Primary hydatid cyst of the urinary bladder with associated eosinophilic cystitis: Report of a unique case

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A 43-year-old Afghan man presented to the hospital complaining of mass sensation in the lower abdomen with pain and urine retention. The abdominal ultrasonographic examination revealed a septated cystic mass that measured 10.3 cm in its greatest dimension, which was adhered to the inner surface of left lateral wall of the UB, mimicking infected transitional cell carcinoma. The intravenous pyelogram (IVP) showed bilateral moderate hydrourteronephrosis. The computed tomography (CT) scan with and without intravenous contrast revealed ectopic insertion of a cystic structure to the UB wall, occupying the left-lateral inner surface (Fig. 1). No evidence of cystic lesions in other organs of the body was noted.

Upon endoscopic surgery at Jamhuriat Hospital, Kabul Afghanistan, the cyst was opened inside the UB and was completely removed along with a part of the bladder’s lateral wall, followed by irrigation of the bladder with normal saline solution in regular intervals for 24 hours that minimizes the chances of spillage.

Gross examination of the specimen revealed multiple white cyst-wall fragments with smooth outer surface. The inner surface of the cyst-wall fragments revealed numerous tiny cystic structures attached to the larger cyst-wall that were filled with clear watery fluid along with fragments with smooth outer surface. The inner surface of the cyst-wall

1. Introduction

Hydatid disease (HD) is a type of zoonosis caused by the adult or the larval stages of parasites that belong to the species Echinococcus granulosus (EG) or less commonly Echinococcus multilocularis (EM), Echinococcus vogeli (EV) and Echinococcus oligarthus (EO).

The Humans are affected by three different forms of the disease: (a) cystic echinococcosis that is caused by EG; (b) alveolar echinococcosis caused by EM; and (c) polycystic echinococcosis caused by EV or EO.

As intermediate hosts, humans are accidentally infected by the pathogen through fecal-oral route after ingesting the parasite’s eggs in food contaminated by feces of dogs or wild carnivores, which are the definitive hosts of the organism.

The disease occurrence rate is higher in rural areas of underdeveloped and developing countries, Middle East, East Africa, Mediterranean region, South America, and some parts of the central Europe.

The hydatid cyst (HC) commonly develops in the liver (70%) and lungs (15–47%) and are infrequent in other organs of the body such as heart, spleen, pancreas, mesentery, and muscles. The primary retrovesicular location of the cyst is extremely rare that comprise only 1% of the disease locations. Here we present an unusual case of granulosus HC of the urinary bladder (UB) with associated eosinophilic cystitis (EC) in an adult Afghan man.

2. Case presentation

A 43-year-old Afghan man presented to the hospital complaining of mass sensation in the lower abdomen with pain and urine retention. The abdominal ultrasonographic examination revealed a septated cystic mass that measured 10.3 cm in its greatest dimension, which was adhered to the inner surface of left lateral wall of the UB, mimicking infected transitional cell carcinoma. The intravenous pyelogram (IVP) showed bilateral moderate hydrourteronephrosis. The computed tomography (CT) scan with and without intravenous contrast revealed ectopic insertion of a cystic structure to the UB wall, occupying the left-lateral inner surface (Fig. 1). No evidence of cystic lesions in other organs of the body was noted.

Upon endoscopic surgery at Jamhuriat Hospital, Kabul Afghanistan, the cyst was opened inside the UB and was completely removed along with a part of the bladder’s lateral wall, followed by irrigation of the bladder with normal saline solution in regular intervals for 24 hours that minimizes the chances of spillage. The resected specimen was then sent to the Human Medical Laboratories (HML) and Research Center, Kabul Afghanistan, for histopathological evaluation.

Gross examination of the specimen revealed multiple white cyst-wall fragments with smooth outer surface. The inner surface of the cyst-wall fragments revealed numerous tiny cystic structures attached to the larger cyst-wall that were filled with clear watery fluid along with

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multiple UB wall-tissue fragments. The specimen was entirely submitted in 12 blocks for microscopic evaluation.

Upon microscopic examination, the cross-sections of the cyst-wall exhibited outer acellular laminated membrane and inner germinal membrane with nucleated lining. The inner membrane of the cyst also showed numerous oval-shaped Protoscolices with hooklets budding from the membrane (Fig. 2). Sections of the UB revealed acute phase of eosinophilic cystitis exhibiting transmural dense infiltration of eosinophils, as shown in the (Fig. 2).

The patient was catheterized for one week after surgery along with oral administration of levofloxacin 500 mg twice a day for two weeks. In addition to that, although he did not receive any preoperative treatment, a 3-cycle regimen of albendazole 400 mg twice a day was initiated with each cycle composed of 28-day treatment followed by 1-week pause. A close follow-up via ultrasonography was recommended for early detection of possible recurrence.

3. Discussion

Hydatid disease is a common health problem in endemic regions, particularly in livestock-producing countries. HCs of EG generally develop the liver or the lungs but may also form in heart, spleen, and pancreas. The rare intraperitoneal and pelvic HCs usually develop secondary to spontaneous or traumatic perforation of the cysts located in the more common primary locations.

The parasites usually spread via portal blood stream. However, the parasite can also spread by lymphatic system, retrograde migration from the vena cava to the subclavian vein and rarely by peritoneal fluid circulation phenomenon.

The cysts usually grow slowly to a diameter of 5–10 cm in a year and may persist for a long time without symptoms. It usually become symptomatic by compressing the adjacent organs and structures in a confined space that commonly present with abdominal pain and swelling. Radiographic techniques are more reliable than serological tests in the diagnosis of HCs of EG.

The cyst constitutes an inner germinal layer that asexually produces daughter cysts within the original cyst cavity. Rapture of the cysts may lead to lethal allergic reactions to parasite antigens. A more serious complication of cyst rapture is the implantation of daughter cysts in other parts of the body, which results in subsequent organ failure.

The clinical management of HC starts from the pre-operative short course of albendazole or mebendazole for sterilization of the cyst, followed by surgical excision. Complete cysto-pericystectomy with or without organ resection is the surgery of choice for symptomatic cysts. Other alternatives includes the minimally invasive approaches, such as percutaneous puncture-guided sonography with liquid aspiration and injection of scolicidal agents into the cyst. Post-operative albendazole or mebendazole is given to minimize the recurrence. Close follow-up is required to detect the possible recurrence of the disease as soon as
possible. We present a huge hydatid cyst of the UB with associated EC that might be a reactive process to the parasite. The findings were confirmed by histological evaluation of the cyst components and transmural infiltration of eosinophils into the UB wall.

4. Conclusion

Primary HC of the UB with associated EC is an extremely rare presentation of the disease that may radiologically mimic malignancy and lead to considerable diagnostic difficulties. The present case apprises the clinicians and radiologists of such rare presentations of HC and the importance of histopathological evaluation for the diagnosis of such cases.

Author contributions

HAM conceived the idea. HAM and ZAB diagnosed the case. HAM was major contributor to the writing of the manuscript. JAK provided the clinical data and radiological evidence. HAM, ZAB, ASI, MSR and ANH contributed towards the final version of the manuscript. HAM and ANH were the major contributors for critical revision of the manuscript for important intellectual content. All authors read and approved the final manuscript.

Informed consent

Written informed consent was obtained from the patient for publication of this case report.

Funding

The authors received no funding for writing of this article.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

None.

Abbreviations

| Abbreviation | Description |
|--------------|-------------|
| HD | Hydatid disease |
| EG | Echinococcus granulosus |
| EM | Echinococcus multilocularis |
| EV | Echinococcus vogeli |
| EO | Echinococcus oligarthus |
| HC | hydatid cyst |
| UB | urinary bladder |
| EC | eosinophilic cystitis |
| IVP | intravenous pyelogram |
| CT | computed tomography |
| HML | Human Medical Laboratories |
| H&E | hematoxylin and eosin |

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