Ureteral Calculi During Pregnancy : Review of the Management at Ramathibodi Hospital

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Abstract

Objective : To review our experiences with diagnosis and management of symptomatic ureteral calculi complicating pregnancy.

Material and Method : Medical records of all pregnant patients documented with symptomatic ureteral calculi treated at the Division of Urology, Department of Surgery, Faculty of Medicine, Ramathibodi Hospital from 1990 to 2000 were reviewed. Presenting symptoms, diagnostic studies and management of ureteral stone were evaluated.

Results : Twenty patients were found in this study with the mean age of 27.5 years (18-36). The mean gestational age at presentation was 18.5 weeks (12-33). Severe flank pain was the common presenting symptom (100%), 60 per cent were on the right side and 40 per cent were on the left side, 20 per cent had associated fever and 20 per cent had irritative voiding symptoms. All of the cases had micro or macroscopic hematuria. Ultrasonography was the initial test confirming the diagnosis and visualized stones were obtained in 60 per cent of the cases. Plain KUB film was done in 6 cases and stones could be seen in 5 cases (83%). Limited IVP was done in 3 cases and the diagnosis could be done in all of them (100%). Spontaneous passing of stones was noted in 14 cases (70%) and double J stents were placed in 6 cases. Ureterolithotomy was done in 2 cases and percutaneous nephrostomy with subsequent definite stone treatment in the post partum period was done in 2 cases. No abortion and no congenital anomalies of the infant were noted. Four cases had premature labor but there was no correlation with the procedures performed for treating the ureteral stone.

Conclusion : This study provides evidence for effectiveness of diagnosis and treatment of ureteral stone during pregnancy. The appropriate management may be helpful to reduce morbidity of urinary calculi during pregnancy.

Key word : Urolithiasis, Ureteral Stone, Pregnancy

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Urilithiasis in pregnancy seems to be rare, but has significant pathology[1]. The incidence and predisposing factors of urinary calculi are generally the same in both pregnant and non-pregnant women, but anatomic changes during pregnancy make diagnosis and treatment a more challenging issue[2]. Furthermore, urolithiasis must be considered as a cause of premature birth and very severe complications of pregnancy[3]. Herein, the authors report their experience with the management of ureteral calculi in pregnancy.

MATERIAL AND METHOD

All pregnant patients with documented symptomatic ureteral calculi treated at the Division of Urology, Department of Surgery, Ramathibodi Hospital between 1990 and 2000 were reviewed. The presenting symptoms, mode of investigations, technique of management, hospital course, outcome and complication were noted.

RESULTS

Twenty patients were found during that period with the mean age of 27.5 years (range 18-36). Eight patients were primigravida. The gestation at presentation ranged from 12 to 33 weeks (mean 18.5 weeks). All of the patients had severe flank pain, 12 cases (60%) were on the right side and 8 cases (40%) were on the left side, 4 cases were associated with fever and 4 cases had irritative voiding symptoms. Macroscopic or microscopic hematuria was found in all of the cases. Three patients had a history of passing stone. In all patients, diagnosis of obstructing stone was confirmed by renal ultrasonography or a plain KUB film. Before invasive treatment, a limited intravenous pyelography (IVP) was done in 3 cases due to no visualized stone in both ultrasonography and plain KUB. Calculi were visualized in 12 of 20 (60%) renal ultrasonographic examinations and 5 of 6 (83%) plain KUB studies when these were performed as the initial test. In contrast, urolithiasis was discovered in 3 of 3 (100%) instances in which intravenous pyelography was performed. Spontaneous passing of the stone was noted in 14 cases (70%) without sequelae. Of the 14 cases of spontaneous passing stone, double J ureteral stents were placed in 6 cases. Ureterolitotomy was carried out in 2 cases due to infected hydronephrosis. Both of them were in the 3rd trimester of pregnancy. Two cases were treated by percutaneous nephrostomy with ultrasonography guide and under local anesthesia. Subsequent ureterorenoscopy with lithotripsy was done in both cases in the post partum period. Ureterorenoscopy with stone manipulation was done in 2 cases both of which were in the 2nd trimester of pregnancy. No abortion and no congenital anomalies of the infants were noted in all of the cases. Premature labor was noted in 4 cases but no correlation

with the procedures performed for stone treatment during pregnancy.

DISCUSSION

Urinary calculi are considered relatively infrequent complications of pregnancy[1]. The reported incidence averages approximately 1/1,500 deliveries[4]. The incidence and predisposing factors of urinary calculi are generally the same in both pregnant and non-pregnant women[2]. Urinary stones especially ureteral stones can jeopardize the pregnancy by causing significant fever or pain, and stones have also been reported as causing initiation of premature labor[5]. Dilatation of the collecting system is a classical phenomenon during pregnancy, due to hormonal and extrinsic compression factors[6]. Therefore, the diagnosis and management of urinary calculi during pregnancy is a challenging entity. Ultrasonography is recommended to use as the initial test to confirm the diagnosis due to no radiation exposure to the fetus[7]. Hendricks et al in 1991 reported that the ultrasound alone could confirm the diagnosis of urinary stones in 47 per cent of their patients[8] while Butler et al reported 60 per cent visualized calculi by ultrasonography examination [9]. In this series, the authors also report 60 per cent visualized stones by ultrasonography examination. Stothers and Lee reported that ultrasound had a 34 per cent sensitivity rate and an 86 per cent specificity rate for detection of an abnormality in the presence of a stone in symptomatic patients[10]. However, the use of Doppler ultrasound has been reported as increasing the accuracy in diagnosing ureteral stones. Doppler ultrasound has been applied to assess the mean intrarenal resistive index as a means of differentiating upper tract dilatation from functional obstruction[11]. In symptomatic patients in whom ultrasound was not diagnostic, a limited intravenous pyelography (IVP) is recommended. It can be done by only two exposures, one scout film and followed by a thirty to sixty-minute postinjection film. Radiation exposure to the fetus is only 0.4 to 1.0 rad in each limited IVP study, therefore, no harmful to the fetus will be concerned[12]. Butler et al reported that stones were discovered in 93 per cent of the cases[9] but in the present study the stones were found in 100 per cent by limited IVP study. In 50 to 80 per cent of the cases conservative management is appropriate and the stone will pass spontaneously[13]. Should intervention be required, recent advances in stone management and techniques for urinary tract drainage may be successfully applied. Double J-ureteral stenting is an effective, simple and safe method in treating obstructed stones during the first and second trimester of pregnancy [14]. Due to enlargement of the uterus in the third trimester, double J- ureteral stent may hardly ever be performed. Good position of placement of stent can be confirmed by ultrasonography[14]. The authors reported 70 per cent of spontaneous passing of stones in the present series and 42 per cent of this group needed double J ureteral stent placement. If placement of double J stent is unsuccessful, percutaneous nephrostomy is another option for urinary drainage and subsequent definite stone treatment in the post partum period will gain a high success rate with low morbidity[15]. Due to a higher incidence of complications for women undergoing non-obstetric operations while pregnant, women operated on during pregnancy had more very low and low-birthweight infants than did the normal population, therefore, percutaneous nephrostomy is generally accepted as the initial management of obstructed stones in the first and second trimester of pregnancy[16]. Surgical treatment is seldom indicated in third trimester of pregnancy. Pregnancy remains a contraindication to Extracorporeal Shock Wave Lithotripsy (ESWL) because of the potential adverse effects of ionizing radiation and potential for disruptive effects of shock wave energy on fetal tissues[17]. It has been suggested that renal calculi are more likely to become symptomatic during pregnancy, since they are potentially more easily dislodged because of the physiological hydronephrosis associated with pregnancy. It seems reasonable to suggest that prophylactic ESWL treatment of asymptomatic caliceal stones in women of childbearing age who are planing pregnancies[15].

SUMMARY

The management of acute urinary obstruction due to urolithiasis in pregnant women remains a therapeutic challenge. With the appropriate diagnosis and treatment of the patients presenting with urinary calculi during pregnancy, the patients should be able to carry to term and deliver a viable fetus.

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ผลการรักษานิ่วในหลอดไตที่พบระหว่างการตั้งครรภ์ : ประสบการณ์ ณ โรงพยาบาลรามาธิบดี

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วัตถุประสงค์ : เพื่อศึกษาถึงผลของการวินิจฉัยและให้การรักษาผู้ป่วยหญิงที่มีนิ่วในหลอดไตระหว่างการตั้งครรภ์

วิธีการ : ศึกษาเวชระเบียนย้อนหลังตั้งแต่ปี พ.ศ. 2533 ถึง พ.ศ. 2543 โดยศึกษาถึงอาการ อาการแสดง วิธีการวินิจฉัย วิธีการรักษาและผลของการรักษา

ผลการศึกษา : มีผู้ป่วยทั้งสิ้น 20 ราย อายุเฉลี่ย 27.5 ปี (18-36) อายุครรภ์เฉลี่ย 18.5 สัปดาห์ (12-33) ทุกรายมีอาการปวดเอวอย่างรุนแรง ผู้ป่วยมีอาการด้านขวา 12 ราย (ร้อยละ 60) ด้านซ้าย 8 ราย (ร้อยละ 40) ผู้ป่วย 4 ราย (ร้อยละ 20) มีไข้ อีก 4 ราย (ร้อยละ 20) มีอาการปัสสาวะขัดและผู้ป่วยทุกรายมีปัสสาวะเป็นเลือดทั้งที่สามารถสังเกตได้ด้วยตาเปล่าและที่ต้องอาศัยการตรวจทางห้องปฏิบัติการ ผู้ป่วยได้รับการวินิจฉัยยืนยันการพบนิ่วจากอัลตร้าซาวนด์ จำนวน 12 ราย (ร้อยละ 60) และส่งตรวจ plain KUB6 ราย พบนิ่ว 5 ราย (ร้อยละ 83) ส่งตรวจ limited IVP จำนวน 3 รายซึ่งสามารถพบตำแหน่งอุดตันของนิ่วทั้ง 3 ราย (ร้อยละ 100)

ผู้ป่วยจำนวน 14 ราย (ร้อยละ 70) ประสบความสำเร็จด้วยการรักษาแบบประคับประคองและนิ่วหลุดออกมาเอง ผู้ป่วยจำนวน 6 รายในกลุ่มนี้ต้องใส่สายสวนหลอดไต (double J stent) ผู้ป่วย 2 รายที่ต้องอาศัยการผ่าตัดรักษานิ่วเพราะมีอาการอักเสบของไตและเป็นการตั้งครรภ์ในไตรมาสที่ 3 อีก 2 รายต้องใส่สายระบายปัสสาวะจากไต (percutaneous nephrostomy) เอาไว้เป็นการชั่วคราวและนัดมารักษานิ่วหลังคลอด ไม่ปรากฏการแท้งบุตรเลย มีเพียง 2 รายที่คลอดบุตรก่อนกำหนดและอยู่ในกลุ่มที่นิ่วหลุดเอง

สรุป : การดูแลผู้ป่วยที่มีนิ่วระหว่างการตั้งครรภ์หากให้การวินิจฉัยได้เร็วและเลือกวิธีการรักษาที่ถูกต้องจะมีผลการรักษาที่ดี อาการแทรกซ้อนน้อย

คำสำคัญ : นิ่วในทางเดินปัสสาวะ, นิ่วในหลอดไต, การตั้งครรภ์

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