



Oncology

Subcapsular urinoma following metastasis of testicular embryonal carcinoma

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ABSTRACT

Urinoma is an uncommon and severe complication that commonly results from ureteral stone formation, causing urinary tract obstruction, urinary tract trauma, or a pelvis mass. Ureter perforation due to malignancy, leading to subcapsular urinoma, is rare. In this article, we aimed to describe a case of secondary subcapsular urinoma in an adult male. The patient was diagnosed with ureter perforation secondary to the invasion of embryonal carcinoma lymph node metastasis.

Introduction

Urinomas are featured by urine collections found in the retroperitoneum, most often in the perirenal space induced by urinary tract leakage as a direct consequence of obstruction, trauma, or post-instrumentation. Subcapsular urinoma is defined as the collection of urine between the parenchyma and capsule of the kidney.^{1,2} Nonetheless, urinoma development caused by malignancy occurs on very rare occasions. Subcapsular urinoma is more common than perinephric (extracapsular) urinoma.² Patients with urinoma may present with non-specific symptoms, including fever and lumbar pain.¹ We describe a case of spontaneous subcapsular urinoma in an adult male diagnosed with ureter perforation due to testicular embryonal carcinoma metastasis to the lymph nodes of the abdomen.

Case presentation

A 22-year-old man presented with right upper quadrant pain for 1 month. Abdominal sonography showed mild hydronephrosis of the right kidney, with right perinephric fluid collection (Fig. 1). A flap separating the right kidney from the pelvis lumen was identified (Fig. 1). An

abdominal computed tomography (CT) scan was performed, which showed mild hydronephrosis of the right kidney and multiple round, hyper-enhanced lymph nodes along the right ureter (Fig. 2). A right subcapsular urinoma and the presence of a flap separating the right kidney from the pelvis lumen were observed (Fig. 2). Lymph node metastasis was suspected as the cause of ureter perforation, leading to urinoma development. Solid nodes in both lungs and cervical lymph node metastasis were discovered. On testicular ultrasound, a hypoechoic mass with microcalcification was identified in the right testicle (Fig. 3). The serum alpha-fetoprotein (AFP) and beta human chorionic gonadotropin (bHCG) level were normal. Due to lymph node invasion along the entire ureter, the patient had right kidney with the upper third of the right ureter removed together with a local lymphadenectomy. We cannot complete remove the ureter and total retroperitoneal lymph node dissection because of severe adhesion of metastasized lymph nodes to inferior vena cava. A right radical inguinal orchiectomy was also performed. The surgery confirmed subcapsular urinoma due to ureter perforation. The post-surgical pathological examination confirmed pure embryonal carcinoma with lymph node metastasis and intraluminal invasion of ureter. The lymph nodes invaded the ureter and caused a fistula, leading to the development of subcapsular urinoma. The final

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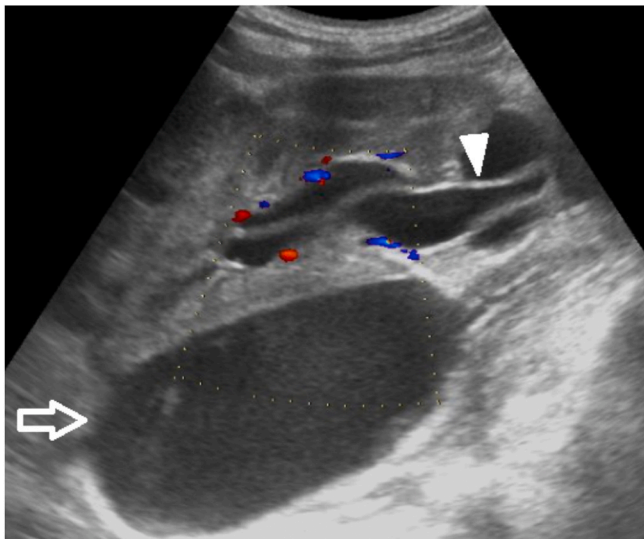


Fig. 1. Abdominal ultrasound showed mild hydronephrosis of the right kidney, with right perinephric fluid collection (arrow). A flap separating the right kidney from the pelvis lumen was noticed (arrowhead).

diagnosis for this patient was testicular embryonal carcinoma with multi-organ metastasis. The patient received chemotherapy, and after 2 months of follow-up, the patient was responding well to treatment, with decreased lymph node size.

Discussion

Urinomas are characterized by the extravasation of urine due to injury to the urinary collecting system at any segment.³ Urinoma can occur in the retroperitoneum, most commonly in the perirenal space. Ureteric rupture is a rare cause of urinoma and can be associated with a traumatic or non-traumatic injury. Non-traumatic rupture is less common and often results in the high-pressure retention of urine, caused by stones, ureteral stricture, or a mass.⁴ Commonly, ureteral perforations lead to paraureteral urinoma, with the extravasation of urine into the retroperitoneal space. Urinoma that results from metastatic germ cell tumor has never been reported, therefore this probably the first case reported in the literature. A CT scan represents the optimal procedure for diagnosing ureteric rupture, especially in delayed-phase images, and extravasation may suggest urinoma.⁴ In this case, the fluid collection observed in the subcapsular space was suspected to be urinoma, and in the delayed phase, the extravasation of the contrast fluid into the subcapsular space was apparent. No kidney lesion or laceration was observed. The presence of a flap in the pelvis lumen increased the

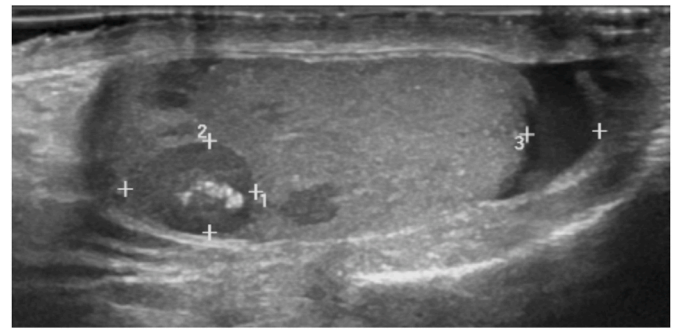


Fig. 3. Hypochoic calcifications in the right testicle and fluid in the scrotum.

suspicion of ureter perforation. However, not all cases feature contrast extravasation. Maitra et al.⁵ reported a case of bilateral renal subcapsular urinoma due to bladder outlet obstruction, in which the urinomas were caused by high-pressure retention, without injury to the kidneys or ureters, resulting in a lack of contrast extravasation in the delayed phase. The first-line treatment typically involves urinoma drainage³; however, surgery can be indicated in severe cases.³ In this case, the patient had urinoma without severe complications, but the right ureter showed invasion along most of the length. Nephrectomy was essential to resolve the urinoma situation and provide a diagnosis.

Conclusion

Urinoma may be bilateral or unilateral, depending on the cause. Ureter perforation often leads to extracapsular perinephric urinomas, but subcapsular urinoma can also develop. CT scans not only facilitate the accurate diagnose of urinoma but can also evaluate excretory injury based on the detection of contrast material leakage on the delayed excretory phase.

Ethical statement

Appropriate written informed consent was obtained for publication of this case report and accompanying images.

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Author contributions

Doan TL and Nguyen MD contributed to this article as co-first authors. All authors have read the manuscript and agree to the contents.

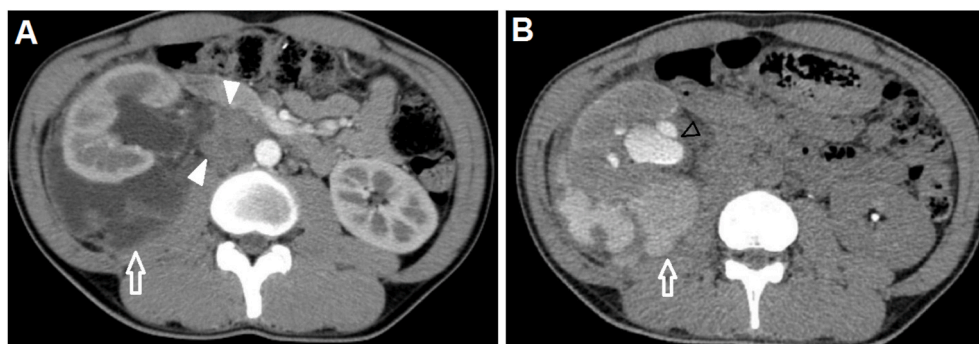


Fig. 2. Abdominal CT scan showed mild hydronephrosis of the right kidney, multiple round and hyper-enhanced lymph nodes along the right ureter (A, arrowheads), and subcapsular fluid collection at the right kidney (A, arrow). On the delayed phase, a flap separating the right kidney from the pelvis lumen was observed (B, arrowhead), and contrast extravasation into the urinoma (B, arrow).

Declaration of competing interest

The authors do not report any conflicts of interest.

References

1. Saswade K, Sonawane G, Pillai BS, Sam MP, Moorthy HK. Large perinephric urinoma acting as a pop-off in a patient with asymptomatic upper ureteric stone. *Kerala Surg J.* 2020;26(2):215–216.
2. Lee J, Darcy M. Renal cysts and urinomas. *Semin Intervent Radiol.* 2011;28(4):380–391.
3. Goldwasser J, Wahdat R, Espinosa J, Lucerna A. Urinoma: prompt diagnosis and treatment can prevent abscess formation, hydronephrosis, and a progressive loss of renal function. *Case Rep Emerg Med.* 2018;2018:1–3.
4. Choi SK, Lee S, Kim S, et al. A rare case of upper ureter rupture: ureteral perforation caused by urinary retention. *Kor J Urol.* 2012;53(2):131.
5. Maitra NU, Conn IG. A unique case of spontaneous bilateral renal subcapsular urinoma secondary to high pressure chronic retention of urine. *Urol Case Rep.* 2017;14:21–23.