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Case Report

Surgical management of symptomatic right ureteric calculus in a pregnant woman with moderate hydroureteronephrosis

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ABSTRACT

Renal and ureteric calculi are relatively uncommon during pregnancy, often posing significant diagnostic and management challenges. This due to the physiological changes of pregnancy and need for fetal safety. We present a case involving a 30-year-old woman G4P2L2MTP1 at 21+5 weeks gestation presenting with a symptomatic right proximal ureteric calculus and right moderate hydroureteronephrosis. We opted for surgical intervention via ureteroscopy and Double-J (DJ) stenting as conservative efforts failed to prevent the risk of urosepsis. Post procedure antenatal care was uneventful, a healthy infant was delivered via emergency caesarean section at 36+1 weeks with the stent in situ, followed by successful removal of DJ stent 6 weeks postpartum. This case highlights the necessity of timely intervention and successful collaborative efforts of obstetric and urological teams.

Keywords: Ureteric calculus, Hydroureteronephrosis, Pregnancy, DJ stenting, G4P2L2MTP1

INTRODUCTION

Urolithiasis is not a common presentation in pregnancy. However, it remains a primary diagnostic consideration when a pregnant patient presents with acute, non-obstetric abdominal pain. The incidence of urolithiasis in pregnancy is approximately 0.1% to 0.5% (roughly 1 in 200 to 1 in 1,500 gestations), of which 0.8% of cases are symptomatic with the majority of them presenting in second or third trimester.[1,2]

Patients typically present with classic symptoms including flank pain, haematuria, and nausea. However, the diagnosis is difficult due to physiological hydronephrosis, which closely mimics pathological obstruction.[3] Prioritizing fetal safety is mandatory when selecting imaging modalities and determining the necessity of intervention.[3,4] In this case report, we present a case of symptomatic urolithiasis in pregnancy, discussing the diagnostic process and the multidisciplinary approach to management.

CASE REPORT

A 30-year-old female, G4P2L2MTP1 with previous two caesarean sections, presented at 21+5 weeks of gestation with on-and-off, severe pain localized to the right lumbar region radiating to the groin.

There was no history of fever, haematuria, frequency/urgency of micturition, nausea, vomiting, or any obstetric symptoms.

Fetal movements were perceived to be present. Patient has history of recurrent urinary tract infections, two to three episodes every year managed conservatively. Patient was admitted in maternity ward for further evaluation and management.

Obstetric history

G1: Spontaneous conception, Full-term LSCS for non-progression of labour, 12 years, female child, alive and healthy.

G2: Spontaneous conception, medically terminated pregnancy (MTP1) at 1.5 months gestation, curettage done.

G3: Spontaneous conception, Full term LSCS for previous LSCS. 9 years, male child, alive and healthy.

G4: Current pregnancy, spontaneous conception. First trimester uneventful. Second trimester- Anomaly scan S/O no gross congenital malformations. Quadruple marker test- low risk for trisomy 18 and 21, neural tube defects.

Past medical H/O: History of appendicectomy in 2009.

On physical examination

General condition fair, vitally stable. On Per abdomen examination, Uterus size consistent with 20-22 weeks gestation, relaxed. FHR 152 bpm. Pfannenstiel scar present, with no scar tenderness, no guarding/rigidity. On Per speculum examination, Cervix Vagina healthy. No white discharge/bleeding observed.

On per vaginal examination

Cervical OS high up, posterior and uneffaced.

Investigations

USG abdomen and pelvis (7/7/25): Single live intrauterine pregnancy of 22+5wks**.** A right proximal ureteric calculus measuring 13.6x4.9 mm, approximately 3.5 cm distal to the pelvic-ureteric junction (PUJ), causing right moderate hydroureteronephrosis. The left kidney showed non-obstructive renal calculus measuring 2.6 mm.

Urine routine microscopy (10/07/25): 193 bacteria/HPF, pus cells-21.60/HPF- showed presence of bacterial infection.

Final diagnosis

30-year-old female, G4P2L2MTP1, previous two LSCS, spontaneous conception with 21+5 weeks gestation, with right proximal ureteric calculus with right moderate hydroureteronephrosis and an incidental left non-obstructive calculus.

Management

Initial management involved prophylactic antibiotics, pain control, adequate hydration. An urgent urosurgical reference was sought. However, she has no relief on conservative management. Given the symptomatic obstructive calculus, the patient required active urological intervention. Patient was posted for Urethroscopy with right DJ stenting. Valid, informed, written high risk consent was taken. Preinduction fetal heart sounds recorded. Under all aseptic precautions, patient taken in lithotomy position under Spinal Anaesthesia. 7.5 ureteroscopy done. A guidewire was passed across the stone in upper right ureter but stent could not be negotiated due to mucosal overgrowth over the stone, ureteral kinking distal to the stone and edema around the stone. Stone was partially litho-clastied to create space for the DJ stent. A right silicone DJ Stent was placed. Since the left ureteric calculus was non obstructive and asymptomatic, left DJ tenting was not done. Patient tolerated the procedure well. Post procedure fetal heart sounds recorded.

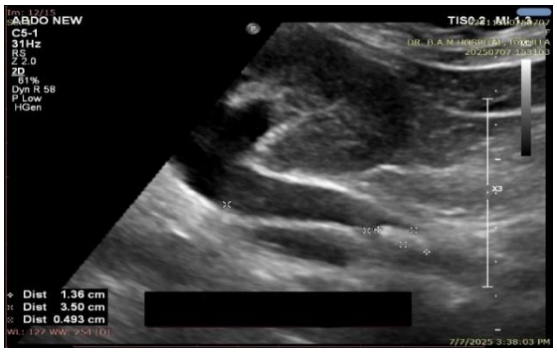

Figure 1: A proximal right ureteric calculus measuring 13.6mm × 4.9 mm, approximately 3.5 cm distal to the PUJ.

Figure 2: Non obstructive left renal calculus measuring 2.6 mm.

Intermediary care

Post procedure urine routine microscopy was done 4 weekly and was found to be normal. Close antenatal surveillance was maintained. Delivery-A healthy live baby was delivered by Emergency LSCS on 16/10/25 in view scar tenderness. Cystoscopy with Right DJ stent removal with right ureteroscopy done postpartum on 8/1/26.

Cystoscopy findings showed

The urinary bladder was normal. Few flakes were present. Both ureteric orifices were visualized. A right DJ stent was seen in situ. Mild right ureteric mucosal inflammation was noted. The right DJ stent was removed in toto, and right ureteroscopy was performed, which revealed pus flakes in the right pelvicalyceal system. The patient tolerated the procedure well.

DISCUSSION

Multiple factors can cause stone formation during pregnancy:

Increased progesterone levels lead to smooth muscle relaxation and urinary stasis. The gravid uterus causes mechanical compression of the ureters. Additionally, a lithogenic environment is created due to increased glomerular filtration rate (GFR) and altered urinary composition, specifically hypercalciuria and hypocitraturia, which may predispose to stone crystallization.

This case emphasizes that while physiological hydronephrosis is common in pregnancy, the presentation of severe unilateral pain requires investigation to rule out pathological obstruction. If left untreated, urolithiasis can lead to severe maternal complications like recurrent urinary tract infections, pyelonephritis, urosepsis, acute kidney injury and fetal complications like increased risk of preterm labour or in severe cases, fetal loss.[3,5] Ultrasonography remains the gold standard for initial evaluation due to its safety profile for both mother and fetus.[4] Management follows an approach prioritizing maternal and fetal safety.

Conservative management

This remains the primary first-line treatment for the majority of patients.[6]

Surgical intervention

When complications arise, interventions such as ureteric stenting or ureteroscopy are used to ensure favourable clinical outcomes.[4-6] Lithotripsy is contraindicated in pregnancy barring exceptions where alternative measures have failed and maternal health is significantly compromised.[7,8] and/or life-threatening cases carefully selected post completion of fetal organogenesis i.e. second or third trimester.[6-9] In view of discussed considerations, a decision was made to proceed with surgical intervention and collaborative care between the obstetric and urology teams throughout the pregnancy was essential for a successful outcome.

CONCLUSION

While conservative management remains the first-line approach for urolithiasis in pregnancy, timely surgical intervention becomes essential in certain cases or when complications arise. In this case, Ureteroscopy with DJ stenting provided effective relief and ensured a favorable maternal and neonatal outcome. A multidisciplinary collaboration between obstetric and urological teams is crucial in successful management of such high-risk scenarios.

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