult to diagnose with sonography because of the wide variety of ultra-sonographic appearances that echinococcal cysts may have [5]. CT is superior for detection of extrahepatic disease [5]. Indirect hemoagglutination test and ELISA have approximately 85% sensitivity. The most important factor in its diagnosis is the awareness of hydatidosis. A typical hydatid cyst is formed from its embryo and consists of 3 layers. The outer layer (pericyst or adventitia) consists of fibrous tissue, and is formed from the host tissue as a result of chronic inflammatory reaction to the parasite. The pericyst usually increases in thickness as the cyst expands. Liver and spleen hydatid cysts have a thick pericyst, as compared to peritoneal hydatid cysts, in which the pericyst is extremely thin. Hydatid cysts in the lung and brain have no pericyst at all. The present case was an exception, as a thick pericyst was encountered. As the cyst grows in the liver, bile ducts and blood vessels stretch and finally become incorporated within this structure, thus accounting for the propensity for biliary and hemorrhagic complications of

cyst growth and resection. With time, portions of the pericyst may calcify. Complete calcification of the pericyst may interrupt the nutrient and oxygen supply to the parasites, and thus kills the hydatid cyst. The parasite consists of a laminated membrane (ectocyst) and a germinal layer (endocyst). The ectocyst has the appearance of the white of a hard-boiled egg. It is elastic, made up of gelatinous, chitinous material and when incised or ruptured, curls in on itself, exposing the inner layer. The innermost germinal layer is cellular and consists of a number of nuclei embedded in a protoplasmic mass. It is a very thin, vital layer of the cyst, and produces brood capsules with scolices, secretes hydatid fluid, and forms the outer layer. Contact with the fluid can give rise to anaphylactic shock. Hydatid cysts expand slowly and asymptotically. Treatment includes surgery accompanied by close follow-up.

CONCLUSIONS

The incidence of hydatid cysts in the female reproductive system is very low and constitutes less than 0.5% of all hydatid cysts [2,3]. However, rare cases have been reported, thus the clinician must be aware of this rare disease and should take precautions while operating, as any spillage may lead to anaphylactic shock. We recommend that gynecologists, radiologists, and histopathologists should suspect hydatid cyst whenever a cystic pelvic mass is found.

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