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Case Report

A rare case report on double J stenting in a rare case antepartum patient with right sided hydronephrosis and hydroureter

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ABSTRACT

Gestational hydronephrosis (GH) is caused due to dilatation effect of the progesterone as well as physical pressure of the gravid uterus. In pregnancy, its management is challenging as routine radiological investigations and surgical treatments cannot be performed due to the potential harm to the foetus. Women who fail to respond to conservative methods require intervention. Acute hydronephrosis and renal colic are common aetiologies for loin pain, and can lead to severe form of urinary tract infection affecting perinatal outcome. Double J (DJ) stenting during pregnancy is safe, requiring no intra-operative imaging, and inserted under local anaesthesia. It provides good symptom relief, low complication rate, efficient and safe modality for women with refractory symptoms. Multidisciplinary approach to this procedure is advised.

Keywords: Hydronephrosis, Hydroureter, Pregnancy, DJ stenting

INTRODUCTION

Pregnancy results in anatomical and physiological changes in the urinary tract which may not only aggravate various urological problems present but also result in unfavorable pregnancy outcome.

Mild hydroureter and hydronephrosis of kidney and ureter is normally found during pregnancy specially in second trimester due to rising of uterus out of pelvic brim and resting on ureters. There are more chances of right sided dilatation as the uterus in most cases are dextrorotated and there is also cushioning of left ureter due to sigmoid colon. Progesterone also plays some role in it as Van Wagenen and Jenkins described continued ureteral dilatation after removal of the monkey's fetus but the placenta left *in situ*.[1]

However, there might be pathological hydronephrosis and hydroureter in some cases either due to excess of this physiological effect or due to some ureteric stricture which may lead to severe oliguria and azotemia. Partial ureteral obstruction may be accompanied by fluid retention and significant hypertension. Relieving the obstruction by stenting of uterus through cystoscopy is a safe and least invasive method to relieve such obstruction.

CASE REPORT

A 23-year-old primigravida with 33.2 weeks gestation and Rh-negative pregnancy, presented in emergency with complains of pain abdomen which was more on right side for one week not accompanied by any bleeding or leaking per vaginum or decreased fetal movement. She also had similar complaints in past, one month back which resolved spontaneously. Patient was having no other high risk or any history of medical or surgical illness in past. Her ultrasound obstetrics was normal but her ultrasound abdomen and pelvis showed right sided moderate hydronephrosis (approx. 15x17 mm) and hydroureter (Figure 1). Patient was admitted in view of right hydronephrosis and hydroureter. Her all routine investigations along with urine routine microscopy and

culture sensitivity were sent on admission which came within normal limits except her serum creatinine which was 1.3 mg/dL. Her pain was not completely resolved even on analgesics. Patient was started on oral cephalosporins as prevention for urinary tract infection secondary to urinary stasis.

Figure 1: Pre procedure (DJ stenting) appearance of right kidney with visible areas of hydronephrosis.

A urosurgery opinion was taken in view of moderate hydroureter and hydronephrosis and patient was advised intervention only if rising level of creatinine was present. On doing her serial renal function tests, creatinine was found to be rising (day 1) 1.3 mg/dL, >(day 2) 1.5 mg/dL, >(day 3) 1.7 mg/dL, in spite of good fluid input/urine output maintenance. Repeat urosurgery opinion was taken and the patient was advised right sided DJ stenting. Nephrology opinion was also taken in view of deranged renal function and the rising serum creatinine was attributed to the obstructive pathology. At 33.5-week gestation, 6/24 sized DJ stent was inserted under proper aseptic precaution under local anesthesia through cystoscopy (Figure 2). Pre-and post-operative fetal monitoring was done and tocolysis was given to her after procedure. Patient withstood the procedure well. Post procedure serial renal function and input/output monitoring done. There was a significant improvement in renal function as serum creatinine dropped from (day 1) 1.7 mg/dL, >(day 2) 1.4 mg/dL, >(day 3) 1.3 mg/dL in subsequent days. Mild post procedure pain was managed by adequate analgesia and was relieved within 12 hours. Her repeat urine microscopy and urine culture sensitivity tests were repeated and found to be within normal limits. Patient was discharged 4 days after the procedure and was called for routine follow-up in ANC, nephrology and urosurgery OPD.

At 34.3 weeks of gestation, patient came in pre-term spontaneous labour emergency with complains of pain abdomen with uterine contraction for 4 hours. On examination, patient was conscious, oriented, vitally stable with uterus 34 weeks size per abdominally, breech floating, fetal heart sound regular at 136 bpm and activity of 3/10/20. On per vaginal examination, cervical OS was 3 cm dilated and 40% effaced, mid-post, breech presentation, station-3, show present with no leak. Patient was taken up for emergency lower segment caesarean section (LSCS) after proper counselling and taking informed consents. Patient delivered a male baby of 2.2 kg. Post-delivery injection anti-D IM given. Her creatinine on admission came 1.9 mg/dL. Serial creatinine monitoring done with strict input output charting, post-operative there was rising trend of creatinine up-to 2.5 mg/dL for which nephrology reference was taken and USG KUB with CT KUB done showing decreased size of hydronephrosis. On day 11 of LSCS, DJ stent removal was done by urosurgeons under local anesthesia. On day 12 of LSCS, complete suture removal done and her serum creatinine level came down to 2.2 mg/dL.

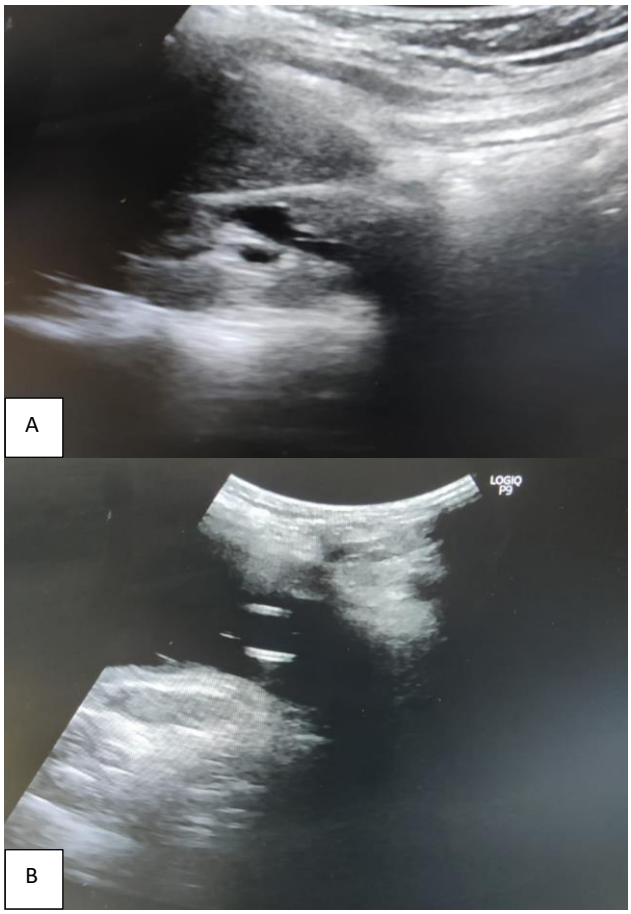

Figure 2 (A and B): Post procedure (DJ stenting) appearance of right kidney showing proximal end of DJ stent and distal end of DJ stent in urinary bladder.

After 2 weeks, her serum creatinine was repeated which had decreased to 1.5 mg/dL. Ultrasound KUB done which showed only minimal hydronephrosis, showing the improvement in hydronephrosis after the effect of progesterone was removed along with the compression by fetus (Figure 3).

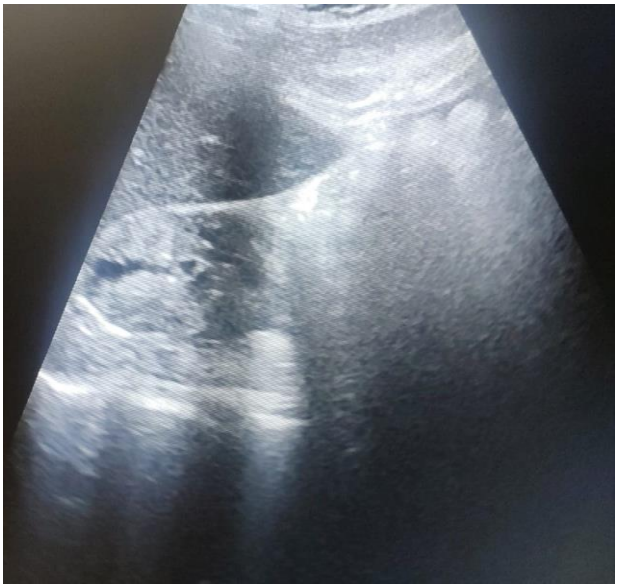

Figure 3: Appearance of right kidney post DJ stent removal; significant improvement of hydronephrosis seen.

DISCUSSION

The physiological dilatation of urinary tract in pregnancy, may become symptomatic resulting in renal colic and if left untreated, patient may develop severe renal infection and urinary sepsis endangering life of both mother and child. The progression from asymptomatic bacteriuria to symptomatic infection can be rapid in pregnancy complicated with hydroureteronephrosis.[2]

The kidney increases in size by 1-1.5 cm during pregnancy and volume increases by 30% which is due to renal vascular and interstitial volume. The renal pelvicalyceal system is dilated due to smooth muscle relaxing effect of progesterone also by mechanical compression of ureters by enlarged gravid uterus. All these changes can be visualized in a mid-second trimester ultrasound and the changes resolve by 4-6 weeks post-partum. The dilated collecting system contains increased amount of urine (200-300 ml) which result in urinary stasis and increased risk of developing pyelonephritis. Management of gestational hydroureteronephrosis depends upon presence of co-existence of renal pathologies such as alkaline intrinsic renal disease, pyelonephritis. Several urological problems such as hydronephrosis, urolithiasis, pyelonephritis can result in symptoms such as flank pain, fever, retention of urine, hematuria, dysuria.[3]

CONCLUSION

Hydronephrosis and hydroureter can complicate any low-risk pregnancy with resultant chances of urinary infection and further complications. Early decision for decompression using DJ stenting is a safe and effective way to treat such cases. DJ stenting is minimally invasive and economical choice in pregnancy but requires experienced urologist team.

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