



CASE REPORT

Prevesical hydatid cyst: A case report

Telila Mesfin¹  | Muhammadamin Taha² | Biniyam Sahiledengle³ |
Fikadu Nigusu³ | Kenbon Seyoum⁴  | Girma Geta⁴ | Neway Ejigu⁴ |
Demisu Zenbaba³ | Fikreab Desta³ | Degefa Gomora⁴ | Sisay Dadi⁵ | Elias Bezaw¹ |
Tsegaye Erdachew⁶ | Getu Kusa¹ | Mesfin Tsegaye¹

¹Department of Medicine, Goba General Hospital, Goba, Oromia, Ethiopia

²Department of Surgery, Goba General Hospital, Goba, Oromia, Ethiopia

³Department of Public Health, Goba General Hospital, Goba, Oromia, Ethiopia

⁴Department of Midwifery, Goba General Hospital, Goba, Oromia, Ethiopia

⁵Department of Internal Medicine, Goba General Hospital, Goba, Oromia, Ethiopia

⁶Department of Nursing, Goba General Hospital, Goba, Oromia, Ethiopia

Correspondence

Telila Mesfin, Department of Medicine, Goba General Hospital, Goba, Oromia, Ethiopia.

Email: telilamesfintadesse@gmail.com

Key Clinical Message

Hydatid cyst is a zoonotic disease caused by a tapeworm of the genus *Echinococcus granulosus* either in its adult or larval forms. Original pelvic cysts are rare; however, the majority of abdominal and pelvic hydatid cysts are believed to result from inadvertent surgical inoculation or spontaneous rupture from a primary hepatic focus. We present a 35-year-old female patient who visited our facility complaining of lower abdominal pain that had persisted for the last 5 months.

KEYWORDS

hydatid cyst, hydatid disease, prevesical, sonography, urinary bladder

1 | INTRODUCTION

Hydatid cyst is a zoonotic disease caused by a tapeworm of the genus *Echinococcus granulosus* either in its adult or larval forms.¹ The intermediate host is herbivore like a sheep, and the definitive host is a carnivore like a dog, which harbors the tapeworm stage in its intestine. The eggs are passed in the feces of the infected carnivores. The accidental intermediate host is a human being.^{2,3} Intestinal eggs hatch into larvae, which can then go throughout nearly every area of the body after invading blood vessels.⁴ The larvae typically travel through the portal route

to the liver, but occasionally they can get beyond the liver barrier and travel to the lungs and all the other internal organs, where they develop into tiny cysts.⁵ Even though hydatid cysts of the liver and lungs are prevalent, they have also been sporadically observed in the spleen, kidney, muscle, brain, spine, breast, thyroid, peritoneum, and retroperitoneum.^{6–8} Hydatid disease (HD) of the urinary tract is very uncommon and only accounts for 2%–4% of all cases.^{9–11} Rural areas of developing and poor nations, the Middle East, East Africa, the Mediterranean region, South America, and some regions of central Europe all have higher rates of illness occurrence.^{8,10}

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial](https://creativecommons.org/licenses/by-nc/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

© 2023 The Authors. *Clinical Case Reports* published by John Wiley & Sons Ltd.

Hematogenous invasion and the development of a cyst in the urinary bladder wall are explanations for the pathophysiology of bladder hydatid cysts. Clinically, the bladder hydatid cyst is silent for extended periods of time.¹² There are hardly few records of a solitary hydatid cyst in the literature that is located in front of the urinary bladder.¹³ In endemic areas, the incidence of pelvic and urinary bladder echinococcosis ranges from 0.2% to 2.25%.¹⁴

2 | CASE PRESENTATION

We present a 35-year-old female patient who visited our institution with a complaint of lower abdominal pain of 5 months duration. The pain was intermittent and dull aching type. Associated with this she had urinary frequency, urgency, and constipation. She also had a headache and easy fatigability. Otherwise, she had no fever and no past medical or surgical history. She had been amenorrheic for the past 2 years. She used Depo Provera for 6 months prior to the amenorrhea. She is a para-six mother. Objectively, the vital signs were all in the normal range. The pertinent physical finding was on the abdomen. There was a 12-week-sized abdominopelvic mass which was soft, had a regular border, and non-tender. On pelvic examination, the cervix was closed, and there was no mass or blood per examining finger.

She was investigated with hematology and imaging. On complete blood count, white blood cells = 12,000, neutrophil = 77%, platelet = 325,000, and hemoglobin = 12 gm/dl. The blood group was A⁺, urinalysis was non-revealing, and urine human chorionic gonadotropin was negative. Renal and liver function tests were all in the normal range. Abdominopelvic ultrasound reported an anteroinferior to urinary bladder pelvic cystic mass with multiple internal cysts (daughter cysts) with a double membrane wall measuring 9.7 by 6.2 cm in size. The mass did not show color flow on Doppler study. The conclusion from sonographic imaging was a type III hydatid cyst (Figure 1). Figure 1: A sonographic image showing multiple daughter cysts (see white arrows).

The abdominopelvic CT scan (contrast enhanced) showed a complex multilobulated predominantly cystic mass measuring 9 cm by 6.5 cm with a solid matrix having variable-sized daughter cysts, the bulk of which is seated at the prevesical region (having an impression on the anterior urinary bladder wall) with extension to the left adnexal and parametrial region and inferiorly to the pelvic floor (Figure 2). Figure 2 Abdominopelvic CT scan showing cystic mass with multiple daughter cysts seating in front of urinary bladder.

No enhancing component or significant adjacent soft tissue changes and calcification seen. The conclusion

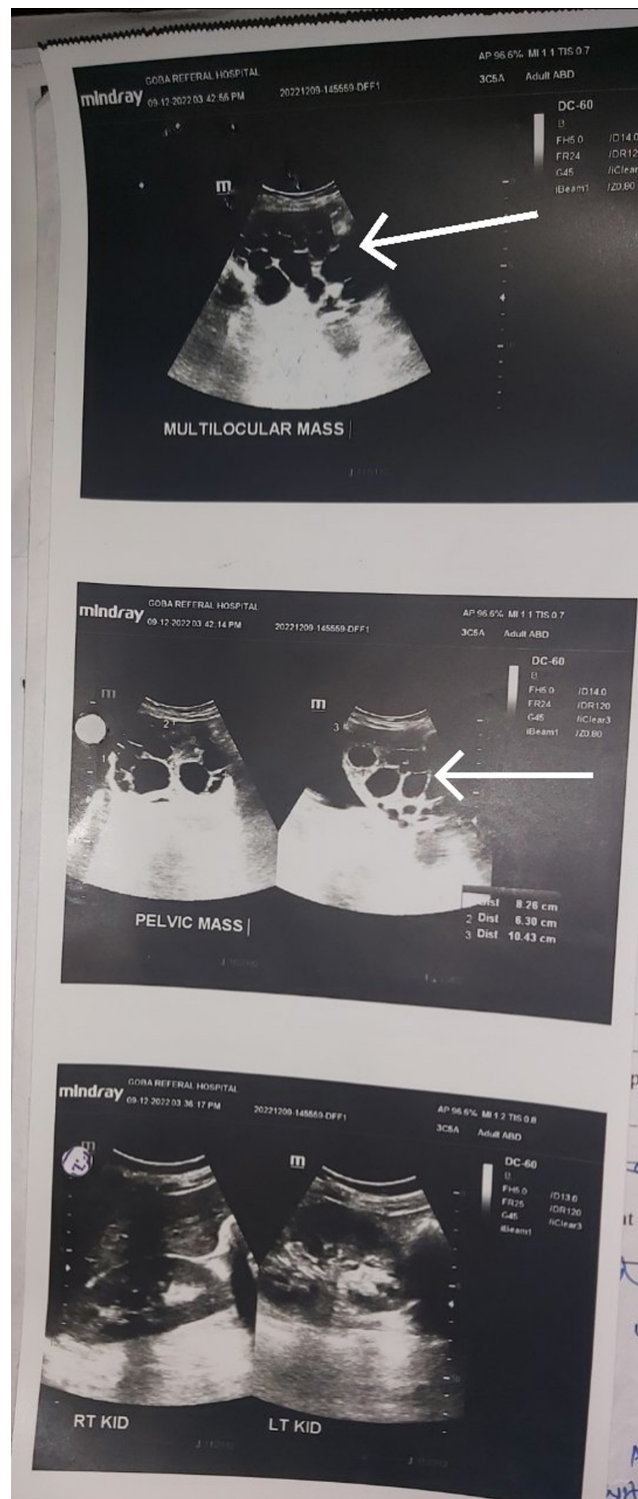


FIGURE 1 A sonographic image showing multiple daughter cysts (see white arrows).

from CT scan imaging was, a multilobulated pelvic mass with multiple daughter cysts in a solid matrix suggestive of hydatid cyst (transitional CE-3B).

Finally, the patient was admitted to the female surgical ward with a diagnosis of pelvic mass secondary to a urinary bladder hydatid cyst. She was prescribed albendazole



FIGURE 2 Abdominopelvic CT scan showing cystic mass with multiple daughter cysts seating in front of urinary bladder.

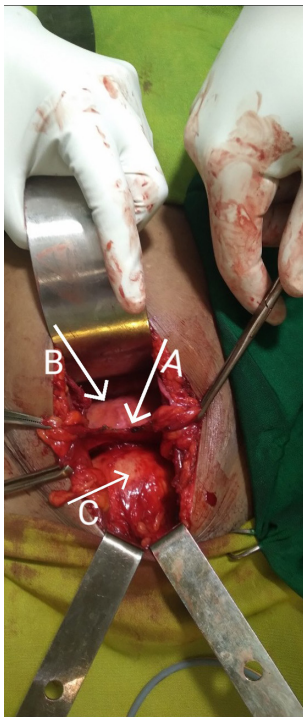


FIGURE 3 Intraoperative image (A = peritoneal reflection, B = urinary bladder, C = prevesical hydatid cyst).

400 mg taken orally three times per day and surgery was done under general anesthesia after written informed consent was taken 5 days later. The surgery done was cystectomy and marsupialization. The abdomen was entered via infraumbilical midline incision. Intraoperatively, there was a 10 cm by 8 cm cystic mass between anterior bladder wall and pubic bone (Figure 3). Figure 3 Intraoperative image (A = peritoneal reflection, B = urinary bladder, C = prevesical hydatid cyst).

The cyst was dissected from the anterior bladder wall. Hydrogen peroxide was injected into the cyst, the cyst was



FIGURE 4 Intraoperative imaging showing daughter cyst being aspirated (see white arrow).

opened, and the daughter cysts were aspirated (Figure 4). Figure 4 Intraoperative imaging showing daughter cyst being aspirated (see white arrow).

The cavity was washed with hydrogen peroxide and normal saline. The edge was trimmed and sutured. A drainage tube was inserted after count was reported correct. After surgery, she was transferred to ward with stable vital signs. She was put on maintenance fluid for 24 h, ceftriaxone 1 gm via intravenous route twice per day, metronidazole 500 mg through intravenous route three times per day, Tramadol 50 mg via intravenous route three times per day, and diclofenac 75 mg via intramuscular route twice per day. She was discharged from the ward after 5 days with albendazole 400 mg taken orally twice per day for 1 month and was asked to report for review after a month.

3 | DISCUSSION

HD is a parasitic zoonosis that affects people all over the world and is brought on by *Echinococcus granulosus* larvae. As definitive hosts, dogs, wolves, and foxes are affected by this parasite, whereas sheep, cattle, and humans serve as intermediate hosts. It is one of the 20 disregarded parasitic tropical illnesses, along with helminthiases that are spread through the soil, and cysticercosis.¹⁵ HD is a well-known parasitic disease that dates back to ancient times. Karl von Siebold presented the evidence demonstrating

that *Echinococcus granulosus* causes HD. By giving cysts taken out of sheep to dogs that grew adult cestodes in their intestinal tracts, he was able to replicate the tapeworm life cycle in 1853. Naunyn repeated the experiment in 1863 with identical findings by giving dogs human cysts.¹⁶ In endemic areas, particularly in nations that raise animals, HD is a common health concern.⁸ The principal organs affected by HD are the liver and lungs.⁹ Primary pelvic cysts are uncommon, although the majority of abdominal and pelvic hydatid cysts are thought to be related to spontaneous rupture from a main hepatic focus or it may be caused by unintentional surgical inoculation. Only when there are no additional cysts can a hydatid cyst in the pelvic cavity be termed primary, and in such circumstances the hydatid embryo enters the pelvic cavity either hematogenously (bypassing the hepatic and pulmonary filters) or through lymphatic system. Pelvic HD typically develops in connective tissue below the pelvic peritoneum. Upon contact, it may progress from here to the rectum, womb, ovaries, oviducts, or urinary bladder.^{17–21} The kidney or the retro vesical region are the most frequent sites of urinary tract hydatid cyst.^{22,23} Meanwhile, our case has no other sites of hydatid cyst as evidenced from history, physical examination, and imaging. To our knowledge there is a single literature from Tunisia which reported prevesical hydatid cyst so far.¹³ Therefore, this case is an addition to medical sciences and clinical medicine.

Due to the strain they put on nearby organs, primary vesical hydatid cysts become apparent. They typically exhibit hypogastric lumps or urine symptoms like frequency, urgency, or retention. Rarely, they may have progressive renal failure as a result of upper urinary tract obstruction.^{22,23} Despite being uncommon, the advent of hydraturia is a pathognomonic symptom, and a sign that the bladder cyst has ruptured.²⁴ On the contrary, our case complained lower abdominal dull aching pain which worsened over the past 5 months. Otherwise, she did not complain of pressure symptoms like urinary frequency, urgency, retention, and constipation.

The diagnosis is aided by a thorough history, a high index of suspicion, and serological tests, especially in individuals from endemic areas. In extrahepatic locations, hydatid serology typically has a sensitivity of 30%–70%,^{12,25} however it can help with the diagnosis if necessary. In 33%–53% of cases, hypereosinophilia is regarded to be indicative of hydatidosis.²⁶ The use of computed tomography and ultrasonography aid in the diagnosis, localization, and exclusion of hydatid illness.²⁷ Ultrasound is primarily used for the positive diagnosis of hydatid cysts due to its low cost and higher sensitivity (93%–98%),²⁸ particularly to pinpoint the cyst's location, its vascular connections, and the presence of any other sites. Additionally, it allows for the distinction of five categories in accordance with the

Gharbi categorization.²⁹ In our case, the patient had type III sonographic findings. The location, dimensions, and quantity of cysts can be identified with a CT scan or an MRI to allow for more thorough assessment and management planning. Despite CT scan having a high sensitivity of between 90% and 100%, ultrasound is still the preferred imaging modality, probably in part because of the cost differential and its widespread availability.¹⁴ When paired with radiologic findings, blood work and serology testing can be utilized to confirm the presence of the underlying disease, and further investigation can be used to assess the effectiveness of the treatment throughout the follow-up period.³⁰

There are two options of management of urinary bladder hydatid cysts; medical and surgical. If at all possible, surgical excision of an entire cyst is still the recommended course of action because it almost always cures the condition. Avoiding leaking the contents during surgery will lower the chance of recurrence.³¹ It is critical to isolate the abdominal cavity with gauze saturated in hypertonic saline solution to avoid hydatidosis and an allergic reaction.³² The prevalence of surgical treatment risks such secondary hydatidosis and allergic reactions range from 2% to 25%.³³ In cases of small cysts (7 mm in diameter), single cysts, and cysts with a mild adventitious reaction, medical treatment can be utilized.^{7,34} The medications used to treat helminths are benzimidazole-based substances. Medical therapy initiated before and after surgery help the procedure go more smoothly and decrease the likelihood of recurrence.⁷ Similarly, our patient started albendazole 400 mg taken orally twice per day a week prior to surgery and continued for three extra months while having monthly follow-up. Percutaneous aspiration, injection, and reaspiration (PAIR) of the cyst is another option for management. This procedure is typically used for liver cysts or cysts in certain other organs^{34,35} and involves percutaneous puncture under imaging guidance,³⁶ aspiration of some of the cyst's contents,³⁷ injection of a scolicidal agent such as hypertonic saline or ethanol of 95% concentration for about 15 min,¹¹ and reaspiration of the contents. PAIR is performed on patients for whom surgery is not appropriate for any reason or if they choose not to have surgery. For single or many cysts in the liver, abdomen, spleen, kidney, and bones, PAIR is helpful.³⁴ After completely evacuating the cyst's contents and any daughter cysts, marsupialization of the cyst is typically performed in challenging cases where total surgical excision is impossible.¹¹ Depending on the type of surgery performed and the facilities available, the postoperative mortality is around 2%.³³ Here, for our case marsupialization was done. The cyst's attachment to the anterior bladder wall was separated. The cyst was attached to symphysis pubis adherent anteriorly. The cyst was opened,

hydrogen peroxide was injected into it, and the daughter cysts were aspirated. Sodium chloride and hydrogen peroxide were used to clean the cavity of the cyst. Great care was taken during the procedure to prevent the leakage of hydatid fluid into the peritoneal cavity and unintentional damage to the bladder, rectum, and ureters.

4 | CONCLUSION

Echinococcus granulosus larvae cause the parasitic zoonosis known as hydatid cyst, which affects people all around the world. Serological testing, especially in those from endemic areas, a comprehensive history, and a high index of suspicion all help with the diagnosis. Hydatiduria, albeit uncommon, is a pathognomonic symptom and a sign that the bladder cyst has ruptured. Hydatid cysts of the urinary bladder can be treated medically or surgically.

AUTHOR CONTRIBUTIONS

Telila Mesfin: Data curation; formal analysis; methodology; software; writing – original draft; writing – review and editing. **Muhammadamin Taha:** Investigation; resources; visualization. **Biniyam Sahiledengle:** Conceptualization; supervision. **Fikadu Nigusu:** Conceptualization; supervision. **kenbon seyoum:** Conceptualization; supervision. **Girma Geta:** Conceptualization; supervision. **Neway Ejigu:** Conceptualization; supervision. **Demisu Zenbaba:** Conceptualization; supervision. **Fikreab Desta:** Conceptualization; supervision. **Degefa Gomora:** Conceptualization. **Sisay Dadi:** Conceptualization. **Elias Bezaw:** Supervision; writing – review and editing. **Tsegaye Erdachew:** Conceptualization. **Getu Kusa:** Supervision; writing – review and editing. **Mesfin Tsegaye:** Supervision; writing – review and editing.

ACKNOWLEDGMENTS

None.

FUNDING INFORMATION

We received no funding for this manuscript.

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data are available from the corresponding author upon reasonable request.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

ORCID

Telila Mesfin  <https://orcid.org/0000-0002-7495-8807>

Kenbon Seyoum  <https://orcid.org/0000-0003-4112-7764>

REFERENCES

- McManus DP, Zhang W, Li J, Bartley PB. Echinococcosis. *The Lancet*. 2003;362(9392):1295-1304.
- Dziri C. Hydatid disease-continuing serious public health problem: introduction. *World J Surg*. 2001;25(1):1-3.
- Kumar N, Garg R, Namdeo R. Primary pelvic hydatid cyst: a rare case presenting with obstructive uropathy. *Int J Surg Case Rep*. 2018;53:277-280.
- Romig T. Epidemiology of echinococcosis. *Langenbecks Arch Surg*. 2003;388:209-217.
- Gossios K et al. Uncommon locations of hydatid disease: CT appearances. *Eur Radiol*. 1997;7:1303-1308.
- Amir-Jahed A et al. Clinical echinococcosis. *Ann Surg*. 1975;182(5):541-546.
- Ganie F, Dar OH, Kaleem A, Hassan S, Gani M. Hydatid cyst of urinary bladder. *Indian Journal of Nephrology*. 2013;23:462-463.
- Dajenah M, Thabet A, Ahmed F, Alyhari Q, al-hajri A, Aljbri W. Primary multiple peritoneal hydatid cysts in 12 years old child. *Journal of Pediatric Surgery Case Reports*. 2022;77:102153.
- Shetty S et al. Management of hydatid cysts of the urinary tract. *Br J Urol*. 1992;70(3):258-261.
- Migaleddu V, Conti M, Canalis GC, et al. Imaging of renal hydatid cysts. *AJR Am J Roentgenol*. 1997;169(5):1339-1342.
- Deodhar S, Patel V, Kirloskar M. Hydatid disease of urinary bladder (a case report). *J Postgrad Med*. 1986;32(1):46.
- Horchani A, Noura Y, Kbaier I, Attyaoui F, Zribi AS. Hydatid cyst of the kidney. *Eur Urol*. 2000;38(4):461-467.
- Chokki A, Zribi R, Noura S, Dziri C. Prevesical hydatid cyst: an exceptional occurrence. *J Postgrad Med*. 2008;54(4):313-315.
- Cordell M, Ahmed ME, Schurhamer B, Ramos J, Rjoub SA, Khalil MI. Hydatid disease of the urinary bladder: a review. *Current Bladder Dysfunction Reports*. 2020;15:340-344.
- García-Bernalt Diego J, Fernández-Soto P, Muro A. LAMP in neglected tropical diseases: a focus on parasites. *Diagnostics*. 2021;11(3):521.
- Cox FE. History of human parasitology. *Clin Microbiol Rev*. 2002;15(4):595-612.
- Sarkar S et al. Acute urinary retention due to primary pelvic hydatid cyst: a rare case report and literature review. *J Clin Diagn Res*. 2016;10(4):PD06.
- Seenu V, Misra MC, Tiwari SC, Jain R, Chandrashekhar C. Primary pelvic hydatid cyst presenting with obstructive uropathy and renal failure. *Postgrad Med J*. 1994;70(830):930-932.
- Selvaggi F et al. A retrovesical echinococcal cyst: unusual cause of acute urinary retention. *Eur Urol*. 1978;4(1):60-62.
- Shailesh C, Dogra P, Javali T. Isolated retrovesical hydatid cyst. *BJUI Website*. 2010.
- Hadi. AM. Huge isolated Retrovesical hydatid cyst affecting a little girl. *Experimental Techniques in Urology and Nephrology*. 2018;2(2):53.
- Horchani A, Noura Y, Chtourou M, Kacem M, Ben Safta Z. Retrovesical hydatid disease: a clinical study of 27 cases. *Eur Urol*. 2001;40(6):655-660.

23. Angulo JC, Escribano J, Diego A, Sanchez-Chapado M. Isolated retrovesical and extrarenal retroperitoneal hydatidosis: clinical study of 10 cases and literature review. *J Urol.* 1998;159(1):76-82.
24. Vaidyanathan S, Rao MS, Sharma SK, et al. Non-operative management of a pelvic hydatid cyst communicating with the bladder. *J Urol.* 1979;121(2):245-247.
25. Saadeddine Zmerli M et al. Hydatid cyst of the kidney: diagnosis and treatment. *World J Surg.* 2001;25(1):68-74.
26. Khouaja MK et al. Retrovesical hydatid cyst: diagnosis and treatment in 8 cases. *Progr Urol.* 2004;14(4):489-492.
27. Singh SK, Wadhwa P, Chandramohan V. Primary retrovesical hydatidosis causing chronic renal failure. *Int J Urol.* 2006;13(1):76-79.
28. Paul S, Mandal S, Upadhyaya M, Pramanik SR, Biswas SC, Biswas RR. Primary pelvic hydatid cyst in a postmenopausal female: a surgical challenge. *Autops Case Rep.* 2017;7(2):49-54.
29. Gharbi HA, Hassine W, Brauner MW, Dupuch K. Ultrasound examination of the hydatid liver. *Radiology.* 1981;139(2):459-463.
30. Rigano R et al. Long-term serological evaluation of patients with cystic echinococcosis treated with benzimidazole carbamates. *Clinical & Experimental Immunology.* 2002;129(3):485-492.
31. Arif SH, Mohammed AA. Primary hydatid cyst of the urinary bladder. *BMJ Case Rep.* 2018;2018:bcr2018226341.
32. Tepetes K, Christodoulidis G, Spyridakis M, Hatzitheofilou K. Large solitary retroperitoneal echinococcal cyst: a rare case report. *World J Gastroenterol: WJG.* 2007;13(45):6101-6103.
33. Pawłowski Z et al. Echinococcosis in humans: clinical aspects, diagnosis and treatment. *WHO/OIE Manual on Echinococcosis in Humans and Animals.* 2001;133:20-66.
34. Moro P, Schantz PM. Echinococcosis: a review. *Int J Infect Dis.* 2009;13(2):125-133.
35. Khuroo MS, Wani NA, Javid G, et al. Percutaneous drainage compared with surgery for hepatic hydatid cysts. *New England Journal of Medicine.* 1997;337(13):881-887.
36. Cherkaoui M et al. Hydatid disease of the urinary bladder: a case report. *Journal of Radiology.* 2002;83(1):45-46.
37. Hertz M, Zissin R, Dresnik Z, Morag B, Itzhak Y, Jonas P. Echinococcus of the urinary tract: radiologic findings. *Urol Radiol.* 1984;6:175-181.

How to cite this article: Mesfin T, Taha M, Sahiledengle B, et al. Prevesical hydatid cyst: A case report. *Clin Case Rep.* 2023;11:e8243. doi:[10.1002/ccr3.8243](https://doi.org/10.1002/ccr3.8243)