

# Acute Kidney Injury due to Bilateral Urolithiasis in a Pregnancy Management/Dilemma

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## ABSTRACT

Renal calculi may affect the pregnant population because of various physiological changes that occurs during pregnancy which promote the development of urolithiasis in a pregnancy. Because of potential risk to both mother and fetus, urolithiasis in pregnancy can represent a clinical dilemma and management is challenging.

Because of risk of radiation, management of such a patient requires a multidisciplinary approach by urologist, radiologist, obstetrician and nephrologist. Here we are reporting a rare case of 20 weeks ANC with acute kidney injury due to bilateral urolithiasis which was treated with MTP followed by PCNL.

**Keywords** – Bilateral Urolithiasis, Pregnancy, ANC, MTP, PCNL.

## INTRODUCTION

Diagnosis of urinary stone diseases in ANC is a unique challenge for management. About 10-15% population is affected by urolithiasis this is indicating high prevalence of urolithiasis in general population. Urinary stone diseases in ANC having incidence of 0.03-0.06% which is same as that of a non-pregnant women of reproductive age group. <sup>(1)</sup>

Pregnant patient with urolithiasis shows frequent symptoms in second and third trimester. The incidence is increasing because of regular use of imaging modalities and life style changes and environmental factors. <sup>(2,3)</sup> Ureteric stones is most commonly occurs in the second and third trimesters of ANC and more common in multiparous women. Early diagnosis and timely treatment can prevent maternal and fetal morbidity and mortality.

## CASE PRESENTATION

A 20 years old female patient with primi-gravida with 20 weeks of gestation

came to our hospital with anuria since 2 days, pain in abdomen since 4-5 days, intermittent fever since 4-5 days associated with nausea.

On clinical examination patients vitals were stable with pallor present.

Abdominal examination:- Lower abdomen was distended with palpable uterus of approx 20 weeks. B/L lumbar tenderness was present. Rests of abdominal findings were within normal limits.

Other System examinations were also normal.

Outside USG abdomen with obstetric USG was s/o

1. Left gross hydronephrosis with 50\*30mm left PUJ calculus with multiple middle and lower calyceal calculi with cortical thickness of 10mm.
2. Right gross hydronephrosis with 26\*15mm right PUJ calculus with cortical thickness 9mm.
3. Single live intra-uterine pregnancy with normal parameters (20weeks).

Laboratory reports Hb- 7.6gm/dl, TLC – 9,300/mm<sup>3</sup>, Platelet count – 3, 65,000/mm<sup>3</sup>, BUN-60mg/dl, Sr. creatinine- 3.7mg/dl.

Urine examination – plenty of pus cells were present.

B/L Double J stenting was attempted but was not successful due to B/L obstructing PUJ calculi.

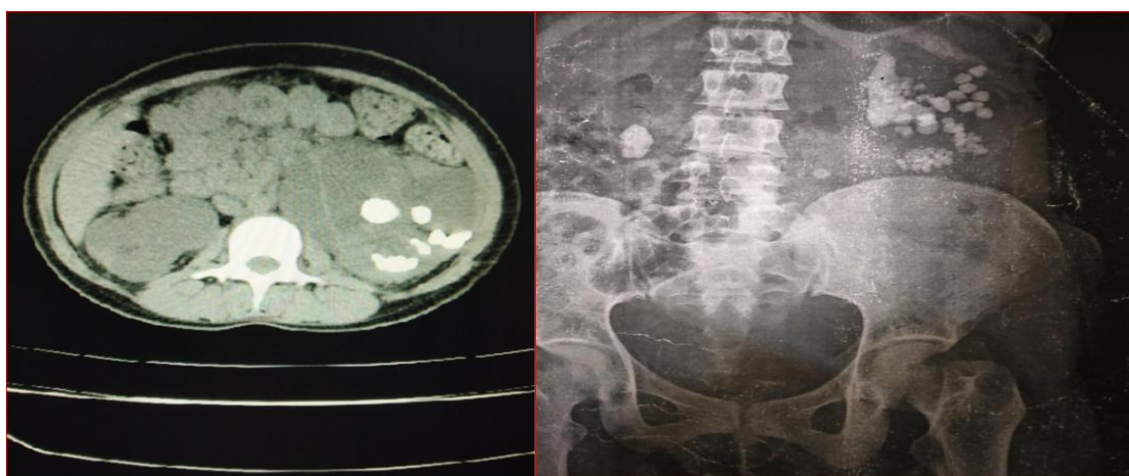
Patient and relatives were counseled regarding risk and benefits of continuing pregnancy during treatment and decision was taken to go ahead with MTP in view of AKI with B/L obstructive urolithiasis with pyonephrosis and anemia.

MTP was done under obstetrics care and was uneventful.

After MTP, NCCT abdomen and pelvis was done for exact localization of calculi, which was suggestive of B/L hydronephrosis (left > right) with B/L PUJ calculus with multiple left renal calculi.

Correction of anemia done with packed cell transfusion.

In first stage Right sided PCNL plus DJ stenting and Left nephrostomy was done which was uneventful followed by second stage of Left PCNL with DJ stenting 7 days after 1st setting.



## DISCUSSION

There are various physiological, anatomical and biochemical changes that occur during pregnancy which leads to marked changes in renal function. One of the most important causes of formation of renal calculi in a pregnancy is physiological increase in maternal urinary calcium excretion and pH. <sup>(6,7)</sup> Calcium supplementation during pregnancy should not be restricted as it is not related to renal calculi formation in pregnancy. There are multiple risk factors for calculi formation in ANC which includes age, less water intake, diet, obesity etc.. Asymptomatic pregnant patient with urolithiasis may not need treatment but symptomatic stones needs more promote and aggressive treatment to avoid maternal and fetal health problems like pyonephrosis, acute kidney injury (AKI), <sup>(4,5)</sup> Almost about 70-80% of stones

pass spontaneously during pregnancy because of dilated urinary tract. Very rarely pregnancy needs to be terminated to save maternal renal function. Incidence of AKI in developing countries is high with mortality more than 50%. In India incidence ranges from 4-15 percent. <sup>(8)</sup> AKI in pregnancy can be pre-renal, renal, post-renal. There are various effects of AKI on pregnancy which includes risk of infection, PROM, acid base and electrolyte imbalance. Urolithiasis in pregnancy may causes preterm labour which having significant risk to foetus. Early diagnosis and treatments are having better prognosis. <sup>(9)</sup> To start with primary treatment must be in the form of conservative approach which requires close observation. Some of the ureteric calculi in mid trimester of pregnancy are with more symptoms which need urological intervention. <sup>(10)</sup>

It is good to start appropriate antibiotics according to urine culture. The treatment of choice of urolithiasis in a pregnancy is a placement of Double J stent and definitive treatment after pregnancy. Percutaneous nephrostomy can be used in pregnant women. To avoid blockage DJ stent must be changed every 4-6 weeks. Definitive treatment in the form of PCNL is contraindicated during pregnancy because of radiation exposure but after pregnancy PCNL is possible. If symptoms are persistent, then these patients may require MTP followed by definitive treatment and regular follow up. <sup>(11)</sup>

## CONCLUSION

Renal calculi are a very common problem in India and can also affect the pregnant females also. Treatment of a diagnosed case of nephrolithiasis in pregnancy requires multi-disciplinary approach. Urolithiasis in pregnancy needs timely promote treatment with good follow up. Patient having past history of renal calculi should undergo screening and treatment before ANC.

In our case MTP followed by definitive treatment in the form of PCNL was done to save maternal renal function and life.

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