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Ureterorenoscope in Chulalongkorn Hospital.

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Kongkanand A, Bunyaratavej P, Laornual S, Vajarapong R. Ureterorenoscope in Chulalongkorn Hospital. Chula Med J 1990 Dec; 34(12): 939-943

This report on Ureterorenoscopy with stone removal is the first in Thailand. We treated 92 patients with the total success rate of 89.1 percent and complication rate of 8.7 percent. The technique is described in detail. URS with stone removal is effective and economical in treating the lower ureteric stone.

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อภิชาติ กงกะนันท์, พิชัย บุญยะรัตเวช, สัมฤทธิ์ ลออนวน, เรืองชัย วัชรพงศ์. การใช้กล้องส่องท่อไต เพื่อรักษานิวไทรโทไตในโรงพยาบาลจุฬาลงกรณ์. จุฬาลงกรณ์เวชสาร 2533 ธันวาคม ; 34(12) : 939-943

ได้มีการใช้กล้องส่องท่อไตเป็นครั้งแรกของประเทศไทยที่โรงพยาบาลจุฬาลงกรณ์ รายงานนี้เป็นรายงานผล การรักษาเบื้องต้นจำนวนผู้ป่วย 92 ราย ที่รักษาด้วยการคิบนิว โดยอาศัยกล้องส่องท่อไตพบว่า สามารถคิบนิวได้สำเร็จ ร้อยละ 89.1 โดยมีปัญหาแทรกซ้อนร้อยละ 8.7 ไม่มีผู้ป่วยเสียชีวิตในรายงานนี้ การคิบนิวโดยอาศัยกล้องส่องท่อไต เป็นวิธีที่มีประสิทธิภาพและประหยัด และหลีกเลี่ยงการผ่าตัดโดยไม่จำเป็นได้ วิธีนี้เหมาะสำหรับการรักษานิวไทรโทไตส่วนล่าง

Ureterorenoscopy (URS) and stone removal is an established method for the treatment of ureteric calculi.⁽¹⁻³⁾ We could avoid unnecessary operations with this procedure. The cost of URS is less than that of open surgery or extracorporeal shock wave lithotripsy (ESWL). Ureterorenoscopy may also be used as a diagnostic procedure to determine the causes of filling defect in the ureter and renal pelvis.⁽⁴⁻⁵⁾ We described our recent experiences of 92 cases with ureteric stones treated by endoscopic removal at Chulalongkorn Hospital from March 1987 to October 1989.

Subject and Method

The patients who were diagnosed as having ureteric calculi and admitted in the hospital during the study period, would be informed about ureterorenoscopic stone removal. All of the patients with lower ureteric stones who accepted the procedure were included in this study. Only five patients with upper ureteric stones were selected to join this study because this procedure was being introduced to Thailand. The data were collected retrospectively from the medical records and URS report sheets. All cases were performed under spinal anesthesia, and fluoroscopy was available. We used fluoroscopy routinely only at the beginning of the study. Patients were placed in a lithotomy position and cystoscopy was performed with a 23.5 F sheath cystoscope. The ureteric orifice was dilated with successively increasing size metal dilators to 16 F at just above intramural ureter. The URS were performed by 4 senior staffs. After the ureteric orifice was dilated, the cystoscope was removed. A 12.5 F ureteroscope was then passed into the bladder and into the ureteric orifice under direct vision. A catheter was placed in the bladder to prevent bladder overdistension. The scope was passed up to the stone. There might be some difficulties when the scope passed the intramural ureter and the pelvic brim. The stones could be removed under vision with grasping forceps or a stone basket. If the stone was too large, we used ultrasonic sonotrode to

break the stone. The stone powder was normally sucked out and the larger fragments were removed with forceps or basket. If the stone could not be removed, we tried to pass a ureteric catheter beyond the stone and left it in place. A second URS will be performed a few day after the first.

After the successful removal, we usually left a ureteric catheter in place for a few days as a stent. The patients were usually discharged a few days after the procedure.

Results

Ninty-two patients, with 92 stones, were 51 males and 41 females. The stones were located at the upper ureter in 5 and lower ureter in 87 patients (Table 1). Stone removals were successful in 2 out of 5 cases with upper ureteric stones and 70 out of 87 cases with lower ureteric stones. The success rate of the first attempt was 78.3 per cent. The second attempts were performed a few day later and were successful in 10 cases. The overall success rate was 89.1 per cent in our study (Table 2). The stones were on the right in 38 and on the left in 34. The size of the stones varied from 3 mm. to 10 mm. with an average of 6.6 mm. There were 20 cases in which stones could not be removed at the first attempt. The causes of failure were the inability to pass the scope to reach the stones in 12 cases, inability to dilate the ureteric orifice in 5 cases and failure due to complications during the procedure in 3 cases. The operative complications were one case with trapped dilator and 2 cases with perforations of the ureters.

Postoperative complications were detected in 5 cases. There were bleeding in 4 and sepsis in 1 cases. The bleeding stopped spontaneously in 3 cases and the other was operated on to remove the stone and stop bleeding. The patient with severe sepsis was a case of melioidosis of the kidney and responded well to medical treatment. There was no mortality in our study.

Table 1. Basic data of the patients.

Characteristics	Patients (n = 92)
Age (years)	
X ± SD	43.6 ± 17.1
Sex ratio	
Male : Female	1.2 : 1
Location of ureteric stones (%)	
Upper ureter	5.4
Lower third ureter	94.6

Table 2. Result of the URS and stone removals.

Results	Patients (n = 92)
Success rate. (%)	
First attempt	78.3
Total success rate	89.1
Size of stones (m.m)	
Range	3-10
$X \pm SD$	6.6 \pm
Hospital stay (days)	
$X \pm SD$	3.5 \pm

Table 3. Causes of failures and complications.

Results	No. (n = 92)	
Failure in the first attempt	20	20.4
	no.	%
Unable to reach stones	12	60.0
Unable to dilate ureter	5	25.0
Intral operative complication	3	15.0
Total	20	100.0
Causes of complications	no.	cases
Intra operative complications	3	
Trapped dilator	1	
Perforation of ureter	2	
Postoperative complication	5	
Bleeding	4	
Sepsis	1	

Discussion

The results of our study are comparable to other reports.^(6,7) Our success rate was 78 per cent in the first attempt and 89 per cent for total success rate. Huffman reported 83 per cent success rate with lower ureteric stones.⁽⁸⁾ Failure were mainly due to inability to reach the stone. We could not retrieve the stones in 10 patients and they were operated on to remove the stones. It was difficult to reach or retrieve the stones in cases with impacted stones, with long standing history and with upper ureteric stones. Trapped dilator which occurred in one case in our series could have been avoided if we had used fluoroscopy. Two cases with perforation of the ureter

occurred at the beginning of the study and were corrected by open surgery. Minor avulsion of the ureter was detected and required stent placement. The complication rate in our study was 8.7% and it was comparable to other studies.⁽⁹⁻¹²⁾ We concluded that URS and stone removal is a safe and effective procedure for the patients with lower ureteric stones.

The other choice for the treatment of ureteric stone is ESWL. There are limitations in treating the lower ureteric stones with some types of Lithotripter. URS and ESWL can be used as adjunctive methods to each other. However, the comparison between these two methods should be evaluated in a further study.

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