

Spontaneous Perinephric Urinoma in a Postpartum Woman: Case Report and Review

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Abstract

Urinoma develops secondary to extravasation of urine from urogenital system that is, the kidneys, ureter, urinary bladder or urethra. This extravasated urine dissolved the retroperitoneal fat and later on encapsulated by body immune system and closely mimics loculated ascites. Spontaneous perinephric urinoma is less common and caused by obstructive uropathies include pregnancy, ureteral calculus, pelvic masses, posterior urethral valves, congenital anomalies, and chronically distended bladder. Non-obstructive causes primarily include trauma to the urogenital tract causing perforation of collecting system. Spontaneous perinephric urinoma in pregnancy is extremely rare and cause is 2-fold one is physiological (hormonal) and second is mechanical obstruction of ureter at pelvic brim.

Keywords: Mechanical obstruction, Postpartum period, Spontaneous perinephric urinoma

INTRODUCTION

Spontaneous perinephric urinoma during pregnancy is extremely rare obstructive uropathy other causes include pelvic mass, stone disease, posterior urethral valves, ureteropelvic junction (UPJ) obstruction, congenital anomalies, chronically distended bladder etc. Non-obstructive causes include primarily trauma to the urogenital system from kidneys to pelvis and gynecological, retroperitoneal or genitourinary surgery. Encapsulated collection of the extravasated urine can be subcapsular, perinephric, peripelvic or diffuse in retroperitoneum, and it may be unilateral or bilateral. The most possible pathophysiology of spontaneous urinoma is pyelosinus backflow of urine rising intrapelvic pressure >35 cm of H₂O with subsequent multiple rupture or porosities at calyceal fornices and extravasation of urine through sinus and renal capsule. Hydronephroureterosis is very common during pregnancy and seen up to 80% of cases and is primarily a physiologic phenomenon caused by hormonal changes and mechanical obstruction by gravid uterus and completely resolved during postpartum period.^{1,2} In the rare instance this changed into perinephric urinoma when condition is severe and prolonged. We reported a

case of bilateral asymmetrical spontaneous perinephric extravasation of urine (urinoma) diagnosed during postpartum period in which left side is very large. This was diagnosed by imaging methods and successfully managed by percutaneous drainage.

CASE REPORT

A 25-year-old postpartum woman (underwent vaginal delivery with prolonged labor) presented with persistent abdominal swelling on the left side even after 5 weeks of her delivery. She complained of vague abdominal pain more on the left flank. There was no complaints of dysuria. No past history of abdominal trauma or no documented evidence of stone disease or urinary tract infection during pregnancy. Clinical examination revealed fullness of abdomen and mild tenderness in the left flank and also soft large abdominal mass from left hypochondrium to upper pelvis was palpated. The laboratory tests were normal like serum creatinine (0.6 mg/dl) including urine culture.

Patient was referred for ultrasonography for a diagnostic approach. Abdominal sonography revealed a large fluid

containing cyst like mass around the left kidney and the same pattern in the right side but relatively very small. This was provisionally reported as bilateral, but asymmetrical perinephric collection with close differential of loculated ascites. There was no evidence of hydronephrosis or calculus. A complementary non-contrast computed tomography (NCCT) and contrast-enhanced computer tomography (CECT) scans were done with iodinated contrast. NCCT showed thin walled unilocular fluid attenuating perinephric collection large in the left side displacing kidney superomedially toward midline while in the right side it is relatively small. CECT showed a normal pattern of the renal enhancement without any extravasation of contrast into perinephric collection. This perinephric collection had significant pressure effect on renal capsule. There was no evidence of hydronephrosis or calculus. Thus, imaging findings confirmed bilateral asymmetrical encapsulated perinephric collection (urinoma) (Figures 1 and 2).

Since left side was enormous in size and causing symptoms, an elective percutaneous drainage was performed.

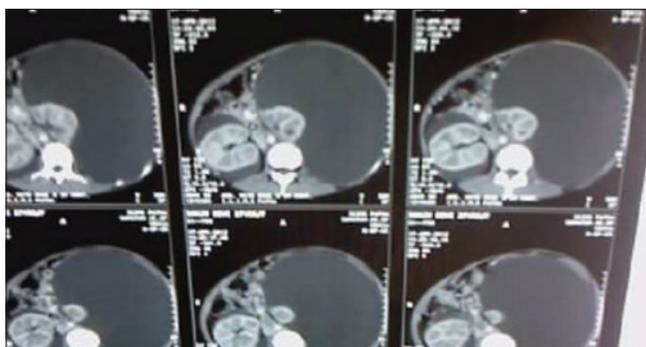


Figure 1: Abdominal computed tomographic axile views showing bilateral asymmetrical perirenal/perinephric urinomas. The left side perirenal urinoma is relatively very large displacing the ipsilateral kidney toward midline and compressing the renal parenchyma. No evidence of hydronephrosis or renal calculus

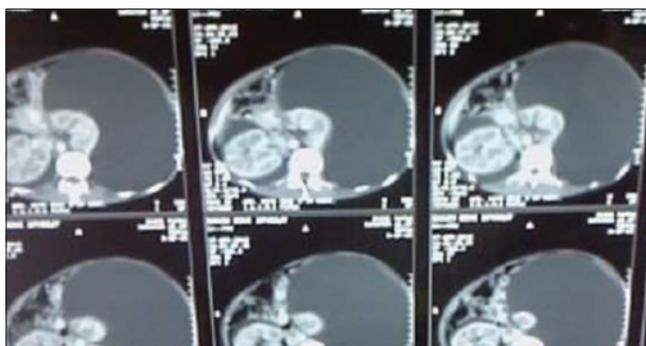


Figure 2: Computed tomography of abdomen (at 70-80 s) showing large left side and relatively small right side perirenal urinomas without evidence of contrast extravasation, rules out any traumatic renal cause

Approximately 4000 ml of amber colored uriferous fluid was drained. After 7 days, repeat sonography was done showing complete resolution. The drainage catheter was removed when no drain into urobag. Right side was left as such, because of small size, for spontaneous resolution. The patient was asymptomatic at the 6 weeks follow-up.

DISCUSSION

Urinoma (pararenal or perirenal pseudocyst) results from extravasation of urine in the retroperitoneal space which later on encapsulated³ by chronic immune response. It is mainly caused by external trauma to the urogenital tract or endosurgical procedure⁴ and also by obstructive uropathies like pregnancy, pelvic mass, UPJ obstruction, congenital urethral disease, enlarged prostate causing chronic bladder retention of urine. Reports of bilateral perinephric urinoma in connection with pregnancy are very rare in literature. Spontaneous perinephric urinoma in pregnancy is caused by obstruction at pelvis aided by hormonal influence. Obstruction leads to increase in intrapelvic pressure, pyelosinus backflow and subsequent rupture (increased porosities) of calyceal fornices which results in extravasation of urine.⁵⁻⁸ This extravasation is mainly in the subcapsular space or in the perirenal space bound by Gerota's fascia. If condition is severe, urine may cross the midline travel diffusely below the inguinal ligament to involve pelvis, thigh, buttock, scrotum and also the peritoneum.

In pregnancy urinary ductal system dilatation or hydronephrosis is common occurrence and seen approximately 80% of cases, mostly in right side. This is completely resolved in the postpartum period.^{1,2} However, in our patient no evidence of hydronephrosis noted probably it is time gap between development and presentation where hydronephrosis changed into huge perinephric extravasation in postpartum period.

Initial investigation for a suspected case of urinoma is abdominal ultrasonography complemented by abdominal computer tomography (CT) scan with or without contrast. The CT scan is better, especially contrast and delayed films, to demonstrate the relationship between the urinomas and the urogenital tract and the fascial planes.⁹

If urinoma is left untreated can lead to serious complications like perinephric abscess, urinary granuloma, retroperitoneal fibrosis, paralytic ileus, systemic sepsis and electrolyte imbalance. Thus, when diagnosed early management has to be considered until complete resolution is achieved. Management depends upon the size of urinoma and associated complaints. If it is small manage conservatively.

If large and symptomatic and does not decreased with time, intervention with percutaneous catheter drainage under sonographic or CT guidance is done in the most dependent position. If output is decreased catheter is removed and follow-up done with ultrasound to ensure complete resolution. In the case not resolved additional nephrostomy tube with or without a ureteral stent will be considered.¹⁰

CONCLUSION

Spontaneous perinephric urinoma in developed during pregnancy and detected in the postpartum period is extremely rare and caused by persistent mechanical obstruction of ureters at narrow pelvic brim by enlarged gravid uterus aided by physiologic hormonal dilatation of the urinary system. Accepted mechanism is basically due to raised intrapelvic pressure and pyelosinus backflow causing calyceal fornices rupture and extravasation of urine. So a woman presenting as persistent abdominal swelling and flank pain in the postpartum period, large urinoma

should be a consideration. Quick and prompt diagnosis is mandatory to prevent serious complication and to preserve renal function as well.

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