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# MINIMAL ACCESS SURGERY IN UROLOGY

Progress in most fields of Urology has been marked by an increasing use of minimal access surgery. The advantage of minimal access technique are legion and do not need repetition. Increasing public awareness and easier access to information through literature and the internet have made most of the patients aware of their options has fueled the demand for laparoscopy. It is routine to get patients who will question your advice of open surgery and reasons for not offering minimal invasive or key hole surgery.

This knowledge is healthy and improves the patient-doctor communication. However it has also led to a situation where open surgery is considered “infra-dig” and a surgeon may be considered incompetent if he does not offer laparoscopy to his patients. Consequently, surgeon may be tempted to attempt something that they actually are not confident doing or should not be doing<sup>1</sup>.

Laparoscopic urology has a steep learning curve with significant potential for complications. Even today in Bangladesh it is a subspeciality of urology and these surgeries are being performed by dedicated urologic surgeons. Hopefully young urologists day by day proving their dexterity.

Laparoscopy can be used to perform several different urological operations, such as Radical prostatectomy, Nephrectomy, Cystectomy, Pyeloplasty, Ureterolithotomy and so on.

Laparoscopic Pyeloplasty is one of several minimally invasive treatment options for pelviureteric junction obstruction first described in 1993 by Schuessler et al. Laparoscopic pyeloplasty (LP) maintained the decreased morbidity associated with endoscopic approaches while showing comparable success rates to the Conventional open approach<sup>2,3</sup>. However, the technically challenging nature of LP had limited this procedure to selected dedicated advanced laparoscopic surgeons.

When the question comes about laparoscopic uro-oncology, the bar becomes even higher because of the need to ensure not only a safe surgery but also one that has oncological and functional results comparable to open surgery. Lest we may do more harm to our patients than benefit, Laparoscopic urologic surgery should be

performed only by surgeons adept at the open version of the procedure with appropriate expertise<sup>1</sup>.

The difficulties with intracorporeal suturing and knot tying made laparoscopic prostatectomy and pyeloplasty less attractive until the advent of the surgical robot. The da Vinci robot offers enhanced 3-D vision with micro-wrist enabled remotely controlled instrumentation that make complex intracorporeal procedures much easier to accomplish<sup>4</sup>. World wide experience with the robots has been most exciting in establishing new safety and precision standards in laparoscopic surgery. The *advent* of robotics has further expanded the breadth of the reconstructive procedure and most difficult to approach surgeries while preserving the benefits of less bleeding, less handling of tissue decreased pain in the post operative period, shorter hospitalization, rapid convalescence and an improved cosmetic result<sup>5</sup>. We hope our generous government might grant us enough budget to purchase the da Vinci robot very soon.

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### Prof. S M Mahbub Alam

Professor and Head

Dept. of Urology, Dhaka Medical College, Dhaka

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# PRESERVATION OF APICAL TISSUE DURING TRANSURETHRAL RESECTION OF PROSTATE IS EFFECTIVE IN PREVENTING RETROGRADE EJACULATION

MK ISLAM<sup>1</sup>, MSA CHOWDHURY<sup>2</sup>, MA HOSSAIN<sup>1</sup>, MJ KABIR<sup>1</sup>, AKMZI BHUIYAN<sup>3</sup>, AKMK ALAM<sup>4</sup>, MA SALAM<sup>5</sup>, MA WAHAB<sup>6</sup>

### Abstract:

*Transurethral resection of Prostate is still considered as gold standard operative procedure for enlarged obstructive prostate but retrograde ejaculation is a quite common complication (37-63%) that occurs after standard TURP<sup>2,11</sup>. So modification of technique is under trial for preventing such complication. In this study we preserve apical tissue (1cm proximal to verumontanum) in modified TURP group. Thirty patients underwent modified TURP and other comparable thirty patients underwent standard complete resection. Patients were evaluated 6-8 weeks after operation for detecting development of any retrograde ejaculation (dry coitus and plenty of spermatozoa in post-coital or post-masturbation mid-stream urine). In this study we found 3 patients of modified resection group (10%) and 13 patient of standard complete TURP group (43.3%) develop retrograde ejaculation. Therefore incidence of retrograde ejaculation is significantly lower in modified TURP group (where apical tissue was preserved) than standard complete TURP group (p-value <0.01).*

### Introduction:

Benign prostatic hyperplasia is the commonest cause of bladder outlet obstruction and despite many recent innovations; transurethral resection of the prostate remains the gold standard. Of about 15-20% of men aged 50yrs have been estimated to undergo prostate operation for BPH<sup>(5)</sup>. Transurethral resection of the prostate (TURP) is common procedure, however this operation is still under active debate when sexual and ejaculatory functions are considered. Reported incidence of reduced or absent ejaculation after operation varies from 37-63% in different series<sup>2,11</sup>. It became a practice to inform men undergoing prostatectomy about these possible complications before operation. Loss of antegrade ejaculation after TURP or retropubic

adenectomy has always been attributed to removal of the bladder neck. The internal urethral sphincter (smooth sphincter of bladder neck) was considered an indispensable element of the compression chamber, delineated inferiorly by the external sphincter of the urethra (striated sphincter), in which the seminal fluid accumulates as it reaches the prostatic urethra and resides before being expelled during ejaculation. Thus retrograde ejaculation was considered a physiological consequence of the removal of the smooth sphincter of the bladder neck. A modification of TURP technique where the resection is restricted within 1cm of the verumontanum is under study, which is expected to preserve antegrade ejaculation<sup>1,8</sup>. Recent findings about the physiological mechanisms of ejaculation, arising from dynamic TRUS studies have led to a marked change in the concept of the three phases of ejaculation, i.e. emission, accumulation and expulsion. Indeed the accumulation phase was no longer detected in the prostatic urethra, which on the contrary, was seen to be obliterated by the contraction in toto of the prostate in the emission phase. The emission phase is coordinate and occurs simultaneously with expulsion. These new findings appear to indicate that to maintain normal ejaculation, sufficient supramontanal prostatic tissue is necessary, the contraction of which together with that of the prostatic capsule allows seminal fluid entering the inframontanal area and prevent to reach the bladder during the emission phase. The objective of the recent study was to evaluate this new hypothesis that preservation of apical tissue during resection of the prostate might prevent retrograde ejaculation.

### Patients and Methods:

This was a prospective clinical research having an analytic & developmental quality. This study was conducted at Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital and Dhaka Medical

College Hospital and in some other private centers. The criteria for patient selection were, sexually active man of age 50-65 yrs, with moderate sized prostate (less than 40gm on ultra sound), having operative indications for removing the prostate. Patients with a known neurogenic bladder, cancer prostate, previous prostate surgery, those with major medical problem of diabetes, difficulty in ejaculation or history of treatment of impotence and indwelling catheters were excluded from the study. A total of 60 men with outflow obstruction due to benign prostatic hypertrophy were randomized prospectively into two groups, 30 underwent conventional complete resection of prostate and the other 30 underwent modified resection preserving 1cm of apical tissue just proximal to verumontanum. The median age of these men were 58 years (range 45 to 64) in conventional group and 55 years (range 46 to 62) in modified group. All patients had symptoms for more than 3 months. Voiding symptoms were graded according to American Urological Association symptom score. Patients underwent a complete blood count, urea and creatinine estimation, urine analysis and culture, ultrasound scanning with particular attention to the size of the prostate, maximum cystometric capacity, post void residue, plain X-ray KUB, uroflowmetry, prostatic specific antigen (PSA) determination and urethroscopy. The patients were randomized to receive either complete TURP or modified TURP under spinal or epidural anesthesia. In conventional resection the prostatic tissue was resected completely and circumferentially up to the anatomic capsule from the bladder neck to the verumontanum. In modified group, resection is restricted in the apical area i.e. about 1cm of the prostatic tissue proximal to veru was not resected and it is shown in Fig-1. Irrigation and other post-operative management were done as usual. Follow-up studies were performed on all patients at 6-8 weeks postoperatively. These studies included patient's subjective evaluation of the outcome, detailed symptom score, sexual history including history of dry coitus. Objective evaluation done with uroflowmetry, ultrasound study with post-void residue estimation and post-coital or post-masturbation midstream urine sample for sperm identification. The significance of difference in different parameters before and after the procedure were calculated by Paired t-test, and the significance of differences between groups were assessed by Chei

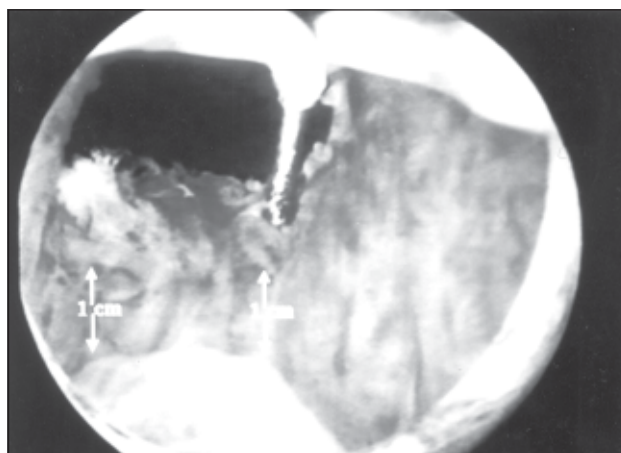
squred test and a P-value of <0.05 was considered statistically significant.

**Results & Observation**

The preoperative parameters of both groups are compared in Table-I. It was found that there was no significant difference in pre-operative parameters between the complete TURP and modified TURP group. Unpaired t-test shows p value is >0.10 which means very insignificant difference between the groups when the preoperative parameters are considered. Therefore it can be concluded that randomization generates very well matched study and control groups.

**Table-I**  
*Preoperative parameters of the conventional TURP and modified TURP groups*

Pre-operative parameters	Conventional TURP (n=30)	Modified TURP (n=30)
Total symptom score	19	18
Obstructive symptom score	13	12
Irritative symptom score	6	6
Qmax (ml/sec)	7.5	7
Qave (ml/sec)	2.86	3
PVR (ml)	121	123
P-value	> 0.10 (NS)	



**Fig.-1:** *Transurethral incision of the prostate and bladder neck takes a halt about 1cm proximal to verumontanum*



**Table-II**

*Post-operative voiding parameters of the conventional TURP and modified TURP groups*

Post-operative parameters	Conventional TURP (n=30)	Modified TURP (n=30)
Total symptom score	3	3
Obstructive symptom score	1	1
Irritative symptom score	2	2
Qmax (ml/sec)	18.8	18.1
Qave (ml/sec)	11.9	10.96
PVR (ml)	24	25
P-value	> 0.10 (NS)	

Both of the procedures appear to be effective in reducing total symptom score, obstructive symptoms as well as irritative symptoms. Total symptom score in both groups were reduced significantly after surgery. The obstructive symptom score decreased from a mean of 13 to a postoperative value of 1 in c-TURP cohort. On the other hand in m-TURP group obstructive symptom score changed from mean value of 12 to a mean value of 1 after operation. In both the cases the change of obstructive symptoms is highly significant (p value <0.001). In conventional TURP obstructive symptom score is reduced by 92.3% and in modified technique reduction is 91.6%. Regarding the irritative symptom score in both the groups is 66.6%. The non-invasive urodynamic parameters (Qave) and PVR measured by ultrasound scan before and after transurethral (conventional and modified) procedures are also significantly improved. When we compare the post-operative voiding parameters between the conventional and modified TURP group, it is found that there is no significant difference between the groups. Which indicates that modified TURP is effective as conventional TURP to improve the voiding symptoms or in other words there was no statistically significant difference between the groups when the efficacy of reducing the symptoms are considered.

As a postoperative routine, we encouraged all the patients to have sexual intercourse within 3 to 6 weeks postoperatively. Retrograde ejaculation was evaluated by history of dry coitus and by examination of post-coital or post-masturbation midstream urine specimen. Of 60 treated patients all were potent and have antegrade ejaculation before operation. In modified TURP group 3 patient developed retrograde ejaculation of them two

patients developed total retrograde ejaculation (i.e. complete dry coitus and plenty of spermatozoa in post-coital or post-masturbation midstream urine) one have antero-retrograde ejaculation as evident by reduced volume of ejaculate and presence of spermatozoa in postcoital urine specimen. All these patients had normal erection and orgasm. Of the complete resection cohort 13 patients (43.3%) developed retrograde-ejaculation. One patients of the complete resection group developed dry coitus but no spermatozoa recovered from the bladder. He was asked for TRUS and it was detected to have distended seminal vesicle and diagnosed as a case of ejaculatory duct obstruction, which was treated endoscopically. Table-III gives the numerical values of the incidence of retrograde ejaculation in conventional and modified resection groups.  $\chi^2$  test was performed on the incidence of retrograde ejaculation and it was found that there was significant difference between the groups (p value <0.01) when occurrence of retrograde ejaculation is considered. Therefore in this study we found that incidence of retrograde ejaculation is less in modified resection group which is statistically significant.

**Table-III**

*Incidence of retrograde ejaculation in conventional TURP and modified TURP groups*

Ejaculation	Conventional TURP (n=30)	Modified TURP (n=30)
Normal	17	27
Retrograde	13(43.3%)	3(10%)
P-value ( $\chi^2$ test)	<0.01 (Significant)	

### Discussion

The preliminary results reported herein confirmed that the efficacy of modified resection of prostate in relieving the symptoms are similar to that of the conventional method in case of small to moderate sized prostate. In addition to improve obstructive symptoms modified resection significantly reduces the chance of occurring retrograde ejaculation.

It is satisfying that randomization generate exactly comparable study and control groups. Unpaired t-test was performed on pre-operative parameters of study and control group and it is found that there was no statistically significant difference between the groups. The symptom scores were reduced significantly after complete TURP as well as modified TURP. Both

techniques appear to be effective in reducing obstructive as well as irritative symptoms. Group analysis of symptom score leaves an impression of improvement for all patients after surgery. For both procedures, a typical reduction in obstructive scores is more than 90% range, whereas a typical reduction in irritative score is between 60-70%. This indicates that both conventional and modified method of TURP are slightly more efficient in reducing obstructive symptoms than irritative symptoms, which is in accordance with general belief. There was a comparable improvement in non-invasive urodynamic parameters following modified and complete resection. There was no difference between the control and test group regarding flow rate improvement at 6-8 week follow-up. The average flow rate improved from 3 ml/sec to 10.96 ml/sec (mean value) after conventional complete resection (follow up at 6-8 weeks post-op). The maximum flow rate increased from 7 ml/sec to 18.8 ml/sec (mean value). Christensen MG et al. (1985) who reported comparable increase in uroflow parameters with peak flow rate of 17.3 ml/sec and 23 ml/sec respectively after minimal procedure on obstructing prostate<sup>4,3</sup>. In this series the mean PVR has reduced from 121 ml to a mean value of 24 ml in conventional group and in modified group it has reduced to 25 ml from the preoperative mean value to 123 ml. We compare post-operative parameters between the groups and found that both the groups are equally effective in improving subjective and objective voiding parameters. Patients in this series were followed up for short period (6 to 8 weeks) postoperatively; therefore recurrence of obstructive symptom was not evaluated in either procedure. But the results of Edwards et al (1985) and Orandi (1987) suggests that the problem of recurrent obstruction after minimal procedure in obstructing small prostate is more a theoretical possibility than a practical reality<sup>5, 9</sup>. On the basis of these results we are encouraged to advocate modified resection preserving apical region i.e. 1 cm proximal to verumontanum as a modified technique for the relief of obstruction as well as preservation of antegrade ejaculation. On the other hand Aagaard et al in long term follow up of 10 years found that complete resection was better than modified resection in terms of re-operation on the prostate. However, the risk of developing urethral stricture seems to be more after conventional TURP<sup>1</sup>.

In this study we evaluated the sexual capability both subjectively and objectively. Only sexually active patients were taken into the study. Fourteen patients out of thirty complete resection group (46.6%) complained of no

ejaculation during coitus after operation. Thirteen (43.3%) of them were confirmed to have retrograde ejaculation by retrieving plenty of spermatozoa in post coital voided urine and the other one diagnosed as ejaculatory duct obstruction. On the other hand only 3 out of thirty modified resection group (10%) developed retrograde ejaculation. there was no loss of potency or sensation of orgasm in any case under study. the difference in occurrence of retrograde ejaculation post-operatively between study and control group is statistically significant (p value<0.01%) i.e. the rate of developing postoperative retrograde ejaculation was significant lower in modified resection group. Therefore modified resection technique is effective in lowering the incidence of retrograde ejaculation, this was observed not only in our study but also in that of others<sup>9,10</sup>. Christensen MM, John Aagaard and Madsen PO (1990) reported that retrograde ejaculation is 55 percent after TURP and 5-15 percent after minimal procedures on prostate such as TUIP<sup>3</sup>. Seminal Plasma is composed of secretions from the seminal vesicle (60%), prostate (30%) and bulbourethral gland (10%). These secretions are produced immediately after expulsion of the spermatozoa from the differential ampoules. If an ejaculate sample is fractionated, the first fraction is rich in spermatozoa; the second is prostatic fluid and the last seminal vesical fluid. Thus the sperm is not added to the prostatic urethra before being expelled, but later. The sensation of imminent ejaculation is not caused by the distension of the urethra between the sphincters but probably to stimulation of the sensitive nerves of the prostate. Indeed, the later, together with antegrade ejaculation, is present even after surgery of the bladder neck. Further evidence opposing the compression chamber theory emerged from studies using TRUS during ejaculation, which showed the direct expulsion of seminal fluid when the striated sphincter opened, with no accumulation phase but with the contraction in toto of the prostate and the smooth muscle of the seminal muscles<sup>11</sup>. Thus, it is the co-ordination between the sympathetic system (innervating the bladder neck, prostatic urethra and seminal pathways) and the somatic system (innervating the striated sphincter and perineal muscles), which produces normal ejaculation. Thus the preservation of antegrade ejaculation in the absence of neurological disorders is possible if a portion of the supramontanal prostatic tissue is preserved, the contraction of which, together with that of the prostate capsule, obstructs the return of seminal fluid to the bladder<sup>9</sup>.

However, the residual borders of the prostate must be regular for the correct pre-ejaculatory overlap to occlude, in the upper area, the supramontanal sinus. If there is no overlap some seminal fluid may reach the bladder even during antegrade ejaculation. Clearly only part of the prostatic tissue is removed with the present technique. Whereas in the control group around 90% of the tissue was removed. This produced only a slight advantage in flowmetry values and the AUA symptom score. The treated patients were satisfied with their outcome and improvement in quality of life, which was more evident than in the control group, showing that preservation of antegrade ejaculation influences the acceptance of the voiding symptoms. Patients who are well informed about the surgical technique and the tissue sparing approach happily accept the slight voiding symptoms that remain, compensated by the maintenance of normal sexuality. The possibility of later repeat surgery should be explained to the patient.

The success of the present surgical technique may be related not only to the persistence of external seminal fluid, which preserves the awareness of ejaculation, but also to the reduced risk of local neurological damage. In the distal prostatic urethra the cavernosal nerves are very close to the prostatic capsule at the apex of the prostate and thus any trauma at this level e.g. with extended resection, may damage the neural and vascular system, with consequent arterial and venous thrombosis<sup>9</sup>. The preserved awareness of imminent ejaculation is probably related to the incomplete resection, which reduces to a minimum damage to the sensitive intervention of the prostate.

Reports of preserved antegrade ejaculation after TURP may be explained by incomplete resection, where sufficient prostatic tissue was spared and able to act as a barrier to the semen, which would otherwise return to the bladder. Candidates for the present procedure should have a small to moderate sized prostate, so that removal of only part of the prostate does not compromise the relief of obstruction. Preservation of antegrade ejaculation represents significant success, confirming the report of Hermabessiere J, Taillandier J, 1993 and Ronzoni G, DeVecchis M, 1998<sup>6,9</sup>. Therefore it is evident that the internal sphincter is not essential for preserving antegrade ejaculation. So with positive effects on sexuality and the quality of life, the present technique may be a valid approach for obstructed patients with a small to medium sized prostate who wish to preserve antegrade ejaculation.

### Conclusion:

In conclusion, our preliminary results as presented herein, suggest that in small to medium sized prostates, modified TURP is equivalent to conventional TURP in terms of efficacy and is superior to conventional resection in terms of adverse effects, when retrograde ejaculation is considered. Thus modified resection of prostate where apical prostatic tissue is preserved may be recommended as an alternative to conventional complete TURP in small to medium sized prostates particularly in relatively young patients who are interested to preserve the antegrade ejaculation.

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**Authors**

1. Assistant Professor, Department of Urology, National Institute of Kidney Diseases and Urology (NIKDU), Dhaka.
2. Medical Officer, Department of Urology, National Institute of Kidney Diseases and Urology (NIKDU), Dhaka.
3. Associate Professor, Department of Urology, National Institute of Kidney Diseases and Urology (NIKDU), Dhaka.
4. Associate Professor, Department of Urology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Shahbag, Dhaka
5. Professor, Department of Urology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Shahbag, Dhaka
6. Professor and Chairman, Dept. of Urology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Shahbag, Dhaka

# LAPAROSCOPIC PYELOPLASTY – OUR EXPERIENCE AT NIKDU

MW ISLAM<sup>1</sup>, AKMZI BHUIYAN<sup>2</sup>, MSA CHOWDHURY<sup>1</sup>, MS ALAM<sup>1</sup>, SN NAG<sup>1</sup>

## **Abstract**

**Introduction:** Ureteropelvic Junction Obstruction, though relatively uncommon, presents a challenge to the treating urologist. Especially with a menu of treatment options available, the need to choose the appropriate treatment option for each patient is critical.

Historically, the treatment of choice has been open pyeloplasty, but in the mid-1980s the idea of endoscopic management of UPJO was introduced.

With the advent of laparoscopy, another option for managing UPJO is now available. Initially, though, laparoscopy was introduced for ablative procedures, such as nephrectomy, nephroureterectomy etc., but centers with experience in laparoscopy quickly adapted this for reconstructive procedures, such as pyeloplasty.

**Method:** Retrospective study. Total 127 patients underwent pyeloplasty. Among these 112 were done by conventional open procedure and the rest by laparoscopic procedure.

Age range from 1 month to 52 years.

Follow-up period: 3 to 22 months.

**Result:** 19 patients primary operation was not successful and required redo-pyeloplasty. 8 patients developed wound infections. 16 patients developed urinary leakage and was managed conservatively.

**Conclusion:** Good surgical technique is required for good outcome, decrease morbidity and increase quality of life.

## **Introduction:**

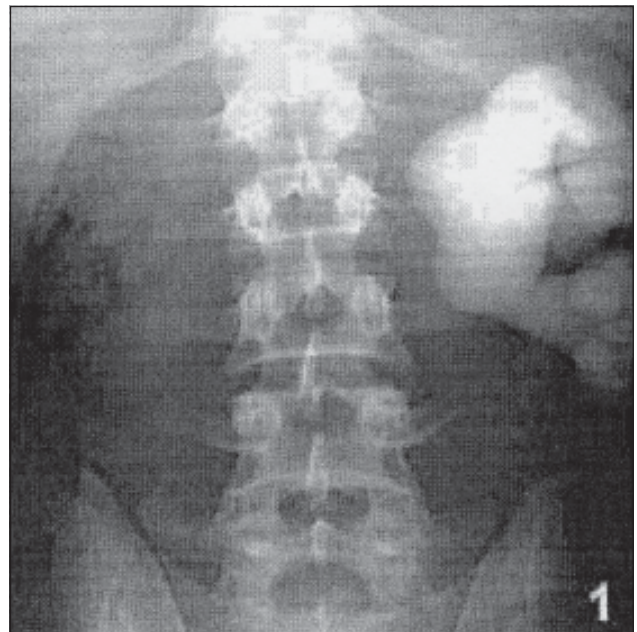
Ureteropelvic Junction Obstruction, though relatively uncommon, presents a challenge to the treating urologist. Especially with a menu of treatment options available, the need to choose the appropriate treatment option for each patient is critical.

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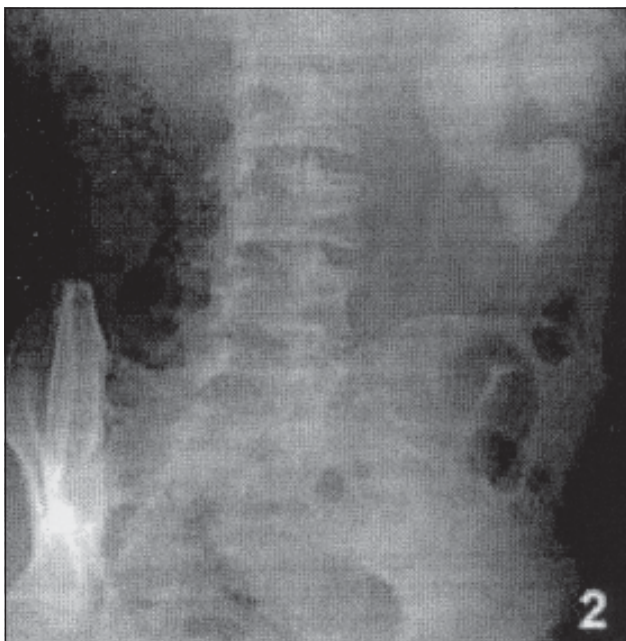
antegrade percutaneous endopyelotomy was described and is still being used at several centers. This was especially useful when there was UPJO in conjunction with calculi in the kidney. With advancements in endoscopic instrumentation, the ureteroscopic endopyelotomy is available as a treatment option. Several reports have attested to the ability to perform this successfully in patients with UPJO. Then along came the Acucise™ for a non-endoscopic approach using imaging technology. This cutting electrode catheter is placed in the UPJ and incised using electrocautery.

With the advent of laparoscopy, another option for managing UPJO is now available. Initially, though, laparoscopy was introduced for ablative procedures, such as nephrectomy, nephroureterectomy, donor nephrectomy etc., but centers with experience in laparoscopy quickly adopted this for reconstructive procedures, such as pyeloplasty.

We at NIKDU have embraced this technology since 1991 and have also introduced reconstructive laparoscopy as a treatment option in our armamentarium.



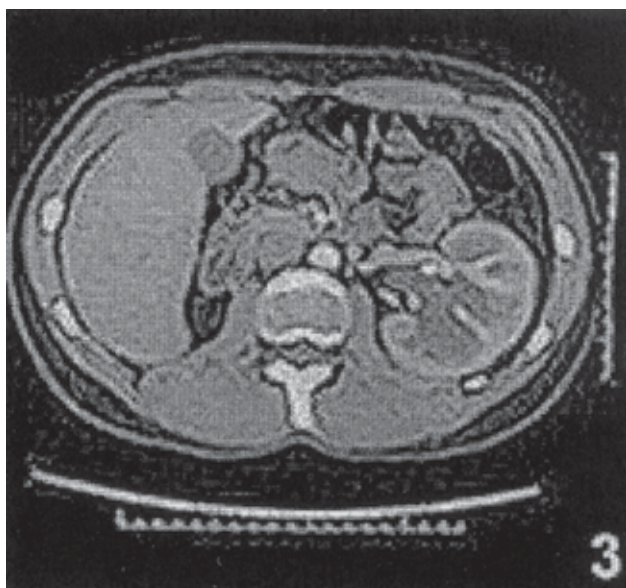
**Fig.1:** Pre-op UPJO.



**Fig. 2:** Nice drainage through repaired UPJ in solitary kidney.

**Pre-op work-up:**

The pre-op work-up is standard, as for any patient with UPJO. Imaging studies include intravenous pyelogram, renal scan, and a high-speed helical CT scan with and without contrast. The CT should include the following phases: (1) non-contrast phase, (2) early or arterial phase, (3) cortico medullary and (4) delayed phase. This will identify the presence of calculi, anomalies of renal parenchyma but more important any vascular anomaly



**Fig. 3:** CT scan showing hydronephrosis (UPJO) in solitary left kidney.

that may contribute to the UPJO. We have used this technology extensively when aberrant renal vasculature is suspected. The CT scan can also identify any extrinsic causes, such as retroperitoneal masses that may be causing obstruction to the UPJ.

Other pre-operative work-up includes a quantitative diuretic renal scan to get a baseline status of renal function, as well as the T 1/2 drainage time.

**The Ideal Candidate:**

Though we have not abandoned the endoscopic approach, we are certainly more selective, especially with the menu of treatment options available. To this end, we have identified the following patients who are ideal candidates for laparoscopic pyeloplasty.

1. Patients who have a long segment of UPJO. Ideally patients whose obstructive segments are less than 1.5 cm in length do well with the endoscopic approach. If the obstructive segment exceeds 1.5 cm in length, the success rate decreases. Thus patients with segments over 1.5 cm are now considered candidates for laparoscopy pyeloplasty.
2. Patients with aberrant renal vessels. Since aberrant vessels have been known to be one of the main reasons for failure of endoscopic endopyelotomy, once patients have been identified with aberrant vessels they are now managed laparoscopically so as to transpose the renal drainage system anterior to the aberrant vessels.
3. Significant hydronephrosis is considered one of the indications for laparoscopic pyeloplasty. The patient with extremely patulous renal pelvis do not do as well with the endoscopic approach. The significantly distended and patulous renal pelvis may be synonymous with the “neurogenic bladder” and may not have the propulsive effect of a normal renal pelvis. These patulous renal pelvises are considered ideal for trimming of the excess renal pelvic tissue and thus are ideal for laparoscopic pyeloplasty.

**Technique for Laparoscopic Placement of Ureteral Stent Intraoperatively**

1. If the patient has a preplaced stent, this can be used without having to place an intraoperative stent.
2. If the patient does not have a preplaced stent, through one of the cephalad trocars, we introduce a 5 French open-ended catheter, which is then laparoscopically guided into the upper ureter, which has been spatulated.

3. *The bladder is clamped to distend it for easier placement of the stent.*
4. *Once the open-ended catheter is within the ureter, a guidewire is passed through the open ended catheter until it passes into the bladder.*
5. *Once the guidewire is in the bladder, the open-ended catheter is removed. (We have also used a stent pusher as the open-ended catheter.)*
6. *The selected ureteral stent is then passed over the guidewire and into the ureter. Grasping forceps passed through the other trocars are used to feed the stent. Another grasping forceps can place mild traction on the ureter. Once the stent is adequately in place, the stent is held with the grasping forceps while the guidewire and pusher are removed.*
7. *Once the stent is in place, the Foley catheter is unclamped.*

#### **Equipment Required:**

1. A standard laparoscopic set-up with high-speed CO2 insufflators.
2. Laparoscopic needle holders.
3. 3-0 and 4-0 Vicryl sutures on an SH needle or RB-1 needle.
4. An appropriate 5 French indwelling ureteral stent and a foley catheter to drain the bladder.
5. Additional equipment, such as a Ligasure™, Harmonic Scalpel™, GYRUS™ bipolar cautery with a cutting knife, etc., are recommended to enhance the dissection.

#### **Procedure:**

1. Patient is placed in the standard nephro-lithotomy position. The patient is adequately padded. A bean bag may be used to assist in adequate positioning. An electric table with multiple positioning capabilities is preferred.
2. The patient is prepped and draped in the usual sterile manner. A laparoscopic drape is preferred so the pouches can hold ancillary equipment.
3. Verress needle is placed and pneumoperitoneum is obtained. The trocars are then placed. Although there is no magic formula, the trocar placement is dependent on the body habitus (obese vs. non-obese), location of the kidney and UPJ. The general guideline is to place a 10 mm blunt trocar in the umbilicus. This will accommodate the laparoscope

and camera. Two ports are placed in the sub-costal region, one close to the midline and the other more lateral and sub-costally. All these trocars are 10 mm, and a fourth 10 mm trocar is placed in the position corresponding to McBurney's point on the right side and the mirror-image point on the contralateral side, for a left-sided pathology.

Because laparoscopic suturing is required, the ports are placed so as to facilitate the angle between the outside, where the hand movements are being performed, and inside, where the suturing takes place. The lesser the angle between the target organ and the abdominal wall, and between the two needle holders, the better it is.

4. Once the trocars are in place and the camera is in the abdomen, the abdominal cavity is inspected for any inadvertent trauma to the abdominal organs. If any adhesions are encountered, these are taken down.
5. The colon is then reflected medially by dissecting along the white line of Toldt. The dissection is carried cephalad and either the splenic flexure or the hepatic flexure is dissected so as to ensure that the colon is reflected medially. This will expose the kidney. It is essential to dissect out the space between the colon and the spleen and the kidney and the spleen, so that the spleen will drop cephalad by gravity because the patient is in the nephro-lithotomy position.
6. Once the kidney has been exposed, attention is then directed toward isolating the UPJ. To facilitate this, the upper ureter is dissected, ensuring that adequate fat is maintained around the ureter. This is dissected cephalad and, if needed, the gonadal vein can be dissected free. However, if the gonadal vein is impinging on the operative field it may have to be ligated or coagulated.
7. The UPJ and renal pelvis are then dissected cephalad. The lower pole of the kidney has to be dissected so as to mobilize the kidney. In some instances, if subsequently there is tension at the UPJ anastomosis, dissection of the entire kidney is essential so that it can be mobilized caudad.
8. As the dissection is continued to isolate the UPJ, any aberrant vessels, which might be impinging on the UPJ, are identified and dissected free. If there are no vessels, the dissection is obviously easier.
  - a. Scenario 1: In the presence of an obstructing lower-pole vessel, the dissection is carried out so as to dissect the collecting system away

from this artery. This is to minimize the dissection on the artery and to prevent any trauma to the vessel. The hydronephrotic renal pelvis can usually be identified since the UPJ is compressed by the vessels. Once the upper ureter, UPJ and the renal pelvis are freed of all surrounding structures, including the vessels, the decision is made to excise the UPJ. A dismembered pyeloplasty is then planned and the collecting system is reanastomosed anterior to the blood vessels.

- b. Scenario 2: If there are no aberrant/compressing blood vessels, the dissection is easier and the UPJ is dissected free. Meticulous ureterolysis is performed and the UPJ is completely isolated. Then the decision is made to perform the pyeloplasty, based on the length of the stricture. For aberrant vessels and a patulous renal pelvis, a regular dismembered pyeloplasty is performed. If there is a long segment of stricture, then one may have to perform a spiral flap, or a tubular flap from the renal pelvis. Occasionally a Fendi (similar to a Y-V plasty) may have to be performed.
9. Once the UPJ has been dissected above and below the level of obstruction, the diseased segment is excised and removed for histopathologic evaluation.
10. If the renal pelvis is patulous, it is trimmed and the excess renal pelvis is removed and sent for histopathology. It is recommended that the excision of the renal pelvis be conducted a little bit more on the anterior surface of the renal pelvis, so as to facilitate laparoscopic closure of the renal pelvis.
11. Once the renal pelvis has been trimmed, the ureteral stump is examined and spatulated. Caution: While dissecting and isolating the upper ureter, since it is now free, please ensure that the ureter is not twisted. One way to prevent this is to place marking sutures on opposing ends prior to transecting the UPJ. Thus, once the UPJ has been excised, then these two sutures can be lined up to prevent any twisting of the ureter.
12. Once the spatulation of the ureter is performed, a stent is placed through the ureter and into the bladder.

13. When the stent is in place, the posterior wall of the UPJ is anastomosed using 4-0 polyglycolic acid sutures on an RB-1 needle or a 3-0 polyglycolic on an SH needle. The posterior wall is sutured first and can be done as a continuous closure.
14. The pelvis is then closed starting at the cephalad end of the incision of the renal pelvis and closed using the same sutures in a continuous fashion, going caudad. The assistant is of significant help in facilitating this suturing procedure. Because these needles have to be introduced through more than one port, we prefer to have all our trocars of the 10 mm size.
15. Once the posterior UPJ as well as the renal pelvis have been closed, the proximal end of the ureteral stent is placed in the renal pelvis and then the anterior UPJ incision is closed either with a separate suture in a continuous fashion or with a few interrupted sutures.
16. The UPJ is inspected to make sure there are no unsutured areas.
17. A Jackson-Pratt drain is then placed.
18. The trocars are removed. Since non-cutting, dilating trocars are used, we usually do not close the fascia. However, the subcutaneous tissue is closed with 3-0 polyglycolic acid and the skin is closed with similar 4-0 subcuticular sutures.

#### **Laparoscopic Placement of Jackson-Pratt Drain**

*After the completion of the procedure, a decision is made as to where the Jackson-Pratt will exit. We usually have it exit, following pyeloplasty, through the trocar site corresponding to "McBurney's point." With this in mind, we put the narrow tubular end of the Jackson-Pratt drain first into the abdomen through the cephalad, sub-costal port.*

*Once the tubular end enters the abdominal cavity, it is then grasped with a forceps, which has been passed through the inferior port. This end is then pulled out through the inferior trocar.*

*Laparoscopic visualization will show the fenestrated end entering the abdomen and then this end is placed in the left gutter.*

*Subsequently the trocars are removed. The tubular end is then anchored to the skin with a non-absorbable suture.*



## Laparoscopic Pyeloplasty

### Experience at NIKDU

Adults	21
Pediatric	2
Total	23

### TYPE

Dismembered pyeloplasty	19
Spiral Flap	3
Fendi	1

### Results:

- Operative Time (average): 232 minutes
- Indwelling ureteral stent for six weeks

### Follow-up:

- One patient underwent Acucise™ incision of the UPJ at another institution by the referring urologist.
- No other intervention has been necessary
- Average length of follow-up: 13 months
- Blood transfusions: 0

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### Authors

- Medical Officer, National Institute of Kidney Diseases & Urology (NIKDU), Dhaka, Bangladesh.
- Professor & Head, Department of Urology, National Institute of Kidney Diseases & Urology (NIKDU), Dhaka, Bangladesh.

# LOWER POLE RENAL STONE CLEARANCE AFTER ESWL IN RELATION TO DIFFERENT INFUNDIBULAR WIDTH AND STONE SIZE OF $\leq 20$ mm SIZE - STUDY OF 60 CASES

MD. NURUL HOODA<sup>1</sup>, RANA JAHANGIR ALAM<sup>2</sup>, ATM AMANULLAH<sup>3</sup>, AKM KHURSHIDUL ALAM<sup>4</sup>, ISHTEAQ AHMED<sup>4</sup>, AKM ANWARUL ISLAM<sup>5</sup>

## Abstract

*This prospective study was done on 60 patients having lower pole kidney stone of - 20 mm size with no distal obstruction to see the effectiveness of ESWL in terms of stone clearance. Their lower pole infundibular width was measured from good quality of IVU. The patients were grouped according to different measurement of stones & infundibular width as shown in the table. Number of session of ESWL required were 1-6, each session 1-2 weeks apart. The rate of clearance was observed up to 3 months after which any retained stone were considered as failure of ESWL. Out of 60 patients 48 had total clearance with the overall clearance of 80% at 3 months. No statistically significant difference was observed in terms of clearance of stone between different size of stone and width of the infundibulum. Failed cases were advised to undergo other modalities of treatment.*

## Introduction

Urolithiasis has affected humankind since antiquity with the earliest recorded example being detected in Egyptian mummies in 4800 B.C. (Menon et al., 1998). Diversity of factors are thought to be incriminated for the disease of which many of them are still unclear and not correctable. Urolithiasis is the third most common disease of the urinary tract, exceeded only by urinary tract infections and pathologic conditions of the prostate (Stoller and Bolton, 2000).

In western literatures urinary stone disease is estimated to be 2% - 3% (Stoller and Bolton, 2000). Though there is no exact data about its prevalence in Bangladesh but the problem is quite common as seen in outpatient department. It is more common in northern part of the country affecting predominantly male with male : female ratio of 3:1 (Salam, 2002).

ESWL has revolutionized the treatment of urinary stones with the concept to fragment stones. It was discovered in 1950 in Russia. The first clinical application with successful fragmentation of renal calculi was in 1980. Since then, there have been several modifications of

the models of the instruments and are still continuing (Marshall, 2000).

The noninvasive nature, requirement of minimal or no anaesthesia and high level of patient acceptance, have made ESWL a preferred treatment for the majority of symptomatic renal calculi requiring intervention (Chen, 1996).

Stones located in the lower pole of kidneys are well known to be problematic and show decreased clearance rate after ESWL regardless of the size (Sumino, 2002). The reasons for the low clearance rate of lower pole calculi (in some series) after ESWL being not the incomplete disintegration but the gravity and lower caliceal spatial anatomy causing more fragments to retain in situ (Elbahnasy, 1998). But other series have shown that it is the stone characteristic or the distorted renal morphology (associated with pyelonephritis) rather than special anatomy is responsible for low clearance rate after ESWL (Bagley and Ritterberg, 1987).

In the light of recent development of various modalities of treatment of renal stones this study is designed to select the better option of treatment and to formulate appropriate indications of ESWL in patient with lower pole renal calculi and thus avoiding unnecessary expenditure and renal damage what ever minimum it may be.

## Materials and Methods

This study was carried out in the Department of Urology, Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital, Dhaka, during the period of September 2003 to July 2005.

All preoperative routine investigation- total blood count, blood urea, serum creatinine, fasting blood sugar and blood sugar 2 hours after breakfast, coagulation profile, routine urine examination and urine culture was done. Ultrasonogram of kidney, ureter and bladder region with post-voidal residue and intravenous urography (IVU) was done in all patients to see the condition of the kidneys, location of stone and grade of hydronephrosis and to

measure the size of the stone. Electrocardiography and other relevant tests were done also. Grouping of patients according to different infundibular width stone size (Group I up to 5 mm, Group II : more than 5mm) & lower pole stone size (Group I : 10 mm, Group II : 11-15 mm & Group III: 16-20 mm) were done.

ESWL therapy with Siemens Lithostar plus (3<sup>rd</sup> generation) lithotripter was used to fragment the lower pole stone. All the included patients had stone <20mm size and in the lower pole. Patients were given IV analgesia and sedation on demand basis. Patients were taken to the operating table and supine position was done. Stone was focused with the help of fluoroscopy.

The amount of shock wave given in each patient ranges from 2000 to 2500 per session. One to six session of ESWL was given to the patients in an interval of 1 to 2 weeks. Amount of energy given in each patient was 4Kv to 5.5Kv with an average of 4.7Kv. Patients were discharged from lithotripsy unit on the same day.

Patients were advised to come after 7 days with a plain X-ray of KUB region. If necessary successive session of up to 6 session of ESWL was given at one to two week interval. If the stones were failed to clear even after 6 session of ESWL, the patients were then observed up to 90 days to see total stone clearance.

After collection of data, meticulous checking, statistical analysis was done using computer SPSS 7.5.1 version and manual technology. Test of significance was done by using students unpaired t-test. A probability value (p-value) of <0.05 was considered significant.

**Observations and Results**

Sixty patients with lower pole stones ≤ 2cm size were selected. Lower pole infundibular width were measured from good quality IVU. Patients were grouped according to the measurement shown in the table. Average number of session of ESWL given is also shown in the table. The overall stone clearance rate was 80% in this series (48 out of 60).

**Table I**  
*Lower Pole infundibular width (mm)*

Group	Width (mm)	Total no. of patients	Success	Percentage	Average session of ESWL
Group I	Upto 5	24	20	83.33	2.37
Group II	> 5	36	28	77.77	2.36

Table I shows the patients grouped according to the different measurement of lower pole infundibular width in mm. Average number of ESWL session given was 2.36 and 2.37 in each group. The rate of clearance of stone in group I and II was 83.33% and 77.77% respectively with P value >0.05. So there is no statistically significant difference in clearance rate between the groups.

Patients were grouped according to stone size and their clearance rate after ESWL were observed which is shown in Table-II.

**Table II**  
*Different stone size and clearance*

Groups	Stone size (in mm)	Total no of patients	Clear	Percentage	P-value
I	≤ 10	14	12	85.7%	>0.05
II	11-15	40	32	80%	>0.05
III	16-20	06	04	66.6%	>0.05

Table II shows the patients grouped according to the different stone size in mm.

The rate of stone clearance in group I, II and III were 85.7%, 80%, 66.6% respectively. Though there is some difference in clearance of stone between the groups mentioned in the table yet statistical analysis shows no significant difference of clearance rate as the p value is >0.05.

**Discussion**

Recently ESWL has been regarded as the first line treatment for most urinary stones requiring interventional therapy.

The overall efficacy of ESWL for kidney stones depends on stone size, composition, type of lithotripter used and location of stones within the kidney (Cohen and Preminger, 1997).

In contrast to stones located elsewhere in the kidney, stones in the lower pole are said to have poorer outcome in terms of clearance after ESWL. Thus shock wave lithotripsy for primary lower pole stones remains controversial (Lingeman and Siegely, 1994).

In a metanalysis Lingeman et al. (1994) noted that the overall stone clearance rate of lower pole stone treated with shock wave lithotripsy was 59%. They observed that the rate of stone clearance of lower pole is increased upto 74% when the stone is 10 mm or less in size.

The type of lithotripter used for shock wave lithotripsy impacts the treatment outcome for lower pole stone since first generation lithotriptors are more effective than newer generation (Carsten and Paranjit, 2002) Sampaio et al. (1992) reported an overall 54.5% stone clearance rate using lithostar plus (Siemens) but Elbahnasy et al. (1998) noted a 64% clearance rate with HM-3. May and Chandoke reported a stone clearance rate of 76% treated with HM-3 (May and Chandoke, 1998).

In this study the overall stone free rate is 80% which is close to the findings of May and Chandoke.

In the study done by Khaled Madbouly and Khaled Z. Sheir have shown the overall clearance of stone was 73.1%.

The little difference between the results might be due to the fact that we have given up to 6 sessions of ESWL and the follow up period was 3 months or might be due to other factors that may interfere with the clearance rate. Other factors for low clearance rate are, type of lithotripter used, number of sessions of ESWL & the duration of follow up period given for observing stone clearance, stone characteristics or the kidney itself (e.g. Pyelonephritis). Khaled Madbouly had shown in his study that pyelonephritic kidney showed poor clearance rate after ESWL.

There are good number of investigators who examined caliceal anatomy of lower pole to predict better stone free rate after ESWL. Various anatomical factors have been reported to influence the clearance rate of lower pole renal stone (Tuckey et al. 2000).

In this study as shown in table-I Lower pole infundibular width having 5 mm or less had a clearance rate of 83.3% and those having >5 mm had a clearance rate of 77.77% which have no statistically significant difference having P-value of >0.05.

In the study conducted by Khaled Madbouly & Khaled Z Sheir (2001) it was seen that none of the lower pole anatomical factors had any significant impact of the stone free rate at 3 months. They advocated that distorted renal morphology associated with pyelonephritis had shown significant less stone clearance (P=0.0009).

In another study done by Albala et al. (2001) did not observe any differences in average anatomical parameters in their shock wave lithotripsy successes and failures.

In contrast to the results of our study and the observation mentioned, Sampaio et al. (1992) and Elbahnasy et al.

(1998) had observed statistically significant difference in clearance rate of stone. The difference might be due to the fact that they have shown clearance after one session of ESWL at one month interval. But in our study we have used multiple sessions of ESWL and the clearance rate was observed upto 3 months.

In a study done by May and Chandoke (1988) reported a stone clearance rate of 76% and 74% for lower pole kidney stones of 10 mm or less and 11-20mm size respectively. They have used single session of lithotripsy and the follow up period was 1 month.

In this series stone clearance rate after multiple sessions (1-6 sessions) of ESWL at 3 months follow up period is 85.7%, 80%, 66.6% in 10mm, 11-15mm, 16--20mm of size of the stone respectively.

Though there is some difference in percentage of clearance of stone of different size yet statistical analysis has shown no significant difference. This may be due to small sample size in group III (16-20 mm size) where 4 patients have shown total clearance out of 6 patients. Further extensive search on large sample size is required to elucidate this issue.

This is close to study done by May & Chandoke (1988). The difference that is observed between this two series may be due to the follow up period (1 month versus 3 months) or due to number of sessions of ESWL (single versus multiple).

### Conclusion

Considering the findings of the present study and the study done which correlates with this study it can be concluded that ESWL is a good option for the first line treatment of lower pole kidney stone of <2 cm size regardless of the width of the infundibulum of the lower pole of kidney.

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**Authors**

1. Assistant Professor of Urology, SSMC & Mitford Hospital.
2. Medical Officer, BSMMU, Dhaka
3. Assistant Professor of Urology, BSMMU, Dhaka
4. Associate Professor of Urology, BSMMU, Dhaka
5. Professor of Urology, BSMMU, Dhaka

# CORPOREAL SPARING DISMEMBERED CLITOROPLASTY IN CONGENITAL ADRENAL HYPERPLASIA

ATM MOWLADAD CHOWDHURY, FAUZIA MOHSIN, SHAHRIAR AHMED, NAZIMUL ISLAM

## **Abstract:**

**Purpose:** Female sex assignment and management of clitoral enlargement remains always a matter of great contemplation. New understanding of clitoral function stimulated a search for surgical technique which will preserve the function of clitoris. We would like to present our experience of corporeal sparing dismembered clitoroplasty, that dismembers the corporeal bodies and preserves all clitoral structures.

**Materials and methods:** After obtaining full informed consent and review of paediatric endocrinologist five patients of congenital adrenal hyperplasia (CAH) with clitoral enlargement underwent surgery. For clitoroplasty technique the glans and its neurovascular bundle are dissected from the corpora. The isolated corpus is then divided completely starting at the bifurcation each separated hemicorpus is rotated to be placed inside the labial fold. The glans is reduced by excision and fixed to the pubic attachments.

**Results:** Four patients 4 years to 9 years old underwent this procedure. Followup was 6 months to 1 year. All patients recovered well from surgery without early complications. The initial cosmetic result was good in all girls. The hemicorpora were easily palpated inside their labia majora, which retain the desire cosmetic appearance. All glans clitoris were preserved.

**Conclusions:** Conservative reconfiguration of the female genitalia without removing genital structure is feasible in girls with clitoral enlargement. The cosmetic appearance of the genitalia is acceptable, in that the enlarge clitoris is hidden. The physiological consequence of the current operation is to be observed. However we believe that corporeal sparing dismembered clitoroplasty is a satisfactory solution to surgeons and the patients in the management of clitorimegaly.

## **Introduction:**

Congenital adrenal hyperplasia is associated with virilization of external genitalia in 46XX female and occurs in approximately 1 in 16000 births<sup>1</sup>. The extent of genital virilization varies. For example, a female infant may present with mild clitorimegaly with no other features or

with a prominent phallus, fused labia, and a single perineal opening for the urethra and vagina. Clinical management usually includes surgery to render the genital appearance more feminine in infancy and childhood.

Surgery to clitoris could disrupt the neurological pathways and compromise erotic sensation and pleasure, which is an important aspect of sexual function. Followup studies in childhood have not been able to assess the sexual function<sup>2</sup>.

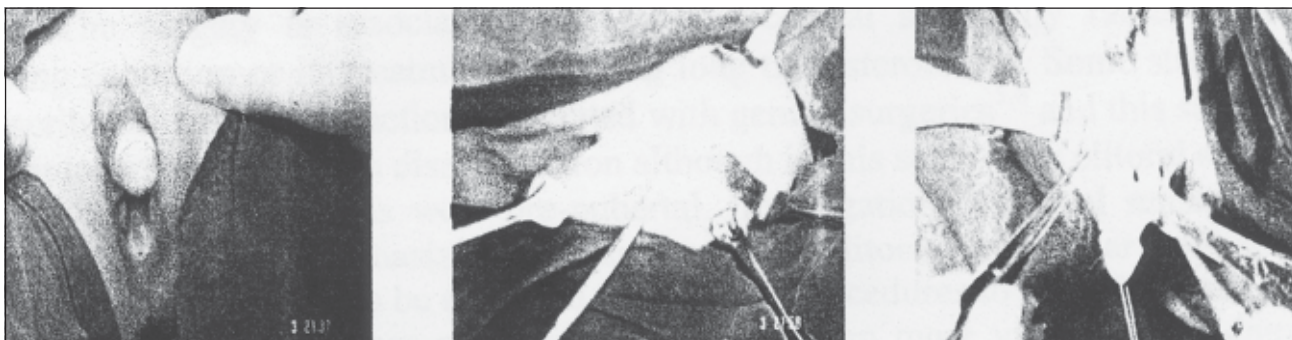
## **Materials and method:**

Full informed surgical consent was taken from the parents of four female children with clitoral enlargement. They underwent dismembered clitoroplasty. Ethical approval was obtained from paediatric endocrinologist. The patients were cooperative and accepted postoperative clitoral sensation using cold, warm and vibration.

## **Clitoroplasty Technique:**

The clitoris is degloved and the neurovascular bundles of the glans are dissected off of the corpora cavernosa. This dissection should start as ventral as possible, entering the distinct avascular plane that exists between the albugenia and the first layer of Buck's fascia. If the correct plane is entered, it is possible to separate the neurovascular bundle and the entire gland from the corpora without much bleeding. The corporeal bodies are dissected down to their bifurcation. Then the corpora are divided, entering a tightly defined plane that exists in the midline between the two hemicorpora.

The lateral edges of the open albugenia of each hemicorpora are approximated using fine absorbable sutures. Glans reduction is then performed by superficial excision of the epithelium of the glanular groove to stimulate future adhesions to the prepuce. The glans clitoris is then fixed to the pubic bone approximately a one centimeter above the original bifurcation of the corpora. The prepuce is incised in the midline reconstruct the labia minora.



**Fig-1:** Preoperative (left), degloved clitoris with resection of suspensory ligament, excision of erectile tissue with preservation of neurovascular bundle.



**Fig-2:** Reduced clitoris and fold of skin to reconstruct labia minora, after completion of the procedure with urethral catheter

### Results:

Four patients 4 to 9 years old underwent clitoral reduction surgeries. Followup ranges from 6 months to 1 year. All patients had an uneventful postoperative recovery and none had postoperative bleeding or hematoma. All glans clitoris were preserved. In all patients no valvoplasty or other form of genitoplasty was not needed. Seven days after healing of wound clitoral sensation was checked by application of cold, warm and touch. In three patients all the sensations were found reasonable intact and in one patient it was partly impaired.

### Discussion:

Surgical treatment in infants with adrenal hyperplasia remains controversial. There are also controversies regarding the time of and need for clitoral reduction<sup>3</sup>. Recent consensus statement on the management of intersex disorder suggests that cosmetic surgery in girls with severe virilization (prader III to V) should be performed in first year of life<sup>4</sup>. The surgery is associated with loss of clitoral sensitivity rather than the underlying condition or its treatment involving long time steroid use. Some studies have also describe sexual dissatisfaction associated with genital surgeries<sup>5,6</sup> and this study adds

important information of such dissatisfaction although in this study only clitoral sensation could be checked as the girls were pre-pubertal. Investigation of sexual sensation and arousability in females emphasizes the importance of clitoris and vulvar epithelium<sup>7</sup>. These areas are most likely to be damaged in cosmetic procedures to feminize ambiguous genitalia. In infants these areas are tiny and possibly even more vulnerable to damage than in adults. It has been argued that total clitoridectomy is rarely performed these days, so that numbness associated with this operation does not apply to techniques that are more frequently done today. Nonsensuality was associated with sexual dissatisfaction and overall there was a tendency for individuals with the most impaired sensitivity to show worse sexual function scores. Unoperated women with CAH retained genital sensitivity thresholds similar to those of normal controls. Most clitoral procedures were based on the dorsal neurovascular bundle preservation approach described in 1981 by Mollard<sup>8</sup> which has become the basis of current practice and has been widely used after 1985. Surgery is not the only cause of sexual difficulties in CAH and sexual difficulties were more common for women with CAH than in controls.

However, difficulties with orgasm are reported significantly more often in women with CAH in whom surgery has been done<sup>9</sup>. Recent investigations of the human fetal clitoris have demonstrated that nerves penetrate the clitoral tunica and glans, and they showed evidence of cut nerve fibers throughout the specimens obtained<sup>10</sup>. Our data add to the understanding that even with experienced surgeons damage to the clitoral innervation through incision is unavoidable.

**Conclusions:**

Sensitivity is decreased in genital areas where feminizing genitoplasty has been done. If cosmetic genital surgery in children with ambiguous genitalia is to continue, although using different surgical techniques, prospective evaluation of long term outcomes should be integral to practice. Informed consent should be based not just on the technical aspects of surgery and risks, but on a developed understanding and appreciation of potential implication for further sexual lives.

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**Authors**  
 BIRDEM Hospital, Dhaka



# ORGAN TRANSPLANTATION ACT AND RENAL TRANSPLANTATION - BANGLADESH PERSPECTIVE

M SAHA<sup>1</sup>, MSA CHOWDHURY<sup>2</sup>

### Summary:

*Organ failure is an important cause of morbidity and mortality prevailing in both developed and developing countries. Organ donation can alleviate this problem and thereby reduce economic as well as social burden of a country. In Bangladesh, incidence of organ failure is increasing day by day. Only Kidney and Cornea transplantation are going on. But the transplantation rate is low. To improve organ transplantation rate and reduce organ trade, Bangladesh parliament passed organ transplantation act in 1999. According to this act, live related and deceased transplantation are permitted but unrelated live transplantation is prohibited. There are various problems act as impediment for renal transplant as well as other transplant. We should work on these issues to improve transplant rate.*

### Introduction:

Organs are transplanted to make good a functional deficit. Without organ donation, transplantation is not possible. Transplantation is essential when organ fails to perform its own function. Transplantation is the definitive, most sought after solution of organ failure. In Bangladesh, kidney and cornea transplantation are going on regularly. But scarcity of organ is an impediment for success of transplantation program.

Now a days it is a global issue that how people can find out a real solution of organ shortage for organ failure patient. This will alleviate sufferings of patient, reduce the cost of life and give a new life to him. In the world of perfect organ transplantation; necessity of other form of treatments will be gradually decreased. All patients with organ failure would be suitable for transplantation and would receive an organ, but in the real world, scenario is quite different due to huge gap between demand and supply of organ.

The number of chronic kidney failure patient is increasing at an alarming rate all over the world. Globally the number of dialysis patient is increased at an annual average rate of 7%<sup>1</sup>. Grassman et. al. showed that the end of

2004, 1783000 people worldwide were undergoing treatment for ESRD, 1371000 (77%) were on dialysis and 412000 (23%) were living with a functioning renal transplant<sup>2</sup>. In USA, there were 62,433 kidney patients who were registered on a waiting list for transplant from cadaver in 2004<sup>3</sup>. In Japan, transplant has not taken off although they have over 248000 patients on dialysis. In 1992, they did not do a single transplant<sup>2</sup>. This is the situation in affluent and liberal societies. The scenario is also same in developing countries. The annual rate of transplantation is low in this world<sup>4</sup>. Approximately 100-120 patients per million populations (pmp) reach end stage renal disease (ESRD) every year in Bangladesh<sup>5</sup>. But rate of renal transplantation is very low. The disparity between demand and supply of kidney is largely due to the fact that a lot of patients do not have a suitable willing donor.

A large demand of kidney creates organ trade in Bangladesh. Poor people try to sell their kidney for the sake of money and better living. At the same time affluent society buys kidney for family members. This unhealthy organ trade makes social nuisance. The organ transplantation act of Bangladesh can make a change of this situation.

### Background of transplantation act:

Commercial transplants are performed in several countries. Of all countries, only in Iran and Philippines kidney sales are legal<sup>6</sup>. But in some countries like Pakistan, India and Iraq illegal paid donor may be available for transplantation. The published literature suggests that the outcome of commercial transplants performed under less than optimal conditions and with donors of dubious backgrounds, is inferior to those that are carried out under rigorous medical scrutiny<sup>7</sup>. Salauddin et al. documented a high rate of transmission of infections including HIV, fungi and hepatitis viruses and high short-term mortality<sup>8</sup>. In a recent publication, Higgins et al. reported almost similar findings suggesting little change in the situation over the last 13 years<sup>9</sup>. Despite the strong stance of the medical community

against commercialization of organ transplants, the shortage in available organs has generated a desperate search for them even in the countries where organ sales are illegal. This very scarcity has provided incentives to physicians, hospital staff administrations and government officials in a number of (especially developing) countries to pursue ethically dubious strategies for obtaining organs.

In response, the medical community's anti-commercialization concerns and stance regarding organ transplantation are getting stronger. WHO web page summarizes these concerns and stance of the medical community as follows: "In 1991, the world Health assembly approved a set of guiding principles which emphasize voluntary, non-commercialization and a preference for cadavers over living donors and for genetically related over non-related donors. Organ trafficking (such as that described in the 10th May 2003 lancet) apparently occurs in a number of countries where payment for organ is supposedly outlawed. The rising trend has prompted a serious reappraisal for current legislation while WHO has called for more protection for the most vulnerable people who might be tempted to sell a kidney for as little as US\$ 1000" <sup>10</sup>.

These principles lay down by the international bodies like World Health Organization (WHO) and others (Such as the transplantation Society) have made their way into national law with most countries having provisions against organ trafficking or sale of organs. Among South East countries, Indian parliament passed "Transplantation of Human Organ (THO)" act in 1995, banning payment for organ donation<sup>11</sup>. Bangladesh parliament passed "Organ transplantation in human body act" in 1999<sup>12</sup>. Pakistan approved organ act in 2007.

**Main topics of organ transplantation act of Bangladesh**

**Who can donate?**

Father, Mother, Sister, brother, spouse, son, daughter and blood related maternal and paternal uncle and aunt.

**Criteria of donor:**

1. In case of cadaver, age must be between 2 to 65 years. In case of live transplant, age must be 18 or 18 above.
2. Absence of underlying diseases
  - a) Malignancy except primary skin or brain malignancy
  - b) Kidney disease

- c) HIV and Hepatitis B and C infection
- d) Malignant hypertension
- e) Insulin dependent diabetes mellitus
- f) Untreated or inadequately treated systemic infection

**Criteria of recipient:**

1. Age must be within 2 to 70 years but age 15 to 50 will get priority
2. Must be free from diseases which can affect the function of the organ
3. Must be declared fit for donation by medical board.

**Cadaver transplantation:**

When organ can be procured?

After declaration of brain death organ can be procured from a person if

1. He or she makes a will for organ donation before death or
2. His or her lawful successor gives written permission or
3. No-one claims dead body within 24 hours then Hospital administrator or District commissioner or person authorized by District commissioner gives permission

**Medical Board:**

There will be a medical board for organ transplantation and donation in each medical institute dealing with organ collection and transplantation.

**Register:**

There will be a register comprising all information including blood group and tissue typing of organ donor and recipient in each medical university, medical college, post graduate institute and other hospitals deals with severely injured patients.

**Punishment:**

There is provision of punishment for at least 3years not more than 7 years imprisonment or fine or both for violation of this act.

**Organ transplantation acts of other countries:**

The current regime in America, the United Kingdom and Australia are described as "encouraged voluntaristic" or "Opting in" systems that require the direct, expressed consent of the donor and almost always, the donor's family. The English situation contrasts with some of Europe's success story notably that of Spain.

The Organizacion Nacional de Transplantes (ONT), established in 1989, transformed Spain's transplant service from having a shortage to exporting surplus organs to neighboring countries. In 1986, a law was passed that allowed obligatory donation unless a refusal was registered in national computer. Spain's 43.8 pmp kidney transplants in 1996 were achieved despite the fact that Spain also reached the largest reduction in traffic road accidents of the European Union during the last 3 years<sup>13, 14</sup>.

Nations debate about the relative merits of laws that "presume consent" (unless the individual has 'opted out') and those that require either the positive consent of the donor (Via donor card on register) or the consent of relatives. Belgium, Austria, Finland, France, Norway, Spain and Singapore implement 'presumed consent' (sometimes referred to as 'implied consent') public policies. Reels reported organ donation climbed by 183%, with multi-organ retrieval significantly increased to 119% for kidneys when Belgium passed its version presumed consent in 1986<sup>15</sup>.

#### **Scenario of renal transplantation in Bangladesh:**

Since the beginning of maintenance therapy for end stage renal disease (ESRD) through dialysis or transplantation, the number of patients treated for ESRD worldwide has continued to grow at a rate that is far in excess of the growth rate of the general population.

In Bangladesh, the crude rural incidence of ESRD is 150-200 per million population (PMP) that means about 22-30 thousands new patients reaching ESRD every year<sup>16,17</sup>. The first renal transplantation was performed in 1982<sup>18</sup>. Regular transplantations were performed since 1988.

All patients transplanted in Bangladesh were living related where as transplantation done overseas were both living related and living unrelated. Currently there are about 500 transplant patients in the country performed in different hospitals. Donors among these patients are parent to sibling, sibling to sibling, spouse and second degree relatives. More than 300 patients performed transplantation outside Bangladesh, mostly live unrelated<sup>19</sup>. There were only 3 cadaver renal transplantations until 1998 done overseas. The tendency to do transplantation in Bangladesh increases in the recent years.

Bangabandhu Sheikh Mujib Medical University (BSMMU) former IPGMR was only transplant center until 2004. Later on other centers started transplantation. Others

centers are Kidney Foundation, National Institute of Kidney Diseases and Urology (NIKDU), Bangladesh Institute of Diabetes, Endocrine and Metabolic Disorders and Research (BIRDEM), Chittagong Medical College Hospital, United Hospital, Apollo Hospital and Al Markazul Islami Hospital.

#### **Problems and solutions:**

The trend of renal transplantation is increasing but it is far behind the target. Organ trade is still going on although it is prohibited in the act. The problems of low transplantation in Bangladesh are lack of available donor, financial crisis, lack of experts, high cost of drugs and few transplantation centers.

Among them lack of available donor is the main culprit. The definition of close relative has narrow spectrum and there is no direction in this act that what document you must produce to prove close relative in front of transplant medical board. This issue makes real problem for organ transplantation and invites organ trade.

There is no definitions of medical contraindications like Kidney disease, malignant hypertension, Insulin dependent diabetes mellitus, and untreated or inadequately treated systemic infection in organ transplantation act.

Cadaver renal transplantation is not yet started because there are few questions in physicians mind like whether they can withdraw support after declaring brain death and who bears the cost of ICU after declaring brain death and during collection procedure as there is no clear cut direction about these issues in organ transplantation act. We should work on these issues of organ transplant act.

Beside this, new transplantation centers should be opened up in public and private hospitals. Government can give incentives to donors, send physicians to abroad for training and reduce the tariff of transplant drugs or raw materials. Local pharmaceutical companies should come forward to produce drugs and disperse these at low cost. Media must encourage the people to donate organ especially after death.

#### **Conclusion:**

Renal transplantation is definitive, effective and less costly treatment for End Stage Renal Disease. It is also true for transplantation of other organ failure. Transplant organ gives a new healthy life to an individual. So public should be aware about organ donation and organ transplantation act to increase renal transplantation as well as other organ transplantation.

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**Authors**

1. Registrar, Dept. of Nephrology, Dhaka Medical College, Dhaka-1000.
2. Medical Officer, Department of Urology, National Institute of Kidney Diseases & Urology, Sher-e-Bangla Nagar, Dhaka-1207.

## CASE REPORT

# FOREIGN BODY IN URINARY BLADDER - A CASE REPORT

MS ISLAM<sup>1</sup>, ATMM CHOWDHURY<sup>2</sup>, NN AVA<sup>3</sup>, AKMK ALAM<sup>1</sup>

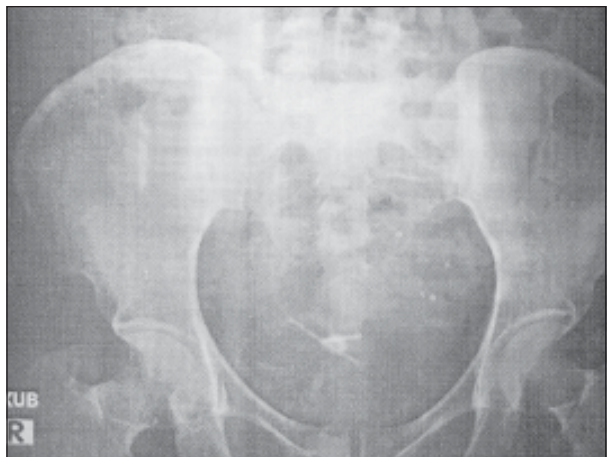
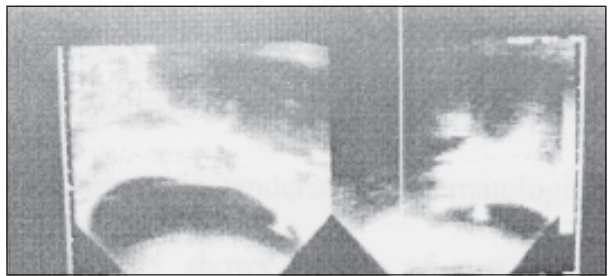
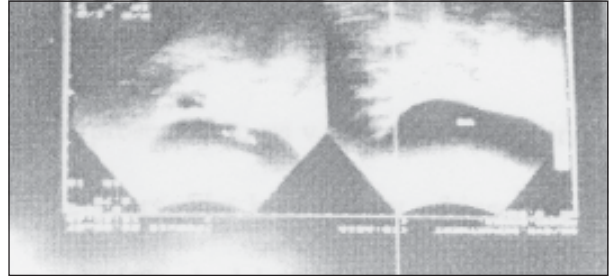
### Abstract

*Foreign body in the urinary bladder in female though not common but migration of an IUCD in urinary bladder through erosion or misplace in urinary bladder ment is very uncommon. In a 45 years old post menopausal woman suffering from intractable LUTS, a forgotten Copper-T(IUCD) was removed from urinary bladder which was placed 8 years back by trained family planning worker. A stone was formed within the bladder impregnated with the device. We have managed the case first by breaking the stone endoscopically over the Cu-T and then suprapubic cystostomy done for removing the Cu-T itself.*

### Introduction

Foreign body in urinary bladder either self inflicted or iatrogenic is not unusual in urological practice. The self inflicted foreign body were inserted or applied for erotic, psychiatric, therapeutic or no definite reasons by the patient<sup>1</sup>. Self inflicted foreign body includes inanimate-plastic tube, electric wire, cotton swab, paper clip, pen cover, bamboo stick, needle, screw, plastic bean, rifle bullet, small battery, suture materials etc. Surgical, urological or gynecological inflicted foreign bodies are-feeding tube, fragment of double J stent, fragment of Foley's balloon catheter, eroded IUD, tampons, tape for stress urinary incontinence, passeries, artificial sphincter etc. But migrated foreign body like fish bone eroded from intestine, living foreign body like small eel fish, Leech etc also reported in some literature<sup>2</sup>. Foreign body in urinary bladder produce different kinds of symptoms like-dysuria, frequency, haematuria, pain, repeated UTI etc. either by Foreign body itself or by production of stone depending upon the duration of the foreign body in urinary bladder<sup>3</sup>.

In this case a forgotten IUCD was migrated to bladder, became encrusted and producing symptoms.



### Case history

A 45 years old woman, mother of three child presented to us with lower abdominal pain, low back pain and repeated UTI for last 2 years. She had history of insertion of the IUCD Copper-T 8 years back. After two years she had irregular vaginal bleeding and under went D&C but she could not give any information about the fate of IUCD.

Last two years she developed lower abdominal pain and repeated UTI. She is in menopause for last one year. She is non-diabetic and normotensive.

Her physical examination revealed slight suprapubic tenderness. Haematological and biochemical parameters were normal, urinalysis shows plenty of pus cells with microscopic haematuria. Ultrasonography shows echogenic structure with posterior acoustic shadow in urinary bladder and plain X-ray KUB shows bright peanut shaped radio opaque shadow with tall end Cu-T in suprapubic area with no displacement at variable position.

Under spinal anesthesia we performed urethrocystoscopy and a stone was found fixed to posterior wall of bladder above the trigone. We have broken the stone first with lithotrite and part of the Cu-T became exposed. We tried to remove the IUCD but it was anchored deep in the wall of bladder. Then we removed the IUCD suprapubically by cutting the bladder and uterine wall. Patient was recovered uneventfully and discharged on 8<sup>th</sup> postoperative day. Urethral catheter was kept in-situ for 14 days.

### Discussion

Urinary bladder is a very unusual site for primary stone and formation of the stone depends on the presence of foreign body which act as a nucleus. The nature of the foreign body ranges from inanimate to living object and different kinds of surgical materials even small bullet also<sup>3</sup>. The migration of the foreign body in the urinary bladder either may be by self inflicted or by surgical or gynecological procedure or by erosion of the tissue from uterus or from intestine. Small fish or leech can accidentally passes to the urinary bladder through short female urethra<sup>1</sup>. Intrauterine contraceptive device (IUCD) generally is a safe and effective method of contraception. Apart from vaginal bleeding, pain and expulsion, rarely IUCD may result in uterine perforation and injury to the adjacent viscerae such as appendix, rectum, sigmoid colon and urinary bladder<sup>6</sup>. In long standing case these

foreign body produce symptoms and form stone<sup>4</sup>. For diagnosis, ultrasonography and plain x-ray are sufficient and endoscopic management is the best way of treatment for these problems and if necessary open surgical procedure may be supplemented<sup>5</sup>. So it is very important to remember the complication of bladder perforation by IUCD in any woman who presents with voiding symptoms, repeated attacks of a urinary infection and secondary vesical calculus.

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### Authors

1. Associate Professor, Dept. of Urology, BSMMU
2. Assistant Professor, Dept of Urology, BIRDEM
3. Consultant, Dept of Obs. & Gyn. DMCH

## ABSTRACT FROM CURRENT LITERATURE

### Clinical experience with incidentally discovered Pheochromocytoma

Akira Miyajima,\* Jun Nakashima, Shiro Baba, Masaaki Tachibana, Kaoru Nakamum and Masaru Mum

From the Department of Urology, Keio University School of Medicine, Shinjuku, Tokyo, Japan

**Purpose:** We reviewed 17 resected pheochromocytomas comprising 7 from symptomatic patients, and 10 unsuspected and incidentally discovered tumors. We compared various parameters concerning these 2 groups and investigated the features of the incidentally discovered pheochromocytoma.

**Materials and Methods:** Patient gender and age, clinical symptoms and signs, tumor localization, detection methods, findings on imaging studies, urinary catecholamine concentrations, results of metoclopramide stimulation tests, treatments at operation and tumor size were evaluated. Furthermore, we compared the clinically diverse aspects arising between the symptomatic and incidentally discovered pheochromocytomas.

**Results:** The 24-hour urinary noradrenaline and vanillylmandelic acid levels in the incidental cases tended to be lower than those in the symptomatic cases, while 24-hour urinary dopamine was significantly less (468 -C 221 compared to 1,558 -C 899 pg./day, respectively). Typical symptoms of pheochromocytoma were noted in 6 patients (60%) in the incidental tumor group. The incidental cases had a markedly high false-negative rate (71%) as noted by the metoclopramide stimulation test, although the symptomatic cases had a 100% positive rate. On the other hand, the average diameter of incidental tumors was significantly larger than that of the symptomatic lesions (55.5 -C 19.1 versus 35.9 -C 12.1 mm., respectively).

**Conclusions:** Clinical signs and findings in patients with incidental tumors were weaker than those with symptomatic disease although most incidental tumors functioned. Lower urinary catecholamine values in the incidental tumors were consistent with these results. However, the surgical risk for incidental tumors was the same as that for symptomatic lesions. Therefore, patients with incidentally discovered pheochromocytomas scheduled to undergo surgery should be treated accordingly.

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### Laparoscopic Adrenalectomy for Solitary Metachronous Contralateral Adrenal Metastasis From Renal Cell Carcinoma

Osama M. Elashry, Ralph V. Clayman,\* Jon J. Soble and Elspeth M. Mcdougall

From the Departments of Surgery Gliviswn of Urologic Surgery and Radiology (MalLinckrodt Institute of RadiologyJ, Washington University School of Medicine, St. Louis, Missouri

**Purpose:** We report our experience with laparoscopic adrenalectomy for malignant adrenal disease.

**Materials and Methods:** Between June 1995 and January 1996, 2 patients with a solitary metachronous contralateral adrenal metastasis from renal cell cancer were evaluated. Both patients had undergone radical nephrectomy for localized renal cancer 5 years previously. Laparoscopic transperitoneal adrenalectomy was performed.

**Results:** The laparoscopic procedures required 2.5 and 4.3 hours. Hospital stay was 3 and 4 days. The specimens weighed 98 and 81 gm. All surgical margins were free of metastatic clear cell cancer. Both patients were begun on prednisone and fludrocortisone replacement therapy. One patient experienced an increase in creatinine, which has since stabilized at 3.0 mg/dl. Neither patient had recurrent cancer at 11 and 16 months of follow up.

**Conclusions:** Laparoscopic adrenalectomy for metastatic renal cell cancer was performed successfully in 2 patients. However, the short-term benefits to the patient of earlier ambulation, decreased pain, minimal incisions and shortened convalescence must be weighed against the as yet unknown long-term (5 years) results.

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### Massive Hemorrhage From Renal Vein Injury During Percutaneous Renal Surgery: Endourological Management

Mantu Gupta,\* Gary C. Bellman and Arthur D Smith

*A-om the Department of Urology, Long Island Jewish Medical Center, New Hyde Park, New York, and Department of Urology, Kaiser Permanente Medical Center, Los Angeles, California*

**Purpose:** Although minor venous injuries respond to simple maneuvers, major venous injuries pose a

significant therapeutic problem and may be under diagnosed. We present our experience with major injury to the renal vein during percutaneous renal surgery.

**Materials and Methods:** Four patients had massive hemorrhage during percutaneous renal surgery associated with major injury to the renal vein, and 3 also had renal insufficiency. All 4 patients and 1 additional patient with renal insufficiency and massive hemorrhage from an arteriovenous fistula following percutaneous renal surgery were treated nonoperatively with a selectively positioned and inflated Council ball balloon catheter.

**Results:** Hemorrhage was controlled and renal function was unaffected in all 5 patients.

**Conclusions:** Renal vein injuries can be associated with massive hemorrhage. Patients with major vascular injuries from percutaneous renal surgery and concomitant renal insufficiency can be treated without open exploration or angiographic embolization using a Council ball balloon catheter.

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### **Contemporary Clinical Practice of Shock Wave Lithotripsy: A Reevaluation of Contraindications**

Stevan B. Strem

*From the Section of Stone Disease and Endourology, Department of Urology, Cleveland Clinic Foundation, Cleveland, Ohio*

**Purpose:** The current clinical practice of shock wave lithotripsy is reviewed, specifically regarding patients in whom the presence of presumed absolute or relative contraindications may preclude treatment.

**Materials and Methods:** Peer reviewed basic scientific and clinical studies on shock wave lithotripsy in patients with urinary stones and concomitant conditions that might contraindicate treatment reported between 1982 and 1996 were critically reviewed.

**Results:** The exclusion of patients with conditions previously believed to contraindicate shock wave lithotripsy has almost always been empiric rather than based on experimental or clinical studies showing adverse effects in those settings. The contemporary literature suggests that shock wave lithotripsy in patients with proximate calcified aneurysms, implanted cardiac pacemakers and defibrillators, and bleeding diatheses

can be accomplished safely and effectively with careful treatment and monitoring before, during and after shock wave lithotripsy. Likewise, patients with morbid obesity, children, and those with mid and distal ureteral calculi can also be treated successfully, even with first generation lithotriptors, with minor modifications that allow for appropriate positioning of the patient and stone.

**Conclusions:** The designation of most conditions as absolute or relative contraindications to shock wave lithotripsy has been empiric. A review of experimental and clinical studies pertinent to these issues clearly shows that most concomitant conditions previously precluding shock wave treatment can be circumvented to allow safe and effective use of this minimally invasive technology. Currently, pregnancy is the only condition that should remain an absolute contraindication to this treatment.

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### **The Current Level of Involvement of Urological Trainees and Faculty In Clinical Kidney Transplantation in the United States and Canada**

Stuart M. Flechner And Andrew C. Novick

*From the Section of Renal Transplantation, Department of Urology, Cleveland Clinic Foundation, Cleveland, Ohio*

**Purpose:** We attempted to quantitate the level of participation of urology residents and faculty in clinical renal transplantation in the United States and Canada at the present time.

**Materials and Methods:** All 123 urology residency program directors in the United States and all 13 in Canada were mailed a questionnaire requesting information about the participation of their residents and faculty in clinical renal transplantation at their institutions. All program directors (100%) returned the surveys.

**Results:** In the United States 94% of residencies are affiliated with renal transplant programs and 81% provide a transplant rotation. In Canada each program provides a transplant experience. In the United States 22% and in Canada 85% of academic renal transplant programs are directed or codirected by urology. In the United States approximately 80% and in Canada more than 90% of



residents are exposed to transplant surgery, although the majority have pre-urology or junior resident rotations. Approximately 50% of residents in each country receive training in immunosuppression. In the United States 25% of programs have urology faculty perform transplant surgery and administer immunosuppression, compared to more than 90 and only 15%, respectively, in Canada.

**Conclusions:** Urological participation in clinical renal transplantation at academic medical centers remains strong with approximately 25% of programs directed or co directed by urology departments in the United States-

a figure that has not changed appreciably during the last 10 years. In the future the continued presence of urology in transplantation requires a commitment from urology program directors to support exposure for residents as well as promoting the training and development of young transplant surgeons within our own specialty.

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