CASE REPORT

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Bilateral Spontaneous Perinephric Urine Collection in a Pregnant Lady: A Case Report

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ABSTRACT

Urinoma, a retroperitoneal urine collection, is a rare sequela of genitourinary disruption attributable to trauma, obstruction, or surgical interventions. Pregnancy-associated urinoma is tremendously rare. This case reports tourist attractions about an exceptional instance of bilateral spontaneous urinoma developed at the end of the first trimester. A pregnant lady of 27-year-old visited the urology clinic with left abdominal discomfort and low-grade fever at 12 weeks of gestation. Imaging revealed bilateral perinephric collections, confirmed as perinephric urinoma by aspiration and chemical analysis. The patient's infirmity settled spontaneously at week 25 of gestation through conservative treatment and careful monitoring without unfavorable consequences on maternal or fetal health. Proper cover of antibiotics, regular ultrasound examination, and monitoring of renal function were adequate to warrant resolution, despite the preliminary worries about the possible complications. The report of this case emphasizes the importance of customized care, careful monitoring, and the prospective cure in non-interventional treatment for a rare pregnancy-associated disorder.

Keywords: Perinephric urinoma; Rupture fornix; Ureteric obstruction, Hydronephrosis, Case report.

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INTRODUCTION

Urinomas are confined or free retroperitoneal urine collections that result from injury or disruptions in the urinary system [1, 2]. A confined urinoma can present as subcapsular, perinephric or peripelvic collections, frequently linked to trauma, stone passage, or iatrogenic cause [3]. Although spontaneous urinoma during pregnancy is extremely rare, it may be a consequence of the effects of the hormonal changes during pregnancy, mechanical obstruction of urine flow by the gravid uterus, or a combination of these factors [4, 5].

Spontaneous rupture of the renal fornix (SRRF), is also a rare but solemn malady. This disorder is often accompanied by flank pain, increased intrapelvic pressure, and extravasation of urine [4]. Timely discovery and tailored management (either conservative treatment or urinary diversion) are crucial to prevent complications like preterm childbirth, development of perinephric abscess and renal damage [3]. This report presents a rare case of bilateral urinoma in a pregnant woman treated conservatively, offering insights into the natural resolve of this condition and emphasizing the significance of custom-made care.

CASE PRESENTATION

A 27-year-old woman presented at 12 weeks of gestation with mild left abdominal discomfort and a low-grade fever. She denied any dysuria or hematuria. Her past medical and surgical history was unremarkable with no prior chronic diseases, renal or urinary issues, nor any history of abdominal trauma, or surgeries. Her past obstetric history revealed that she was gravida 3, para 2 (live births), with no history of

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preeclampsia, gestational diabetes, or any significant interventions. She also denied the use of drugs or other substances, as well her family history regarding renal or genetic disorders was not significant. The pregnancy had been progressing normally, with no complications such as significant infection or vaginal bleeding before her presentation.

On physical examination, her vital signs were within normal limits, but mild tenderness was noted in the left upper abdominal region without any palpable masses. Laboratory studies, including urinalysis, urine culture, serum creatinine (0.6 mg/dL), blood urea (10 mg/dL), complete blood count (CBC), C-reactive protein (CRP), and electrolytes were all within normal limits.

Initial imaging by ultrasound revealed perinephric fluid collections on both sides, envisaging an echo-free area surrounding and compressing the kidneys. The fluid volume in the left side was larger than the right, without any sign of hydronephrosis, hydroureter, stones, or distal obstruction. Doppler examination displayed a normal vascular finding of both kidneys with proper resistive indices and flow velocities. Her bladder seemed normal shape and contour, with no intra-vesical mass nor residual urine post-voiding. Additionally, the abdominal blood vessels appeared intact, with no intra-abdominal, retroperitoneal, or pelvic free fluid detected. Fetal ultrasound findings were also unremarkable (Figure 1).

A magnetic resonance imaging (MRI) was performed to confirm the nature of the collections. It revealed the bilateral collections of perinephric fluid that is consistent with urinoma. The fluid exhibited a distinctive signal intensity, appearing hypointense on T1-weighted images and hyperintense on T2-weighted images, which is suggestive of urine. Subsequent fluid aspiration and chemical analysis confirmed this diagnosis (Figure 2).

This presentation could be diagnosed as hydronephrosis, urinoma, or retroperitoneal fluid collections. Hydronephrosis can be ruled out because the renal pelvis or ureters were not dilated on the ultrasound scan. Retroperitoneal fluid collections irrelevant to the urinary system can be overlooked based on the imaging findings as well as the results of fluid analysis confirming the presence of urine. This patient was managed conservatively, starting with empirical antibiotic therapy using cefuroxime tablets 500 mg twice a day for 14 days. She was carefully monitored with regular follow-up visits every 2 to 3 weeks and was informed about the signs and symptoms that would necessitate urgent visits. Assessment during each visit included laboratory evaluation of renal function, urinalysis, and inflammatory markers to detect of infection, as well as serial ultrasound examination to track changes in the volume of the collections and monitor fetal wellbeing. She was also advised to maintain adequate hydration and avoid unnecessary activities that could increase intra-abdominal pressure. The potential complications of untreated urinoma, such as infection, abscess formation, and impaired renal function were explained to the patient, but she opted against interventional procedures, including percutaneous drainage or ureteral stenting, and preferred to continue with conservative management instead.

By 17 weeks of her pregnancy, an ultrasound study disclosed a considerable lump of the perinephric fluid volume. Nevertheless, complete resolution was observed by week 25th week of pregnancy. The pregnancy after that time point progressed uneventfully, ending with a delivery of a healthy full-term baby via normal vaginal delivery (Figure 3). Informed consent was obtained from the patient for the publication of the case along with all associated images.

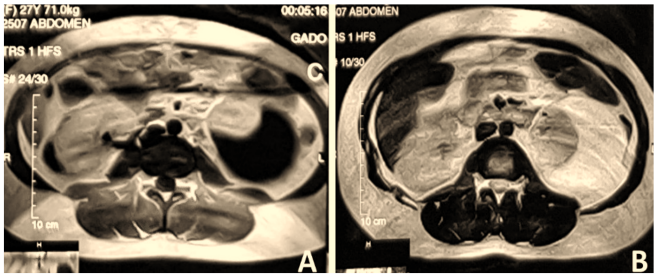

Figure 2. Abdominal magnetic resonance imaging. A: T1-weighted image (T1WI) shows bilateral asymmetrical perinephric fluid collections with homogeneous low signal intensity. B: T2-weighted image (T2WI) exhibits the same fluid collections with homogeneous high signal intensity.

DISCUSSION

Spontaneous perinephric urinoma during pregnancy is an exceptionally rare condition [5], with only a limited number of cases published in the literature. This case highlights an unusual early presentation of perinephric urine accumulation during pregnancy, emphasizing the significance of accurate detection and tailored management.

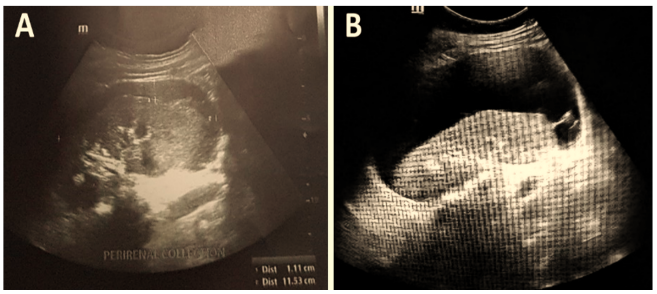

Figure 1. Renal ultrasound at the time of presentation (A: Right kidney, B: Left kidney) demonstrate echo-free areas surrounding both kidneys. The area is more pronounced on the left side, where it is accompanied by significant compression of the renal parenchyma.

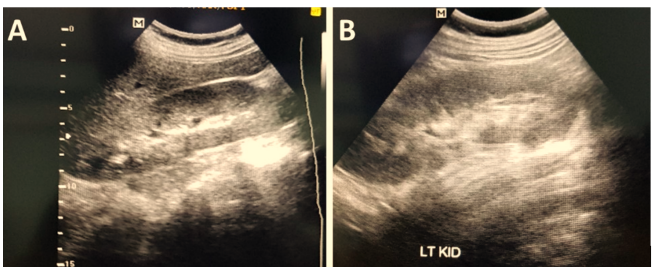

Figure 3. Ultrasound of the kidneys of the pregnant woman at the 25th week of gestation. A: Right kidney ultrasound confirms the complete resolution of the perinephric fluid collection. B: Left kidney ultrasound proves the full resolution of the perinephric fluid collection.

The pathogenesis of perinephric urinoma in pregnancy is often attributed to gestational physiological and mechanical body changes [6]. High progesterone levels relax smooth muscles, which impairs peristalsis, leading to ureteric dilation and urinary stasis. Additionally, the enlarging gravid uterus compresses the ureters at the pelvic brim, further impeding urine flow and predisposing to fornicial rupture [4]. In this case, the early onset in the first trimester could be explained by fornicial rupture due to external pressures, such as squeezing, coughing, or sudden movements, which increase abdominal pressure and compromise the integrity of the renal fornices.

A systematic review of spontaneous retroperitoneal fluid collections (SRFR) in pregnancy and postpartum provides a valuable insight. It was observed that 77% of cases occur, typically in the third trimester. Common symptoms include flank pain and hematuria [4]. While ultrasound is the primary diagnostic tool, MRI has been identified as superior for accurate diagnosis in pregnant patients. treatment options include endoscopic stenting of the ureter, percutaneous catheter insertion and conservative approaches such as watchful waiting along with proper antibiotics and analgesic. Preterm labor was reported in about 34% of the perinephric urinoma cases, with the average pregnancy, duration being of 36.3 weeks [4].

The urinoma diagnosis requires a proper imaging study, with special concern on a pregnant lady who had unclear symptoms such as loin pain and high temperature [7]. Ultrasound is the favored first mean for this duty. That's because of its availability and safety as well as its non-invasive tool. However, ultrasound had a limited sensitivity in differentiating urinoma from other types of fluid collection. MRI provides a better soft tissue contrast without radiation, making it more valuable in pregnancy [4, 7]. MRI was instrumental in confirming of our case as a bilateral perinephric urinoma and excluding other possible conditions. Perinephric urinoma in pregnancy should have personalized management according to the patient's clinical condition [5, 8]. Conservative treatment may be an appropriate option for asymptomatic or minimally symptomatic cases. It involves close monitoring and proper cover by empirical antibiotics. Spontaneous resolution has been reported. Notably, no pregestational based medications was required throughout our management of this case, as her condition resolved spontaneously in the 2nd trimester. If the urinoma is larger or symptomatic, intervention may be needed, this may be performed by percutaneous drain insertion, or ureteric catheter (double J stent), which are essential to avoid complications such as renal damage, or infection [4, 8]. The patient was informed about the potential complications of undrained urine collection, such as infection, abscess formation, and impaired renal function. Despite this, she chose to proceed with a watchful waiting approach and declined any intervention, even minimally invasive ones. Emphasizing her preference for conservative management, accompanied along with regular monitoring, this approach resulted in spontaneous resolution of the collections by the 25 weeks of pregnancy.

CONCLUSION

This case report highlights the magnitude of a multidisciplinary approach to managing a rare gestational urological complication. Early diagnosis using appropriate imaging study, vigilant monitoring, as well-conducted care are critical to ensuring an optimal result for both mother and fetus. It contributes to expanding our knowledge and it adds to our knowledge and contributes to the limited literature on the management spontaneous retroperitoneal urine collection during pregnancy. It demonstrates that conservative management can be efficient option in selected cases. It reinforces the value of MRI in the diagnosis and the necessity of individualized care protocol to optimize maternal and fetal outcomes.

ETHICAL DECLARATIONS

Acknowledgments

We thank the staff of the laboratory for their help in serial blood and urine tests during the follow-up period.

Ethics Approval and Consent to Participate

The study was approved by the Ethical Approval Committee of the College of Medicine, University of Mosul, Mosul, Iraq. Informed consent was obtained from the patient for publication of the case with all associated images.

Consent for Publication

The patient gave her consent for publication of the case.

Availability of Data and Material

All information related to the case was written in the article.

Competing Interests

The authors declare that there is no conflict of interest.

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Authors' Contributions

All authors have equal participation in the design, collection of the data, analysis of the results, and writing of the manuscript. All authors read and approved the final version of the manuscript.

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