

DOUBLE-J URETERIC STENTING IN PREGNANCY

NICOLAE GRIGORE¹, VALENTIN PÎRVUȚ², IONELA MIHAI³, ADRIAN HAȘEGAN⁴

^{1,2,3,4}“Lucian Blaga” University of Sibiu

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Abstract: Objective. The objective of the study was to evaluate the internal ureteral drainage with a double J stent in treating symptomatic obstructive uropathy (lithiasic or physiologic) during pregnancy. Material and Methods. Between 2011-2017 we retrospective analysed 40 pregnant women who were admitted with renal colic, flank pain, urinary symptoms and inconstant fever. Renal ultrasound revealed hydronephrosis with clinical and paraclinical signs of acute pyelonephritis in 19 (47.5%) patients. The age of pregnancy was between 20 – 30 weeks. All the cases were monitored by white blood cell count, serum creatinine levels, urinalysis, and urine culture. All ureteric stents were inserted successfully under local, spinal or general anesthesia. Antibiotic therapy was associated. Results. A total of 32/40 (80%) patients had a clinical improvement immediately or soon after intervention. All patients had complete resolution of the hydronephrosis on follow-up renal ultrasound and regression of hydronephrosis and urinary symptoms after ureteral stenting. Minor complications were reported as (stent irritation, stent encrustation, and stent migration). The post-natal evaluation confirmed that 18/40 (57%) patients had urinary calculus disease 22/40 (55%) patients with physiologic hydronephrosis during pregnancy. All pregnancies progressed uneventfully and 25/40 (62.5%) women had normal vaginal deliveries. The ureteric stent was removed 2 weeks after delivery and endoscopic removal of ureteral stone. Follow up renal ultrasound was normal. Conclusions. Ureteral stenting is a very efficient therapeutic option in treating pregnant women with renal colic and hydronephrosis. Ureteric double J stenting during pregnancy can be safe, with good symptom relief and has a low complication rate.

INTRODUCTION

As a result of the physiological changes, in pregnancy some degree of hydronephrosis which is called physiologic hydronephrosis may appear. Usually, this is asymptomatic and is more marked on the right side than on left side. Dilatation of urinary tract is frequently expected in pregnant women with an oversized uterus in case of twin pregnancy or polyhydramnion. This condition is likely caused by compression of the ureters by the gravid uterus and dilated ovarian veins, as well as by hormonal mechanism.(1,2) Ureteral calculi in pregnant women is another cause of hydronephrosis with severe flank pain which require hospital admission. The incidence of a urinary calculus disease in pregnant women is similar to that in nonpregnant women of the same age.(3,4)

Managing hydronephrosis during pregnancy can be challenging because of standard radiographic investigations and surgical treatments, used in nonpregnant women, cannot be applied easily to pregnant women due to concerns about ionising radiation and the potential harm to the fetus.(5,6)

In this study we analysed the safety and effectiveness of ureteric stenting with a double J stent in pregnant women to relieve renal obstruction in therapy-resistant flank pain.

PURPOSE

The objective of the study was to evaluate the internal ureteral drainage with a double J stent in treating symptomatic obstructive uropathy (lithiasic or physiologic) during pregnancy.

MATERIAL AND METHODS

Between 2012 and 2016, our study included total of 40 pregnant women, 19/40 (47.5%) of them were admitted with febrile renal colic signs, 12/40 (30%) patients with flank pain

and 9/40 (22.5%) were asymptomatic. Renal ultrasound revealed 34/40 patients with right uretero-hydronephrosis, 10/34 of them with concomitant renal lithiasis on right side, and 8/40 patients with left ureteral stones. All cases of physiologic hydronephrosis (22/40 patients – 55%) were on right site.

The mean age of the patients was 25 years. Gestational age was between 20 and 30 weeks. Thirty one patients were primipara. All this cases were monitored by white blood cell count, serum creatinine levels, urinalysis, urine culture and renal ultrasound. A total of 19/40 (47.5%) patients had hydronephrosis with clinical and paraclinical signs of acute pyelonephritis.

Urinary tract symptoms were: loin right pain – 21 women, pyuria – 28 women, frequency – 14 women. In 15 cases the hydronephrosis was found incidentally at the routinely ultrasound examination (table no. 1).

Table no. 1. Distribution of urinary tract symptoms

Symptoms	Number	Percent
Flank pain	21/40	52.5%
Pyuria	28/40	70%
Frequency	14/40	35%

Hydronephrosis was graded by the severity in: mild hydronephrosis, grade 1 in 12 patients, and moderate hydronephrosis, grade 2 in 24 patients. There were 4 cases with severe hydronephrosis – grade 3 (table no. 2).

Table no. 2. Distribution of hydronephrosis

Hydronephrosis	Number	PERCENT
Mild – Grade 1	12/40	30%
Moderate – Grade 2	24/40	60%
Severe – Grade 3	4/40	10%

⁴Corresponding author: Adrian Hașegan, Str. Lucian Blaga, Nr. 2A, Sibiu, România, E-mail: office@urologiesibiu.ro, Phone: +40745 381064
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CLINICAL ASPECTS

In all these cases a double J ureteral stent 6 Ch, 26 cm. was inserted endoscopically retrograde under spinal anaesthesia. The procedure was conducted using a 20 Ch (Charrier) rigid cystoscope (figures no. 1,2). Antibiotic therapy was associated.

Figure no. 1. Double J stent 6 Ch, 26 cm between the loops

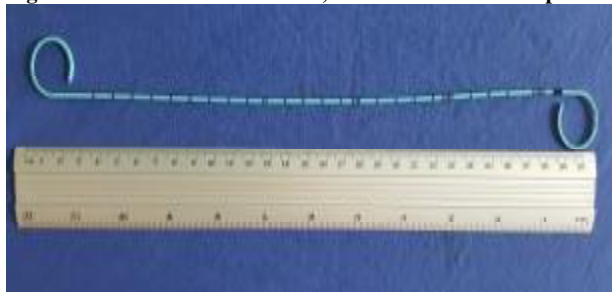


Figure no. 2. Echographic aspect of the kidney during intraoperative double-J stent positioning



RESULTS

Indication for ureteral stenting was mild, moderate and severe cases of hydronephrosis with or without flank pain. Our experience shows that all the patients responded very well to ureteral stenting. Renal sonography revealed regression of hydronephrosis and urinary symptoms after ureteral stenting.

Minor complications were reported as (stent irritation, stent lithiasic encrustation and stent migration).

Some patients complained only of occasional discomfort and moderate pain in the suprapubic area because of the stent.

The postnatal evaluation confirmed that 18 (45%) patients had urinary calculus disease and 22 (55%) patients had physiologic hydronephrosis during pregnancy.

All pregnancies progressed uneventfully and all 25/40 women had normal vaginal deliveries.

The ureteral stent was removed 2 weeks after delivery and 18/40 (45%) of them had ureteroscopy for extraction of the ureteral stone. In all these cases the pregnant women must be monitored clinically and ultrasonographically.

The treatment was symptomatic and only if there were signs of urinary infection, antimicrobial therapy was administered.

DISCUSSIONS

As renal colic in pregnant patients can be complicated by severe upper-tract infection and premature labour (7), unrecognised pyonephrosis is potentially life-threatening for

both the mother and foetus. Given that most patients will recover with analgesia, antibiotics and hydration, the initial treatment should be conservative. However, some authors advocate early intervention after the analgesia has been shown to be ineffective.(8) Drainage with double J stent of the obstructed ureter is indicated in patients who have symptoms refractory to conservative measures, ongoing pyelonephritis despite antibiotics (>48 h) and the worsening of any of renal function, pain, obstruction of ureters.(9,10)

In pregnant women, after the uterus rises completely out of the pelvis, it rests upon the ureters, compressing them at the pelvic brim. In some studies the authors found that ureteral dilatation is greater on the right side in 86% of pregnant women.(11) We found right physiological hydronephrosis in all pregnant women. The unequal degrees of dilatation may result from greater compression of the right ureter as the consequence of dextrorotation of the uterus.(12) Other authors emphasised that the right ovarian vein complex, which is remarkably dilated during pregnancy, lies obliquely over the right ureter and may contribute significantly to right ureteral dilatation.(13) Another possible mechanism causing hydronephrosis and hydroureter is hormonal, presumably an effect of progesterone.(14)

Nevertheless physiologic hydronephrosis in pregnancy can become symptomatic. However, dilatation may be responsible for the bacteriuria that can progress to symptomatic infection during pregnancy. If left untreated, it can result in severe renal infection and urinary sepsis, which is dangerous for the mother and the baby.(15) Hydronephrosis manifested by urinary symptoms is considered pathologic and must be treated with care. In medical literature it is considered that ureteral stenting is a good method for treating symptomatic hydronephrosis in pregnancy.(16)

CONCLUSIONS

Pain and urinary infection are the most important signs in symptomatic hydronephrosis during pregnancy.

Double-J-ureteral stenting is an effective, simple and safe method in treating symptomatic hydronephrosis, lithiasic or physiologic, during pregnancy with low complication rate.

Ultrasonography is very useful for the follow-up of these patients.

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