

Anesthetic Management of a Pregnant Mother with Acute Renal Calculi Posted for Ursl with DJS

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Abstract: Pregnancy complicated by acute renal calculi poses a unique challenge for anaesthesiologists and urologists alike. This abstract highlights the essential considerations and challenges encountered in managing anesthesia for a pregnant woman scheduled for ureterorenoscopy lithotripsy (URSL) with double-J stent (DJS) placement. The abstract discusses the physiological changes during pregnancy, emphasizing the impact on renal function and anaesthetic management. It also addresses the risks associated with anesthesia and surgery in pregnancy, including foetal considerations. The role of preoperative evaluation, choice of anesthesia technique, intraoperative monitoring, and postoperative care are outlined to ensure optimal maternal and foetal outcomes. Moreover, strategies for pain management, prevention of perioperative complications, and coordination between the obstetric, urologic, and anesthesia teams are emphasized. This abstract aims to provide insights into the comprehensive approach required for the successful anaesthetic management of pregnant women with acute renal calculi undergoing URSL with DJS placement

1. Introduction

Urolithiasis in pregnancy is a major health concern and is one of the most common causes for non-obstetrical abdominal pain and subsequent hospital admission during pregnancy. The incidence of urinary calculi during pregnancy varies in the range of 1/200 to 1/2000. Acute ureteric colic in pregnancy is associated with significant potential risks to both mother and fetus.

Risks to the fetus from ionising radiation and interventional procedures need to be balanced with optimising clinical care for the mother. Management of such patients requires a clear understanding of available options, with a multidisciplinary team approach. Significant anatomic and functional changes occur in pregnancy which not only lead to stone formation but also create diagnostic dilemma. The diagnosis of ureteric calculi can be incorrect in about 28% of pregnant patients.

Case Report:

A 63 kg, 23-year-old woman, primi, at 29 weeks POG presented with complaints of colicky aching pain that radiates to lower abdomen or labial region, hematuria fever. Patient has no known co morbidities and no similar complaints in the past Due to risks associated with general anaesthesia a decision was made to proceed with a low dose spinal anaesthesia.

Patient was shifted inside the OR, routine monitors connected, 1 18G venflon and 1 20G venflon was secured and pre loaded with IVF to prevent post SAB hypotension. Fetal monitoring was done under the supervision of obstetrician. Basal heart rate was 90 bpm, blood pressure was 120/80 mmHg and SpO₂ of 98% at room air.

The Subarachnoid block was given using 25G spinal needle at L3-L4 space, and 1.8ml 0.5% hyperbaric bupivacaine was used under aseptic precautions. Adequate sensory and motor blockade was achieved. URSL done with B/L DJ stenting done successfully. The procedure lasted a total of 45 mins associated with very minimal blood loss. Intraoperatively patient's vital parameters and hemodynamic status were stable. Patient was shifted to Post Anesthesia Care Unit and continued monitoring. In the post-operative period, evaluation of patient revealed full recovery of motor blockade with power of 5/5 in both lower limbs after 2 hours.

Adequate analgesia was given with Inj. paracetamol 1gm IV. No sensory deficits were noted in the post-operative period.

2. Discussion

The incidence of urinary calculi during pregnancy varies in the range of 1/200 to 1/2000, which is not different from the incidence reported in the non gravid women. Majority of women present in the second or third trimester of their pregnancy, and as compared to primiparous women, multiparous are more frequently affected. Stone formation during pregnancy is predisposed by urinary tract dilatation due to ureteric obstruction by gravid uterus, smooth muscle relaxant effect of progesterone and infection. Physiological hydronephrosis can occur in up to 90% on the right side and 67% on the left side in pregnancy. These normal anatomic changes during pregnancy not only lead to stasis and stone formation but also create diagnostic dilemma.

In pregnancy, stones are mostly composed of calcium phosphate and more commonly located in ureter rather than renal pelvis. This is due to the migration of renal stones into the ureter which is favoured by physiological dilatation of the collecting system. Management of ureteric stone during pregnancy is crucial because of the potential risks to the mother and foetus. The main threats are preterm labour with delivery (which can occur in up to 40% of women) and premature rupture of membranes. Other pregnancy complications are obstructive uropathy, hypertension, higher incidence of caesarean section, gestational diabetes mellitus, recurrent abortions and pre-eclampsia. These all potential complications make accurate diagnosis of ureteric stone imperative. Because there is limitation in the use of X-rays, intravenous urography and computed tomography in pregnancy due to the teratogenicity, the diagnosis can be difficult.

Ultrasonography (USG) is mostly used as the preferred diagnostic test in pregnant women with suspected ureteric colic due to its lack of ionizing radiation, low cost and availability. Although the specificity of USG is high, it has low sensitivity. Management of ureteric stone in pregnancy, it is mainly treated by conservative mode initially with medical expulsive therapy (MET) which is successful in about 70–80% of patients. In patients with failed initial conservative treatment, double J (DJ) stent insertion or percutaneous nephrostomy (PCN) tube placement can be considered. For symptomatic ureteric stones during pregnancy, definitive management is required. With continued advancements in endo-urolological techniques, ureteroscopy is frequently considered the first-line definitive treatment of obstructive ureteral calculi during pregnancy. PCNL is not recommended in pregnancy due to need of general anesthesia, prone position and fluoroscopic radiation hazards.

3. Conclusion

Diagnosis is the most important step in managing renal calculi in pregnancy because of the very limited diagnostic tools which can be done during pregnancy. USG is the first choice investigation to diagnose renal calculi inspite its low sensitivity because of its nil teratogenicity risk. Preloading and adequate fluid replacement during operative period is very important to maintain MAP and circulation in mother and thus preventing fetal hypoxia. Management of renal calculi in pregnancy requires a team effort consisting of Radiologists, obstetricians, urologists and Anesthesiologists in proper diagnosis and treatment.

4. References

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