



www.figo.org

Contents lists available at SciVerse ScienceDirect

International Journal of Gynecology and Obstetrics

journal homepage: www.elsevier.com/locate/ijgo



CLINICAL ARTICLE

Diagnosis and operative intervention for problematic ureteral calculi during pregnancy



Song Yan, Fei Xiang, Song Yongsheng*

Urology Division, Sheng Jing Hospital, China Medical University, Shenyang, China

ARTICLE INFO

Article history:

Received 12 September 2012

Received in revised form 3 December 2012

Accepted 24 January 2013

Keywords:

Percutaneous nephrostomy

Pregnancy

Ureteral calculus

Ureteral stent

Ureterscopy

ABSTRACT

Objective: To review the management of problematic ureteral calculi in pregnancy and to compare efficacy among 3 treatments: ureteroscopic lithotripsy, ureteral stent insertion, and percutaneous nephrostomy. **Methods:** In a retrospective study at Sheng Jing Hospital, Shenyang, China, data were analyzed from 54 consecutive pregnant patients who required medical intervention for urolithiasis between April 2001 and July 2012. The patients were divided into 3 groups based on whether they had ureteroscopic lithotripsy (group 1, n = 21), nephrostomy (group 2, n = 16), or ureteral stent insertion (group 3, n = 17). Statistical significance was evaluated by Student *t* test and χ^2 test. **Results:** In group 1, 18 of 21 patients had complete calculi fragmentation. In group 2, nephrostomy was carried out successfully for all 16 patients. The insertion of a ureteral stent was possible for 12 of 17 patients in group 3. The ureteroscopic lithotripsy procedure took longer than the other 2 procedures ($P < 0.005$). Patients in the stent insertion group had the highest rate of complications (52.9%) and lowest rate of success (70.6%). **Conclusion:** Ureteroscopic lithotripsy was found to be an effective intervention during pregnancy. However, the choice of treatment depends on the individual situation.

© 2013 International Federation of Gynecology and Obstetrics. Published by Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Urolithiasis in pregnancy is rare, with a reported incidence of 0.026% to 0.53% [1]. It is an indication for admission to hospital because of the risk of premature labor [2]. Most pregnant women present with urolithiasis at a late gestational age [3].

Owing to the restricted use of radiology imaging and the low specificity of ultrasound during pregnancy, diagnosis of urolithiasis represents a challenge. Conservative measures result in clinical resolution for 70%–80% of affected women [4]. Despite the report of successful cases [5], extracorporeal shockwave lithotripsy (ESWL) is contraindicated during pregnancy because it may lead to teratogeny, placenta detachment, and pulmonary parenchyma damage [6]. When patients present with persistent pain, solitary kidney obstruction, or sepsis, invasive interventions might be necessary such as insertion of an internal ureteral stent (IUS) [7] or placement of a percutaneous nephrostomy (PCN) tube [8]; however, neither option results in definitive stone management. Recently, ureteroscopy has been reported as a new treatment option for ureteral stones in pregnancy [9]. Nevertheless, in some cases, the choice of management represents a challenge to both the urologist and the obstetrician.

The aim of the present study was to document retrospectively more than 10 years of experience of ureteroscopic lithotripsy during

pregnancy, and to compare the outcomes of pregnant women treated by this procedure with those of pregnant women treated by PCN and IUS therapy.

2. Materials and methods

In a retrospective study, data were reviewed from pregnant women who were treated for urolithiasis at the Department of Urology, Sheng Jing Hospital, Shenyang, China, between January 1, 2001, and July 1, 2012. The retrospective chart review of patients was approved by the institutional review board. All of the patients had given informed consent before the medical intervention.

For diagnosis of urolithiasis, serum creatinine level, urinalysis, and an ultrasound or MRI scan were performed for all patients. When the stone could not be located, computed tomography or intravenous pyelography was used to confirm the diagnosis after delivery. Radiology imaging was not performed preoperatively for any patient. Fetal condition was evaluated by obstetric examination.

On hospital admission, the women underwent conservative management consisting of analgesia, hydration, and antibiotic administration for at least 24 hours. Invasive procedures such as ureteroscopic lithotripsy, PCN, and IUS placement were carried out only for patients with persistent pain, fever, positive urine culture, suspected uncontrolled infection, and evidence of ongoing obstruction. Uterine contractions and fetal heart rate were monitored during the procedure by an obstetrician.

* Corresponding author at: Urology Division, Sheng Jing Hospital, China Medical University, Shenyang, China, 110004. Tel.: +86 24 13898147168; fax: +86 24 23942118. E-mail address: 13898147168@163.com (Y. Song).

Ureteroscopic lithotripsy using a Wolf ureteroscope (Knittlingen, Germany) and a LithoClastMaster (EMS, Nyon, Switzerland) was performed for 21 patients under epidural anesthesia in the dorsal lithotomy position with the right side elevated to minimize vena cava compression. The indications for ureteroscopy were failure of conservative management; increase in renal dilation; presence of a distal ureteral stone in patients who were clinically stable; patient unwillingness to undergo the procedure after delivery; and patient refusal to undergo nephrostomy or double-J stent insertion (Fig. 1). After the procedure, residue pieces of less than 4 mm were considered to represent complete fragmentation. The decision to leave in the ureteral stent after intervention depended on the presence of mucosa edema at the impaction site. The ureteral stent was kept in place for 5 days after ureteroscopic manipulation. If the calculi were not removed, stents were also inserted and kept in place for the duration of the pregnancy with regular replacement. Major complications (e.g., ureter perforation, severe hemorrhage, urinary infection, and anesthesia complications) were evaluated intra-operatively.

For 16 patients, PCN tube placement was required. The indications for PCN were the presence of a proximal ureteral stone in patients who did not respond to conservative treatment at an early gestational age (especially the first trimester); an obstructed solitary kidney; pyrexia or increased white blood cell count; signs of threatened labor; failure of placement of a double-J stent or poor toleration of urinary symptoms caused by stent placement; a stone size greater than 2 cm; and patient refusal to undertake ureteroscopic lithotripsy (Fig. 1). Catheter insertions were conducted in the prone-oblique position in an interventional radiology suite with ultrasound guidance under local anesthesia.

Retrograde IUS placement was attempted for 17 patients whose symptoms were not relieved by conservative measures. Patients were placed in the lithotomy position and lidocaine gel was used as a local anesthetic and lubricant. All stents were placed via a flexible cystoscope (ECY-1530; Pentax, Tokyo, Japan). The indications for IUS placement were ureteral calculi that did not respond to conservative measures; clinically unstable patient condition (i.e., pyrexia); near-term pregnancy; and patient refusal to undergo PCN (Fig. 1). Until delivery, all patients with stents underwent regular ultrasonography examinations

and stent replacement at intervals of 3–4 weeks to prevent encrustation. If IUS insertion failed, the patient's treatment was changed to PCN tube placement.

The present study was a comparative study of existing clinical data for patients with no change in clinical management. Data on the perioperative complications, postoperative hospital stay, surgery time, pregnancy outcome, and newborn status were extracted from the medical records for all patients. In addition, the procedural success rate and procedural costs were evaluated among the 3 types of treatment.

Differences among the 3 groups were analyzed by Student *t* test and χ^2 test via SPSS version 13.0 for Windows (IBM, Armonk, NY, USA). A *P* value of less than 0.05 was considered to be statistically significant.

3. Results

During the study period, 54 pregnant women underwent treatment for urolithiasis. The patients were divided into 3 groups according to the treatment procedure. There were no demographic differences among the 3 groups (Table 1).

Renal ultrasonography was used as the primary diagnostic tool for all 54 patients; however, calculi were confirmed for only 23 patients (Table 2). Magnetic resonance imaging (MRI) was performed for 38 patients (31 women with negative findings on ultrasonography and 7 women with a confirmed ureteral stone on ultrasonography) who required further evaluation of the cause of obstruction. MRI located the calculus for 25 patients. Twelve women were diagnosed by computed tomography or intravenous pyelography after delivery. Before delivery, these 12 patients were treated by either PCN or IUS to relieve the symptoms.

Pneumatic lithotripsy was conducted, and confirmed the diagnosis of urolithiasis, for 21 women. Palliation of pain was noted by all women after the intervention. Of the 21 patients, successful fragmentation was reported for 18, and 6 of 7 patients with a stone size greater than 1.5 cm (1.6–2.2 cm) had complete stone removal without serious complications. Six of the 18 patients underwent double-J stent insertion because of local edema; the stents were kept in for 5 days without recurrence of pain. There were no major complications among women

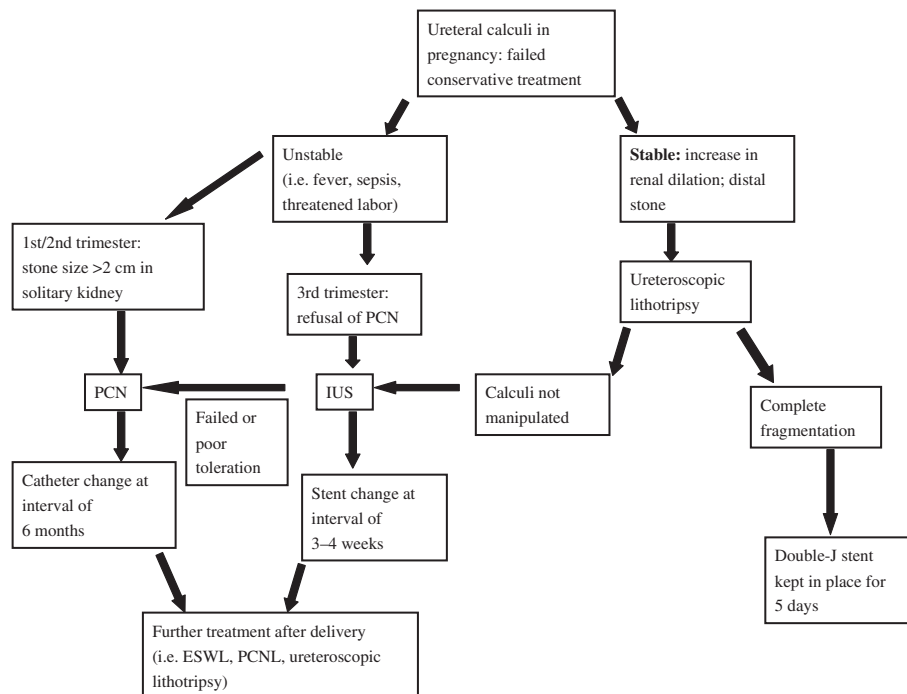


Fig. 1. Algorithm for treatment of ureteral calculi during pregnancy. Abbreviations: ESWL, extracorporeal shockwave lithotripsy; IUS, internal ureteral stent; PCN, percutaneous nephrostomy; PCNL, percutaneous nephrolithotomy.

Download English Version:

<https://daneshyari.com/en/article/6186280>

Download Persian Version:

<https://daneshyari.com/article/6186280>

[Daneshyari.com](https://daneshyari.com)