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CHALLENGES OF KIDNEY TRANSPLANTATION: CADAVER DONOR

Burden of End stage renal failure patients is high in our society. Every year death tolls to near about thirty-five thousands due to renal failure. Only small percentage of the patients becomes lucky enough to undergo successful living related renal transplantation. Each day, about 60 people around the world receive an organ transplant, while another 13 die due to non-availability of organs. Scarcity of the donor is one of the main barriers in this situation. Legal Issues sometimes violated in a very concealed way. Organ shortage — the main limitation to save lives of critically ill patients — is due to individuals and their families not considering organ donation for fear, ignorance or misunderstanding. Moreover, LRD also causes the grievous heart to the donor himself / herself. Realizing the grave situation, focus of kidney donation demands further consideration and steps to cadaver organ donation.

There are multiple obstacles of successful implementation of Cadaveric Organ Donation program in our country i.e. no funding from GOVT, lack of infrastructural and logistic support in the hospitals, unawareness of Brain Death concept to the community. Cadaver organ transplantation is one of the preferred ways of treating the patients with ESRD. Prompt diagnosis of brain death to provide optimal support to potential donors and trying to increase the donation rate must be the main focuses of all transplant centers. Maximizing the potential for organ donation also has the ramifications for the national donor pool; organs and tissue may be shared among the transplant units.¹⁻³

In 1965 first cadaver kidney transplantation was carried in Spain. Over the time they became capable to establish 'Organizational transplant model'. Up to 1997, 92% (4347) KT were performed from cadaver organ donation.⁴ Even now, Non-heart beating donor (NHBD) has been

suggested as the effective way to bridge the gap between the supply and the demand for, kidney transplantation. Maastricht and Leicester showed that there is no significant difference regarding 5 years graft survival rate in the two groups.⁵

Daily more than hundred of patients of motor vehicle accident coming to the hospital 'broad dead' or dead after emergency management in the big cities of Bangladesh. Rationally we can approach to increase the cadaver organ donation pool. Voice of awareness should be first raised from the professionals like ours. Print and electronic media should play a vital role.

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EXPERIENCE OF VVF REPAIR IN A PRIVATE PERIPHERAL MEDICAL COLLEGE HOSPITAL

AHSAN KABIR¹, ARIFA AKHTER JAHAN², MW ISLAM³, MA AWAL⁴, A RASUL⁴, ABBAS UDDIN MASUM⁵

Abstract:

Vesicovaginal fistula (VVF) is one of the oldest diseases of women of child bearing age. It is more common in developing countries and has been a great social and a surgical challenge to Urologists as well as Gynecologists. Though, there have been lot of developments in the understanding the diagnosis, treatment and use of modern technologies for these fistulae but controversies still exists regarding timing and ideal approach for repair. Every woman with obstetric fistula suffers a very miserable life, either socially outcast separated or divorced, unless any help comes forward. 62 cases of fistula were operated at Kumudini Medical College Hospital, Tangail, from April 08 to May 09. Out of these, 50 (80.65%) patients have been cured. This review was taken to look into the results of operation in a peripheral private Medical College with insufficient facilities. Though, prevalence of obstetric fistula was more in our series but number of fistula cases is rising following gynecological operations. VVF is a preventable disease, so more emphasis should be given on the prevention. Surgical operation is the only treatment for VVFs and it doesn't require too many costly instruments but experience of the surgeon is very important. The scale of problem in our country is enormous. Safe motherhood is birth right of every woman, Government & society should provide that at any cost.

Introduction:

Vesico-vaginal fistula (VVF) has been one of the oldest diseases, almost from the very early days of mankind on the earth. VVF was found in 1923, when Derry examined the mummified body of a lady, who reigned around 2050 BC (1). Still repair of VVF is a challenge to Urologists & Gynecologists.

VVF is more common in developing countries and mostly due to neglected child birth. VVF is one of the debilitating conditions; a woman can have after a prolonged obstructed labor and suffers a very miserable life, until treated surgically. It happens mainly among the poor uneducated women & where medical facilities are not available. Sometimes, both VVF and RVF (Recto-vaginal fistula) may develop at the same time which add more sufferings & cause more difficult to manage.

There are many conditions which can develop VVFs or RVFs but in a country like ours, it is more common after a prolonged obstructed labor (almost 97%). Obstructed labor and obstetric trauma, leads to ischemia and pressure necrosis of the bladder floor and anterior vaginal wall which causes development of VVF. Following pelvic surgery, hysterectomy, injury, post-radiation therapy, forgotten tampons, use of corrosive chemicals by the traditional healers can also develop VVFs. Inadvertent bladder injury during pelvic surgery (90%), gynecologic procedures and radiotherapy contributes a major etiological factors in developed countries. The term fistula (previously called rupture) was not established until 1597, when Luiz de Mercado first established the term (2). In 1675 Johann Fatio documented the first successful repair of VVF. However, not until the 19th century did successful repair of VVFs become common (3). A thorough clinical history, physical examination, necessary investigations are essential for proper diagnosis and treatment.

Exact number of VVF/RVF cases is not known in Bangladesh; but incidence is quite high. Many patients with this condition suffer in silence and isolation. So, it is always under reported. In 2003, EngenderHealth in collaboration with UNFPA, conducted an assessment of obstetric fistula in Bangladesh. In this assessment it was found that the number of women living with fistula is estimated to be 1.69 per 1000 ever married women. Another maternal morbidity study in Bangladesh suggests that there are over 400,000 women living with VVF, 1.22 million women suffering from urinary incontinence, and over 16,000 women living with RVF (4).

Over the years many new techniques have been developed but still controversies exists regarding timing and ideal approach of operation. With the advent of modern technology like laparoscopy and robot assisted procedures are playing an important role in the management of VVFs. However, bulk of patients will require trans-vaginal or trans-abdominal approach to repair VVFs.

In Kumudini Women's Medical College Hospital, Mlrzapur, Tangail there is project for the VVFs patients, financed by USAID. All operations were performed at Kumudini from April 2008 to May 2009. We could not

do any modern endoscopic procedures due to lack of facilities and proper equipments.

The aim of this study is to get a picture of our endeavour, though, working atmosphere was not very congenial for such a difficult operations.

Material & Methods:

All most all patients presented to us with a history of uncontrolled leakage of urine following a childbirth, hysterectomy or intra-vaginal use of some chemicals/ drugs by quacks. The age ranged from 16-64yrs and parities ranged from 0-7. The duration of VVF was varied from 2 months to 42 years. (Table -1)

April 2008 to May 2009, total 62 patients had under gone operation, 7 patients were referred to DMCH due to complex fistula with other medical problems. So, they are not included in the list. Most of the patients were anemic and some of them had local (Vaginal) skin rash (ammoniacal dermatitis). Out of 62 patients only 27 patients had their husband and rest of them have left the woman after developing VVF/RVF. Three of the women had lost their husband due to natural death. Two patients had been married twice with the VVF, one delivered a child.

Routine investigations were done and also high vaginal swabs were taken for any bacteria, tested at ICDDR, Mohakhali, Dhaka.

Before taking patients to the operation theatre, we examined all patients thoroughly to assess the size, location & identify the fistula & other ailments. According to the size & location, we took decision on the approach of operation.

Treatment:

Actually, there is no medicine for VVFs cure. The treatment of VVF is mainly surgical but medical or conservative approach can be applied, if the diagnosis is made immediately or within first few days of surgery and size of the fistula is small (<1cm). A transurethral or Suprapubic Foley catheter should be kept in place for 30 days. Sometimes small fistula may resolve or decrease in size by this procedure. If no improvement is observed, after a Foley catheter placement and keeping for 30 or more days, then, it is unlikely to resolve spontaneously.

Surgical treatment is only the main method of repair, regardless of cause. Controversy exists on timing for operation. Traditionally, one should wait at least 8 to 12 weeks after the development of VVF but in case of radiation induced fistula, the interval should be more than one year. Emotional status of the patient should not be ignored but it should not dominate in the decision

process of timing to operate. Longer intervals are universally accepted as the standard of care in infected or irradiated tissue.

We approached in most of the cases (57patients) through vaginal route and only in 5 cases through both trans-abdominal & vaginal route. The position of the patient was in dorsal lithotomy with standard Trendelenburg. All the operations were done under Sub arachnoids block (SAB) except in two patients, who required both SAB & General anesthesia.

Techniques of operations & results:

A Foley catheter was introduced through the fistulas tract, and then the balloon was inflated. A gentle traction was placed on the catheter to facilitate the excision of the margin of the fistula. With caution the fistulous tract was excised and made it big. Then the bladder wall was separated from the vaginal wall. Usually, we stitched the bladder wall first transversely with 3-0 Vicryl and then vaginal wall vertically with Vicryl 2-0. A two way Foley's catheter was kept in for 3 weeks. In 3 cases ureteric re-implantation was required because the fistulous opening was just at the margin. In 6 cases we used Martius flap as interposition flap. The flap was taken from labial fold. Martius first described his procedure in 1928 as a technique used in VVF repair. He used bulbocavernous muscle and its overlying fibro adipose tissue as a pedicle graft for VVF repair. There have been various modifications of his original procedure. Success rates range from 85-100% (5).

The abdomen was opened through Pfannenstiel incision. The absolute indication was big fistula, ureteral re-implantation, involvement of the VVF with ureteric orifice and inadequate exposure of fistula through Vagina.

Out of 62 patients, 2 patients required two times operation and one required three times operation to make it success. Though, it was not a very big or difficult fistula. 6 patients had once failed previous operation by another team. In 12 (19.35%) patients, we failed to correct (Table-2). Out of that one had two VVFs. We could not identify the small one at the time of operation.

The post operative period was almost uneventful except in one, who developed wound infection and required secondary stitches. This patient had both VVF & RVF. Blood transfusion was given in two patients. 50 patients were made cured after the operation. All patients were given injectable Ciprofloxacin for 3 days then followed by tablet for 10 days and occasionally any analgesics. I/V fluids for 1st 24hrs. 2 patients required urethral dilation after 6 months of operation, due to poor of urine flow. These patients had fistula at urethra. Few of them had frequency & urgency for 2-3 weeks.

Table-I

No. pts.	Age	Duration of VVF	No. children	Cause of VVF	Husband	Delivery	No. Opn	Remarks
69	16-64 yrs	2 months-45yrs	0-7	51 Obstructed labor, 9 post hysterectomy 2 use of intra-vaginal chemicals/ drugs	27 had 3 died 32 left	All at home by family member/ untrained dais	2-4 times. (9 pts)	7 pts referred to National Fistula Centre, Dhaka

Table-II

No. pts.	Operated Trans-abdominal route	Vaginal route	Type of Fistula	No. of Opns.	Post op. problem	Hospital stays after Opn.	Remarks
62	5 both Trans-abdo & vaginal	57	VVF+RVF (2) VVF(49) Urethro-vaginal (11)	2 times (4) 3 times (1)	1 pt. required secondary stitch (VVF+RVF pt) Rest uneventful	22-35days	2 pts. Came after 6 & 8 months of the operation for narrow stream (VVF at Urethra) 12 failed & 50 cured.

Discussion:

This retrospective study was carried out to evaluate the outcome of operations in uro-genital fistula. Our success rate was 80.65%, which is slightly lower than other international studies. Our failure was due to many factors. Lot of short comings were there like, Lack of doctors for post-operative follow ups, inadequate OT light, shortage of basic instruments etc. We failed mainly in patients with big fistula and operated through both vaginal & trans-abdominal route. But the size of the fistula has become reduced than before. Three ureteric reimplantations were done because the ureteric orifice was almost at the margin of fistula.

Anyway, no operation technique is universally applicable to all types of uro-genital fistula. It mainly depends on the choice and experience of surgeon & individual case.

Our post-hysterectomy patients presented very early following the development of VVF but Obstetric fistula patients came after a prolong sufferings.

As more than 90% of uro-genital fistula develop from neglected obstructed labor specially in developing countries like Bangladesh. So we should give more

emphasis on the prevention of developing fistula. Every woman has got their birth right to safe motherhood. Both Government & private sector should come forward to tackle the age old problem of child bearing women. We have to stop early marriage, increase medical facilities, educate women, compulsory antenatal checkups, encourage hospital delivery, improve socio-economic condition etc measures can be taken to reduce the uro-genital fistula.

Prolong obstructed labor not only produces uro-genital tract fistula but also result in multiple birth related injuries, like urethral injury, cervical tear, vaginal stenosis, PID, infertility etc⁶. Since development of fistula is more common in poor uneducated women, so, they have to suffer a lot and can't express their sad ordeal to anyone. Sometimes they have to spend their whole life with it, unless some help is offered to them.

It has been observed that development of VVF is on the rise, in the country, following Gynecological operations. Only properly trained doctors should do the pelvic surgery.

In our series, most of the operations were done through vaginal route, as it is less traumatic and reduces the

post operative morbidity⁷. Successful repair of fistula depends on many factors like skill & experience of the surgeon, trained ancillary staffs, good theatre lights, basic surgical equipments etc. The post operative vigilant care is very much essential for successful outcome of operation.

There were lots of shortcomings in the theatre regarding OT light, basic surgical instruments and management of post operative patients. So, we had to use our own personal instruments for proper skillful surgery.

Since obstetric fistula is a preventable condition, so, every one concerned should pay more attention to reduce this old debilitating & disgraceful condition for women.

VVF/RVF can be repaired successfully after proper training, with a high percentage of closure. Once a specialist is trained, he/she should continue doing VVF-repairs with a minimum 30-40 per year. More centers, more doctors & nurses should be trained to tackle the present situation in Bangladesh. Awareness among the expectant mother regarding the consequences of pregnancy should be increased. Training is best done through workshops, in-service training at specialist centers and regular supervisory visits. Both Government and private sector should come forward to handle the huge task. We must offer women a safe motherhood, so, that they can live with their birth right and dignity in the society.

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STENTED LICH–GREGOIR URETERONEOCYSTOSTOMY IN RENAL TRANSPLANTATION: AN EXPERIENCE AT BANGABANDHU SHEIKH MUJIB MEDICAL UNIVERSITY IN BANGLADESH

ATM A ULLAH¹, M HOSSAIN¹, M N HOODA², MS ISLAM³, MM HAQUE⁴, AKM K ALAM⁵, AKM A ISLAM⁵
SAM G KIBRIA

Abstract

Ureteral reimplantation is one of the important components of reconstruction of urinary tract in renal transplantation. There are various techniques of ureteral reimplantation, of which Extravesical Lich-Gregoir is the ideal technique for renal transplantation. Extravesical ureteroneocystostomy to reestablish urinary tract continuity in renal transplantation has been examined through a study of 140 kidney transplants leading to the finding that stented anastomosis was associated with a lower urologic complication rate. We now report the urologic complication rate in our case series in which stented Lich–Gregoir anastomosis was routinely utilized.

Methods. The records of 140 consecutive renal transplants were reviewed. Minimum follow-up time was 3 months. The standard anastomosis was a Lich–Gregoir with a 5-6 Fr cm D-J stent. Monitored urologic complications included postoperative vesicoureteral leak or ureteral necrosis, obstruction or stricture, or clinically significant hematuria.

Results. One urologic complication were noted—one leak and no other complication. There were no stent-related complications requiring reoperation. There were no cases in which the urologic complication led to graft loss or patient death.

Conclusions. The urologic complication rate in this case series is less to the five previously published randomized trials, as well as our previous study. These results support the routine use of a ureteral stent.

Introduction

Ureteral reimplantation is one of the important components of reconstruction of urinary tract in renal transplantation. Various techniques of ureteral reimplantation have been described for different indication. Indication of reimplantation are numerous and varied. Five techniques were used by Aboutaieb and colleagues like Leduc-Camey, Leadbetter-Politano, Direct, Manchette, Lich-Gregoir as transvesical and extravesical procedure and conclude Lich-Gregoir is the

ideal technique for renal transplantation (Aboutaieb et al-1996)¹. Urinary tract reconstruction is usually by antireflux ureteroneocystostomy, of which there are various techniques for ureteroneocystostomy in renal transplantation (Leadbetter-Politano-1958, Mac kinnon et al-1968, Konack et al-1975, Texter et al-1976, Barry 1983)². Intravesical and extravesical ureteroneocystostomy are the two principle approaches for re-establishing urinary tract continuity in renal transplantation³. Extravesical ureteroneocystostomy has become the standard for reestablishment of urinary tract continuity in renal transplantation given its technical ease and low complication rate. Evaluation of this technique has covered some 50 years of surgical progress.

R.Khauili have previously reviewed 49 published reports in which a Lich–Gregoir anastomosis was utilized, performing a meta-analysis to compare stented versus nonstented anastomoses. The stented Lich–Gregoir anastomosis was found to show a highly significant reduction in complication rate²⁻³. Multiple case series have been published in the past 8 (eight) years which establish the urologic complication rates of stented extravesical reconstructions between 0% and 4.6%⁴⁻¹³. Five randomized controlled trials have been reported with stented ureteroneocystostomy complication rates ranging between 0% and 3.5%^{3-4,13-17}. Other recent reports, using a nonstented, Extravesical technique, show more variability with complication rates ranging between 2.8% and 21.4%^{3-4,13-15}. In our previous study of comparison between stented and nonstented ureteroneocystostomy in renal transplantation, found that there was no complication in stented cases except few infections². This paper reports the complication rate of routine stented Lich–Gregoir ureteroneocystostomy among 140 consecutive renal transplants over 6 and 1/2 years.

Methods

The records of 140 consecutive renal transplants were reviewed, covering the 6 and ½ year period between

January 2003 and June 2009. Routinely collected values included both laboratory and clinical data from the time of the transplant. Minimum follow-up time for this analysis was 3 months. All transplants were performed at a single hospital by different surgeons; the database review was completed by a third, independent physician. Identified urologic complications included postoperative vesicoureteral leak or ureteral necrosis, obstruction or stricture, or clinically significant hematuria. The incidence of vesicoureteral reflux and urinary tract infection was not quantitated for this report. Immunosuppression included induction with prednisolone and maintenance therapy with prednisone, tacrolimus or cyclosporine, and mycophenolate mofetil. Rejection episodes were treated with pulse dose steroids.

All transplants were performed using a standard retroperitoneal approach with pelvic placement of the kidney and vascular anastomoses to the external iliac artery and vein. A Lich–Gregoir extravascular ureteroneocystostomy was constructed over a ureteral stent. An antireflux tunnel was routinely constructed using the bladder wall, thereby covering the ureteroneocystostomy. The stent as a D–J stent which ranged in size from 4 to 6 Fr and in length from 16 to 26 cm. An extravascular external drainage device was routinely used. Drain was removed 4–7th postoperative day except one which was removed at 15 days. The urinary bladder catheter was routinely removed on postoperative day 7–10. Stent removal by routine cystoscopy after 6 weeks as outpatient under local anesthesia.

Results

Among the 140 recipients, 109 were men. All are live related donor kidneys. Recipient ages ranged from 17 to 53 years, with a mean age of 30.98 years. There were no death and or graft rejection within 30 days of transplantation. All transplants were single kidney only with no multivisceral procedures. There was one urologic complication (0.71%): one patient experienced leak. There were no stent-related complications. Several patients with persistent postoperative urinary infections had the stent removed sooner than the routine 6 weeks. There were no cases in which a urologic complication led directly to graft loss or patient death. Among the patient with urinary complication with leakage required conservative management with 15 days catheterization. Patient stayed in hospital for 30 day as our protocol. No patient need overstay in hospital. The costs

associated with patient time, pain, and anxieties are impossible to quantify.

Discussion

The extravascular ureteroneocystostomy is a simple, easy to reestablishing urinary tract continuity in renal transplantation. This approach is associated with a low complication rate and is simple to teach and to learn.

Thus, most centers have adopted this technique. Many surgeons have added the step of placing a ureteral stent across this anastomosis with recent published urologic complication rates ranging from 0.0% to 4.6% with a stent in place. A meta-analysis, which includes data from over 14,000 kidney transplants from 5 randomized controlled trials and 44 case series, shows the stented anastomosis to have a significantly lower complication rate when compared to a nonstented anastomosis. We now present the results of 140 renal transplants completed over 6 and ½ years in which a ureteral stent was routinely used in conjunction with an extravascular anastomosis. We found a 0.71% urologic complication rate with no stent-related graft loss or significant patient morbidity. The physiologic benefit of the ureteral stent may derive from postoperative ureteral decompression. The stent allows for continued urinary flow during the period of postoperative edema in which the anastomosis may be compromised by high intraluminal pressure³. The inherent stiffness of the stent may keep the ureter aligned, thereby minimizing kinking.

Proposed drawbacks to stent use include the increased risk of postoperative urinary infection, dislodgement of the stent resulting in injury or obstruction, ureteral erosion, and the need for a posttransplant invasive procedure for stent removal. In our population, we did not document any occurrences of stent dislodgement or ureteral erosion. There were patients who required stent removal for persistent urinary infection, although the exact number was not documented. There were no instance of graft loss related to stent use. Because we did not have any instance of stent-related obstructive or migration complications, these potential associated costs were not included in our overall cost-effectiveness analysis.

This case series demonstrates that routine stenting of the Lich–Gregoir ureteroneocystostomy is clinically feasible and is associated with a low urologic complication rate. Khauli and Ayvazian¹³ reported a series of 300 consecutive stented renal allografts using a modified extravascular ureteroneocystostomy reporting

no ureteral or bladder leaks, with 0.7% of patients developing a delayed stenosis. Five randomized, controlled trials since 1995 have directly compared stented and nonstented anastomoses. Among these studies, the stented grafts consistently showed a lower urologic complication rate, which ranged between 0.0% and 3.5%. This compares to urologic complication rates between 6.6% and 13.3% for nonstented anastomoses within these same five randomized trials.

The present report of nearly 400 transplants in which a stented anastomosis was utilized is similarly successful, supporting the routine use of a ureteral stent for extravesical ureteroneocystostomy. The costs associated with stent use are relatively minimal compared to the overall costs associated with management of leak in kidney transplant. In one calculation, the cost of preventing each leak is approximately \$15,000¹³. Human and societal costs for these complications are impossible to quantify. Some ureteral strictures and leaks can be managed with minimally invasive techniques such as antegrade or percutaneous stenting, but other complications require reoperation, can lead to graft loss, and may be associated with patient death.

Conclusion

Based on the available evidence, we suggest routine use of stent in all renal transplants for prevention of urologic complications.

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IN SITU ESWL AND ESWL AFTER PUSH BACK FOR UPPER URETERIC CALCULI: A COMPARATIVE STUDY

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Abstract

This prospective study has been done to compare the results of treatment of uncomplicated upper ureteral calculi by in situ ESWL and ESWL after push back. Ninety consecutive patients with single upper-ureteric stones of < 1 cm in size with no distal obstruction were selected and divided into two groups. Fifty patients in group 1 were treated by in situ ESWL while 40 patients in group 2 were treated by push back followed by ESWL. In the in situ ESWL group, 56% cases were cleared of stone after 1 week of first session, 24% cases required second and 10% cases required third sessions for complete clearance of stone. Overall 90% clearance was achieved after 90 days in this group. In the ESWL after push back group, 52.5% cases were cleared of stone after 1 week of first session, 30% cases required second and 10% cases required third sessions for complete clearance of stone. Overall 92.5% clearance was achieved after 90 days in this group. Although more clearance rate was achieved in ESWL after push back, it was not statistically significant ($p > 0.05$). The number of average ESWL sessions required was 1.54 for stone < 1 cm and 1.77 for stone of 1 cm in the in situ ESWL group, whereas it was 1.46 and 1.48 respectively for stones < 1 cm and of 1 cm respectively in the ESWL after push back group, however this difference was not statistically significant. More shock wave and energy was needed in the in situ ESWL group than in ESWL after push back group. The mean shock wave was 1994 ± 449 for in situ ESWL group and 1757.5 ± 255 for 17S117, after push back group, which was statistically very significant ($p < 0.01$). The mean energy used was 5.07 ± 0.81 in the in situ ESWL group and 4.6 ± 0.48 in ESWL after push back group and this difference was also statistically significant ($p < 0.01$). Post procedure complications like loin pain, noninvasive nature of ESWL has a strong appeal to the patients and physicians, and has become the first line treatment option for proximal ureteral stones. Although some urologists claim a higher success rate of ESWL after push back procedure, the invasiveness of the additional ureteral manipulation must be considered⁶. On the other hand, in situ ESWL for uncomplicated upper ureteric calculi is appealing because it is noninvasive, requires no anesthesia, low

morbidity, low cost and can be performed as an outpatient therapy and offers acceptable results. So, this study has been done to compare the results of treatment of uncomplicated upper ureteral calculi by in situ ESWL and ESWL after push back.

Materials and Methods

This prospective study was done in the Department of Urology, Bangabandhu Sheikh Mujib Medical University from Jan 2009 to Dec 2009 after getting approval from the institutional review board. Ninety patients with single upper ureteric stones of < 1 cm in size with no distal obstruction were selected and divided into two groups. Stones located < 2 cm lateral to the spine, size > 1 cm in size, pregnant women and patients with bleeding disorders were excluded from the study. After taking the informed consent, 50 patients of group 1 were treated by in situ ESWL while 40 patients of group 2 were treated by push back followed by ESWL. In all cases, ESWL was done by Siemens Lithoskop (3rd generation) lithotripter.

All patients were thoroughly examined and routine investigations done. IVU was done in all patients to see the condition of kidneys, grade of hydronephrosis, location and size of stone. All patients were advised to take mild laxative and ultracarbon in the night before ESWL. All patients were nothing per oral from morning on the day of procedure and were given intravenous fluid & diclofenac suppository half hour prior to the procedure. Additional analgesia or sedation was given on demand basis. In patients of group 2, a pre-ESWL push back procedure was done under general anesthesia and fluoroscopic guidance. After dislodging the stone back into the kidney, a DJ stent was kept in situ and ESWL was done.

After ESWL, all patients were advised to follow up after 7 days with a plain X-ray of KUB region, and if necessary second & third session of ESWL were given at one week interval. If the stone fails to clear after third session, the patient was observed for 90 days to see stone clearance. Refractory cases were referred for other modalities of treatment. The data were analyzed using SPSS version 12. Student's t test and chi square test were used and p-value of < 0.05 was considered significant.

Results

The demographic and baseline characteristics of the patients are shown in table I.

Table-I

Demographic & baseline characteristics among the groups.

Characteristics	Group I (N= 50)	Group II (N= 40)
Mean age t SD	34.86+11.74	35.12+14.48
Range (years)	17-62	16-62
Sex distribution		
Male	32(64%)	30(75%)
Female	18 (36%)	10(25%)
Involved ureter		
Left	35 (70%)	30(75%)
Right	15 (30%)	10(25%)
Size of stone		
<1 cm	28 (56%)	15 (37.5%)
1 cm	22(44%)	25 (62.5%)

The outcome variables were stone clearance rates (table 11), ESWL sessions required, shock wave & energy required, post procedure complications and hospital stay (table-II).

Table-II

Stone clearance rates between the groups.

Stone clearance rates	Group I (in situ)	Group II (push back)	p-value
Clearance after 1st session			
< 1 cm	18(36%)	8(20%)	> 0.05°
1 cm	10(20%)	13 (32.5%)	
Clearance after 2nd session			
<1 cm	5 (10%)	5 (12.5%)	> 0.05"
1 cm	7(14%)	7 (17.5%)	
Clearance after 3 rd session			
< 1 cm)	3 (6%)	2(5%)	> 0.05"
1 cm	2(4%)	2(5%)	
Overall clearance after 90 days			
< 1 cm)	26(92.86%)	15(100%)	> 0.05"
1 cm	19(86.36%)	22 (88%)	

" χ^2 " test was not significant

Table-III

Number of ESWL sessions, shock wave & energy required, complication & hospital stay between the groups.

Variables	Group I (in situ)	Group 2 (push back)	p-value
Avg. ESWL sessions required (n)			
< 1 cm	1.54	1.46	> 0.05n
1 cm	1.77	1.48	
Shock waves required (n)			
Mean \pm SD	1994 \pm 449	1757 \pm 255	< 0.01
Range	1500-5000	1000-2000	
Energy required (KV)			
Mean \pm SD	5.07 \pm 0.81	4.63 \pm 0.48	<0.01*
Range	4-8	4-6	
Complications (n)			
LOTS	12(24%)	28(70%)	<0.00P
Loin pain	20(40%)	25(62.5%)	<0.0V
Fever	5 (10%)	12(30%)	<0.0V
Hematuria	15 (30%)	28(70%)	<0.001"
Hospital stay (days)			
Mean \pm SD	1.06 \pm 0.24	2.4 \pm 0.74	<0.001
Range	1-2	2-5	

" χ^2 test was not significant; * t test was significant, " x test was significant

Discussion

In the in situ ESWL group, 28 (56%) cases were cleared of stone after 1 week of first session, among which 18 (36%) were <1 cm in size and 10 (20%) were 1 cm in size. However, the higher clearance rate of the smaller stones was not statistically significant. It was also observed that 12 (24%) cases required second and 5 (10%) cases required third sessions for complete clearance of stone. Overall clearance was achieved in 45 (90%) cases after 90 days in this group. These findings are similar to those by El-Gammal et al. (1992) who reported 94.8% clearance rate for upper ureteric stones treated by EWSL in situ with 66.7% patient stone free after first session, 17.7% needed two sessions and 8.5% required three sessions'. Similarly, Shameen et al. (2001) also reported good results with 96.6% stone free rates in a study. on 118 patients of ureteral stones of mean 11.1 mm in size treated with in situ ESWL using Lithostar plus lithotripter⁸.

In the ESWL after push back group, 21 (52.5%) cases were cleared of stone after 1 week of first session, among which 8 (20%) were <1 cm in size and 13 (32.5%) were 1 cm in size. However, the higher clearance rate of the larger stones was not statistically significant. It was also observed that 12 (30%) cases required second and 4 (10%) cases required third sessions for complete clearance of stone. Overall clearance was achieved in 37 (92.5%) cases after 90 days in this group. Although more clearance rate was achieved in ESWL after push back, it was not statistically significant ($p > 0.05$). Danuser et al. (1993) also reported 96% stone free rates at 3 months after ESWL_ in situ and 94% stone free rate at 3 months after push back followed by ESWL. Similarly, Kumar et al. (1994) in a similar comparative study showed 80% clearance rate in group 1 and 88.5% clearance in group 2 at 3 months. These results compare favorably with our study although making comparison between them is difficult since the criteria for disintegration and the type of lithotripter used varied.

The number of average ESWL sessions in our study was 1.54 for stone <1 cm and 1.77 for stone of 1 cm in the in situ ESWL group (group 1). where as it was 1.46 and 1.48 respectively for stones <1 cm and of 1 cm respectively in the push back followed by ESWL group (group 2). Although less number of ESWL sessions were required in push back group, it was not statistically significant. In a study by Kumar et al. (1994), the number of average sessions was 1.86 1.2 and 2.03 1.2 respectively for in situ ESWL & ESWL after push back⁸.

In our study, more shock wave and energy was needed in the in situ ESWL, group than in ESWL after push back group. The mean shock wave was 1994 449 for group 1 and 1757.5 255 for group 2. The difference between the two groups was statistically very significant ($p < 0.01$). The mean energy used was 5.07 0.81 in group 1 and 4.6 t 0.48 in group 2 and this difference was also statistically significant ($p < 0.01$). However, Danuser et al. (1993) found that more shock wave and energy was required for in situ ESWL rather than ESWL after push back.

Post procedure complications like loin pain, hematuria, lower urinary tract symptoms (LUTS) and fever were more common in group 2 than in group 1 in our study and the differences were statistically highly significant. All these complications were treated by conservative measures. Similarly, the mean hospital stay was 1.06+ 0.24 days for group 1 while it was 2.4+0.74 days for group 2 which is again highly significant ($p < 0.001$).

Hendrix et al. (1990) in a similar study reported an average hospital stay of 0.85 and 1.2 days for in situ ESWL and ESWL after push back groups respectively⁹.

Although exact cost of the procedure could not be determined because the service charges among the patients were not homogenous due to the provision of free and paying beds. However, the cost of group 2 was higher due to the charges for the push back procedure in addition to the charges of ESWL. For ESWL and patients in group 1, they have to pay only a one time charge of Taka 15000 irrespective of the number of sessions required. Moreover, the mean hospital stay in group 2 was longer with more working day loss for the patient. Thus, ESWL after push back was costlier than in situ ESWL.

Conclusion

Considering the findings of this study, it can be concluded that in situ ESWL is a better option than ESWL after push back for the management of upper ureteric stones in selected group of patients and thereby avoids a more invasive procedure. Besides, ESWL after push back may be reserved for the case that fails to clear the stones after in situ ESWL. A major limitation of this study was the non homogenous nature of study subjects, so further study with homogenous and large sample size is recommended to determine the optimum treatment option for upper ureteric stones more precisely.

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EVALUATION OF RENAL TUMOUR BY ULTRASOUND AND CT SCAN- A COMPARATIVE ANALYSIS

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Abstract:

Purposes: To compare the efficacy of ultrasound and CT scan in renal tumour evaluation and to establish by subsequent histopathology.

Introduction : Renal cell carcinoma accounts for about 3 % of all adult neoplasms. In detecting, characterizing and staging of renal tumours cross-sectional imagings are essential.

Methods: In this study 36 cases were selected non-randomly irrespective of age and sex according to selection criteria. The study was conducted from June 2006 to May 2007 in Banga Bandhu Sheikh Mujib Medical University and other Hospitals in Dhaka City in the department of urology on a quasi- experimental basis. After counselling and taking consent all patients were evaluated clinically and by ultrasound and CT scan. All patients underwent surgery followed by histopathology. All informations were collected in a pre-designed data collection sheet. Data were analyzed by computer software program-SPSS version 12 and by manual technique. Comparison and correlation between Ultrasonogram and CT findings were done by Chi-square test. Level of significance was expressed as P-value.

Results: Among 36 patients 21 were male and 15 female with a ratio of 1.4:1, age ranging from 3 to 73 years. In this study (from the data) 94.44%, 33.33%, 89.74% and 100%, 66.66% 97.43% respectively. And there was no statistical significance between these two imaging findings in renal tumour evaluation and P- Value was > 0.10 so it was not Significant.

Conclusion : Ultrasonogram and CT Scan are near equivalent to each other evaluation of renal tumour.

Key note: Renal tumour, Ultrasound, CT scan.

Introduction:

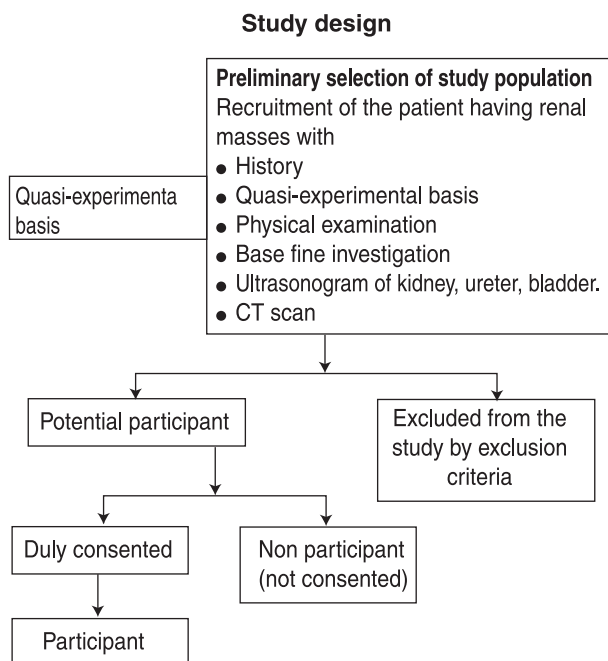
Renal tumours account for about 3% of all adult neoplasm, and about 85% of all primary malignant kidney tumours are renal cell carcinoma'. Renal tumours are being recently diagnosed at an earlier stage with greater

precision due to the introduction of advanced imaging technology². Renal tumours are frequently identified initially on ultrasound, although CT scan may also be used in the later circumstances of diagnostic uncertainty³. Although sonography is an excellent technique for the detection of renal cell carcinoma it can not be used as the sole staging technique⁴.

In poor socioeconomic context of Bangladesh sometimes we have to rely on ultrasound in renal tumour evaluation. So if it is possible to establish the role of ultrasound is equal or near to equal to CT scan in renal tumour evaluation it would be highly appreciable in respect of acceptability, availability, cost-effectiveness, suited for children, pregnant women, and patient with renal parenchymal impairment. Therefore this study was designed to elucidate and compare the roles of ultrasound and CT Scan in renal tumour evaluation.

Materials & method:

Initially a total number of 39 patients were selected non-randomly irrespective of age and sex from June 2006 to May 2007. Out of 39 patients 3 were excluded later on as per exclusion criteria and among rest 36 patients male were 21, female 15 having age range from 3 to 73 years. The cases were selected with the inclusion criteria having solid lesion of Kidney, complex cystic lesion of Kidney and exclusion criteria having hydronephrosis with or without hydroureter, chronic pyelonephritis, renal abscess renal carbuncle, adrenal tumour and congenital anomalies. All patients were evaluated clinically and by ultrasound and CT scan. They were all admitted in the hospitals department of urology-BSMMU and other hospitals in Dhaka . Surgery performed on them later on with post operative histopathological examination and staging was recorded. Data were collected and analyzed statistically by appropriate statistical methods and level of significance was expressed as P-value. a2 Value was 0.2136 and p-value was > 0.10 so it was not Significant.



Results and Discussion

Thirty- nine patients with clinically suspected renal tumour were studied from June 2006 to May 2007. This Study was carried out in the Urology Department of BSMMU, DMCH, NIKDU & Other hospitals in Dhaka City with Active co-operation of department of pathology and Radiology. Out of 39 patients 36 cases were diagnosed as renal tumours, other 3 cases were diagnosed as suprarenal mass, pyelonephritis and renal abscess; all were confirmed by histopathological examination.

Among the 36 cases with renal tumours, age ranges from 3 to 73 years, the most frequency of malignant

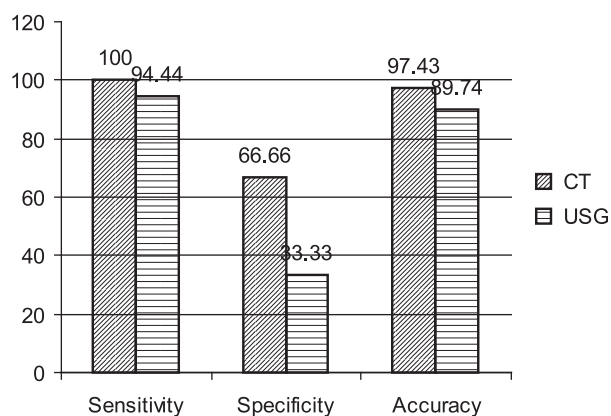


Fig-1 : Shows Sensitivity, Specificity and Accuracy of CT scan and Ultrasound in the diagnosis of renal tumour

lesion were found in the 5th to 6th decade. In this study 3 cases were found below 10 year of age, all of them were wilms tumour. The peak incidence of malignant lesions was found in the age group around 50 years, sex distribution showed 21 male (58%) and 15 female (42%) with ratio of 1.4:1. We found about 25% patients had loin pain, abdominal pain and lump 44% and classical triad with 11% with almost equally distributed between two kidneys. Left Kidney 50%, right Kidney 42% and bilateral 8 % affected.

Sonographically 19 cases (52.7%) were hypoechoic, of these 16 case (44.4% were RCC, 3 cases (8.3%) were wilms tumour. Mixed echogenic pattern were seen in 14 cases (38.8%, which consist of RCC 11 case (30.5 %), case was Wilms tumour (2.7 %), 1 case was TCC and 1 case (2.7%) was leiomyoma. Hyperechoic pattern found case of which 2 were RCC (5.5%), 1 was angiomyolipoma (2.7%). In this study there were two false positive case where one suprarenal tumour and another was case of pyelonephritis. There were two false negative results also. False negative examination in Ultrasonography may result from very small lesion, isoechoic mass or Profuse intestinal gas. The sensitivity, specificity, and accuracy of ultrasound were found 94.44% 33.33% and 89.74% respectively.

Neoplasms may be hypodense, isodense, hyperdense or mixed density on CT evaluation. Out of 36 case 27 case (75%) were mixed density lesion, all but one case were malignant . All malignant lesions enhanced heterogeneously. Only one case was unenhanced which was diagnosed as angiomyolipoma.

Calcification were seen in 3 cases (8%), In which 2 cases were RCC 1 was Wilms tumour. Most of the lesions were more than 3 cm. Only 1 was < 3 cm, which was missed on ultrasound.

In this study one case was diagnosed as bilateral renal angiomyolipoma. Fat density areas were present within the tumour. After contrast normal renal parenchyma enhanced sparing fat density areas. 4 cases were diagnosed as wilms tumours, 3 cases were paediatric age group but one case was adult. In our study out of 36 cases ultrasound found 2 case (5.5%) of venous invasion and 2 case (5.5%) of lymph node involvement but in CT 13 cases (36.1%) tumours extension were found in perinephric tissue. 2 cases (5.5%) were venous invasion, 4 cases 11.1% were lymph node involvement and 3 cases (8.3%) found adjacent organ involvement. The sensitivity, specificity and accuracy of CT scan were found 100% 66.66% and 97% respectively.

Conclusion:

Ultrasound and CT scan are near equivalent to each other in assessing renal tumour in terms of morphology, eco-texture, extension. Ultrasonogram is safe, cost-effective, easily available and acceptable to the patients, Higher resolution ultrasound even better than CT scan considering all circumstances.

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REVIEW ARTICLE

HOLMIUM LASER IN UROLOGY - A REVIEW ARTICLE

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Introduction:

The Laser (an acronym for light amplification by the stimulated emission of radiation) is a device of producing a highly directional beam of coherent (monochromatic and in phase) electromagnetic radiation, which may or may not be visible over a wide range of power outputs. The special qualities of laser light make it ideal for a variety of applications¹. In 1966, Parsons, using a ruby laser in a pulse mode, was the first urologist to experiment with laser light in canine bladder. Mulvane attempted to fragment urinary calculi 2 years later, again using the ruby laser. Subsequently, researchers tested many new substrates or lasing materials leading to diversity in their clinical application².

Basic principle:

When a photon of light energy of the same wavelength strikes an excited atom, that photon of light that is released are discharged simultaneously and will therefore be identical in frequency and phase. This is the concept of stimulated emission used in the creation of a laser². In medical applications, only light that is absorbed is useful, when laser light is incident on tissue, four things can happen:

- Some light is reflected .
- Some of the remaining transmitted light is scattered inside the tissue which in some cases lead to damage far beyond the area where the beam would seem to propagate through the tissue.
- Some of the remaining light is absorbed, either by water in the tissue or by some other absorber, known as a chromophore, such as haemoglobin and melanin.
- Finally, some of the light may be transmitted all the way through the tissue. The basic point is that only the third item-absorption, is of interest in almost all medical applications³ . Absorption is the most important interaction of laser light with tissue. A chromophore is required in order to achieve absorption. Body chromophores accessible for laser light include blood, water and melanin. Absorbed laser light is converted to heat and depending on the amount of heat, the clinical effect will be tissue coagulation or vaporization. Absorption depth is dependent on the

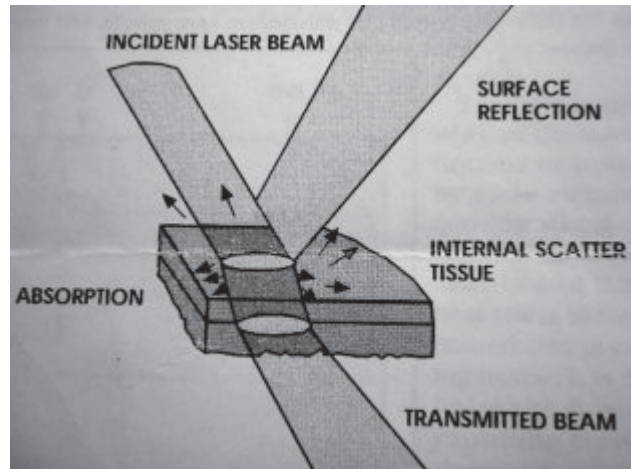


Fig.-1: The primary interactions of laser light with tissue

wave length of the laser². The above four mechanisms are illustrated schematically in figure 1

Kinds of laser:

There are four main types of laser.

1. Solid state lasers
 - Nd:YAG laser
 - Ho:YAG laser
2. Semiconductor lasers
 - Diode lasers
3. Gas lasers
 - Co₂ laser
 - Argon laser
4. Dye lasers

Types of commonly used lasers in urology:

Over the course of the last four decades, many possible application of laser in urology have been investigated. This trial and error era of the 1980s was a crucial step in the process of evaluation of this technology. Every imaginable use was explored and varying degrees of success was gained. To improve its safety an effectiveness it is constantly being refined.

Today, the types of lasers most commonly used in urology include

- For stone disease
- Ho:YAG,Pulsed dye,Alexandrite

- For Bladder malignancies
- Nitrogen laser
- For soft tissue incisions (urethral stricture, PUV, Bladder neck contracture, Endopyelotomy)
- Nd:YAG , Ho:YAG, or KTP
- For resection and ablation (eg, BPH, condylomata, penile carcinoma, bladder haemangioma)
- Nd:YAG, Ho:YAG, KTP:YAG,Co2
- For tissue welding (e.g., Vasovasotomy, Urethral reconstruction for hypospadias, Stricture, Diverticula, or Fistulas.
- Diode, KTP, Nd:YAG , or Co2

The Ho:YAG laser is currently the principal urological laser. It has a wavelength of 2140 nm and is highly absorbed by water and therefore by tissues which are composed mainly of water. The majority of the holmium laser energy is absorbed superficially, resulting in a superficial cutting or ablation effect. The depth of the thermal effect is no longer greater than 1 mm. The Ho:YAG laser produces a cavitations bubble that generates only a weak shock wave as it expands and collapses. Holmium laser lithotripsy occurs primarily through a photothermal mechanism that causes stone vaporization^{4,5}.

Uses of the Ho:YAG laser :

- Laser lithotripsy.
- Resection of the prostate
- Division of urethral strictures
- Division of ureteric strictures including PUJO
- Ablation of small TCC.

Advantages :

- The holmium laser energy is delivered via a laser fibre, which is thin enough to allow its use down a flexible instrument. It can access to otherwise inaccessible part of the kidney.
- Zone of thermal injury adjacent to the tip of the laser fibre is limited to no more than 1 mm.
- Can be used for all stone types.
- Minimal stone migration due to minimal shock wave

For resection of prostate, irrigant is normal saline. So the risk of TUR syndrome is avoided.

Disadvantages:

- High cost
- Produces a dust cloud during stone fragmentation, which temporarily obscure the views.

- Can irreparably damage endoscopes if inadvertently fired near or within the scope
- Relatively slow stone fragmentation
- The laser fibre must be painted over the surface of the stone to vaporize it

Ho:YAG laser in prostatectomy:

Several different techniques of laser prostatectomy evolved during the 1990s. Essentially in the year 2009 we are left just two – Holmium laser prostatectomy and the green light laser⁶. Ho:YAG laser enucleation of the prostate (HoLEP) combined with mechanical morcellation represents the latest refinement of Ho:YAG laser surgical treatment for BPH⁷. In this technique prostatic lobes are dissected off the surgical capsule and then pushed back in to the bladder. The laser fibre is analogous to the index finger of a surgeon during an open prostatectomy. Generally three whole lobes are enucleated, two lateral and one median. A transurethral soft tissue morcellator was developed contemporaneously which allowed these lobes to be evacuated from the bladder. The operative time has been shortened considerably compared with HoLRP. In absence of morcellator mashroom technique can be applied. Where the last attachment of prostatic tissue that is not detached, dissected by conventional TURP.

HoLEP is technically more difficult to master than laser vaporisation and has a longer learning curve, but the overall results are at least equivalent to TURP with fewer associated risks. At short-term follow up , HoLEP has proven equivocal results to TURP, however the HoLEP group had shorter catheterisation times and hospital stays, and a larger volume of prostatic tissue was removed⁸. Long term follow up (7years) demonstrates sustained significant improvements in symptom scores and flow rates⁹. In a direct comparison with open prostatectomy, HoLEP has also demonstrated equivalent improvement in symptom scores and flow rates at 3 years follow-up¹⁰.

Holmium laser ablation of the prostate(HoLAP)

A side firing dual wave length fibre is used in a near contact mode to vaporise prostate tissue circumferentially to produce a satisfactory channel. Original techniques 60 watts laser, however lasers up to 100W are now available. Symptom improvements are sustained in the long term¹¹ , and when directly compared with TURP, similar efficacy was in the HoLAP group, and less bleeding than for TURP¹² . Both the study suggest over all it is most effective for smaller prostate glands.

Holmium laser resection of the prostate (HoLRP):

This technique copies that of TURP, where by the precise cutting ability of the holmium laser is used to remove pieces of prostate down to the capsule, to create a large and relatively bloodless channel. It can be used on prostate glands of all sizes. Again, it has short catheterisation times and hospital stays, and is associated with minimal post operative dysuria¹³.

Advantages of Ho:YAG Laser in Prostatectomy :

- i. HoLEP is superior to TURP in reliving the BOO urodynamically .Catheter time , hospital stay is lesser ^{14,15} .
- ii. For larger Prostate there is no fear of TUR syndrome as saline is using as irrigation fluid.
- iii. Blood transfusion is hardly necessary as bleeding is minimal¹⁶
- iv. Stopping of anticoagulant is not mandatory¹⁶

Ho:YAG laser in lithotripsy :

The Ho:YAG laser is one of the safest , most effective and most versatile intracorporeal lithotripter.It produces significantly smaller fragments in comparison to other lithotrites. This small fragments are easily irrigated out so extraction by grasper and baskets are reduced¹⁷. The Retropulsion of the stone is minimum as it produces minimum shock waves.

Ho:YAG laser in Stricture:

For Stricture disease results are mixed. It is not known of lasers after a significant advantage over electrocautery or cold knife incision techniques¹⁸.

Ho:YAG laser in Bladder Tumour:

Ho:YAG laser ablates tissue by cutting (Vaporization) .Thus have limited applicability due to lack of deep coagulation ¹⁹.

Other uses:

Ho:YAG laser can be used in ureteral stricture, ablation of TCC, BNI, Condylomata, penile carcinoma.

Conclusion:

'A splendid light has dawn on me...'

Albert Einstein.

The introduction of laser in urology was met with great excitement and enthusiasm.

With the Widespread use of small diameter endoscopic instrument, urology has been drastically and positively influenced by this laser technology. Ho:YAG laser is

one of the widely used technology in this regard . So far in the management of stone diseases Ho:YAG is better and effective than any other available lithotrite.From published reports the role of the holmium laser in the management of urolithiasis and BPH is well established. Besides other techniques Ho LEP Has Shown the Procedure to be a safe and effective alternative for the surgical treatment of BPH²⁰ .The procedure has been shown to have superior short and long term outcomes to transurethral resection of the prostate (TURP) and suprapubic prostatectomy. Benifits of the HoLEP procedure include complete removal of the adenoma to the level of the prostate resecting in a less than 2% retreatment rate, lack of surgical incision, and no effect on erectile function. Furthermore, HoLEP can be performed on prostate of any size²¹.The erbium: yttrium-aluminium-garnet(Er:YAG) laser has been studied for urologic application. Studies have suggested that the Er:YAG laser may be superior to the Ho:YAG laser for precise ablation of strictures with minimal peripheral tissue damage and for more efficient laser lithotripsy²².The thulium:YAG laser has recently been investigated in an attempt to improve on some of the shortcomings of the Ho:YAG laser.This new laser more closely matches the water absorption peak in soft tissue to minimize collateral tissue damage. It has also been studied as a new endoscopic lithotrite, with promising initial results. Clinical experience with this laser is limited and reflects technical issues with the fibre delivary systems²³At present no user friendly delivary system that allows for endoscopic use exists. Further developments are anticipated eagerly. New lasing mediums are the subjects of intense reaserch and development worldwide. Plastic conjugated polymers are one of the most promising mediums under study.

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CASE REPORT

ELECTRICAL WIRE AS A FOREIGN BODY IN A MALE URETHRA: A CASE REPORT

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Abstract

Self-inflicted foreign bodies in the male urethra and urinary bladder are an emergency that urologists may rarely have to face. A case of an electrical wire inserted in the male urethra and coiled in the bladder is presented here. A 33-year-old male presented with the inability to void and bloody urethral discharge after having introduced a long electrical wire in his urethra for masturbation 6 hours earlier. He had made several unsuccessful attempts to remove it. We know that variety of these objects may be impressive and removal of the foreign body may be quite challenging requiring imagination and high-level surgical skills. In this case an electrical wire was used and the diagnostic as well as the therapeutic steps for its removal are presented here.

Introduction

Self-insertion of foreign bodies into the male urethra and urinary bladder for autoerotic stimulation is rather a rare emergency condition that an urologist may encounter. A case of an electrical wire inserted in the male urethra and coiled in the bladder is presented.

Case presentation

A 33 year old male presented with the inability to void and bleeding per urethra after having introduced an electrical wire into his urethra for masturbation 6 hours earlier. He had made several unsuccessful attempts to remove it.

During the physical examination, the end of the wire was observed in the urethral meatus. An x-ray of kidney, ureter, bladder (KUB) demonstrated a long coiled up radiopaque wire inside the bladder. The wire had multiple knots in urethra & urinary bladder. The patient was married with a child and his wife accompanied him. His socioeconomic status was of middle class. It was the first time he had ever introduced a foreign body in his urethra and he had no history of psychiatric illness or drug addiction. After giving his formal consent, the patient was taken to the operating room. Under spinal anesthesia an unsuccessful trial was made to pull out

the wire as the wire had multiple knots. An attempt was made to insert a 19Fr cystoscope or an 8Fr ureteroscope parallel to the wire but this was impossible due to lack of space. As there were multiple knots in the wire in urethra, a ventral urethrotomy was performed and the wire was removed. Urethrotomy wound was repaired with 5-0 vicryl. A urethral catheter was passed. The patient was discharged on the third postoperative day and the urethral catheter was removed on the 14th postoperative day. He was on intravenous antibiotics for three days and on oral antibiotic regimen for another week. On the six month evaluation, the patient is well with a normal uroflow and no symptoms of urethral stricture.



Fig- 1: End of the wire outside the urethral meatus.

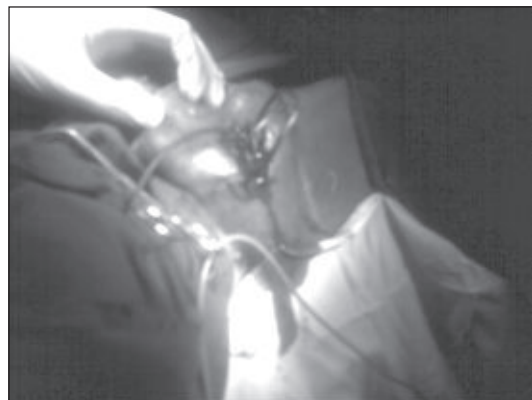


Fig- 2: Intra-operative view through a urethrotomy.



Fig- 3: *Wire after removal*



Fig- 3: *Electric Wire in X-ray Film*

Discussion

A large number of self-inflicted foreign bodies have been reported in the male urethra and urinary bladder¹⁻⁵. The variety of these objects is really impressive, including sharp and lacerating objects (e.g needle, pencil, wire), wire-like objects (cable, rubber tube), parts of animals (bones) or plants and vegetables (hay, cucumber), fluids (e.g, glue) and powders (e.g, cocaine)¹.

The most common reason for self-insertion of a foreign body into the male urethra is of erotic or sexual nature, especially masturbation or sexual gratification¹⁻⁴. A mental illness or drug intoxication may also be the reason^{1,2}. Masturbation in males is very frequent with a rate close to 100%⁶. In the majority of cases, the patient feels guilty and humiliated^{1,2}, therefore he postpones the search for medical help. In our case, the patient was expressing repentance for his action. A few very interesting psychiatric-psychoanalytic theories have been postulated. According to Kenney’s theory, the initiating event is the coincidentally discovered pleasurable stimulation of the urethra, followed by repetition of this action with objects of unknown danger,

driven by a particular psychological predisposition to sexual gratification^{1,7}. Wise considered urethral manipulation as a paraphilia combining sadomasochistic and fetishistic elements where the orgasm of the individual depends on the presence of the fetish. He believed it shows a regression to a urethral stage of erotism due to a traumatic event or a strong libidinal drive^{1,8}. From the clinical view, many authors advocate the psychiatric evaluation of these patients, based on theories that consider this act as an indication of an impulsive behavior, self-punishing in nature that may aggravate to suicide¹. The psychiatric evaluation is controversial as many of these patients are psychologically normal². In our case, psychiatric evaluation was performed by a psychiatrist revealing no signs of depression or impulsive behavior.

Clinical presentation may vary from asymptomatic to swelling of external genitalia, dysuria, poor urinary stream or retention, bloody or purulent urethral discharge and ascending urinary tract infection^{1,2}.

Depending on the type of foreign body and its location, various methods of removal have been described, including meatotomy, cystoscopy, internal or external urethrotomy, suprapubic cystostomy, Fogarty catheterization, and injection of solvents. Removal of the foreign body may be quite challenging requiring imagination and high-level surgical skills. Endoscopic therapy is the standard. The most suitable method is relevant to the size and mobility of the object. In the majority of mobile objects inside the urethra, the mobility is towards the bladder where, after having been pushed, the foreign body can be grasped by forceps or retrieval baskets. Nephroscopes have been used for the retrieval of screws as well as magnetic retrievers for galvanic objects¹. The YAG laser has also been used lately⁵. In cases where endoscopic procedures are unsuccessful, then open surgery is recommended. For objects stuck in the penile urethra, external urethrotomy is recommended⁹, while for intravesical foreign bodies, a suprapubic cystostomy is the treatment of choice. In our case external urethrotomy was performed as the wire had multiple knots located in the urethra.

Conclusion

A self-inflicted foreign body in the urethra and bladder is a rare situation. Endoscopic manipulation is the preferred first-line treatment and if unsuccessful, open procedures may be necessary.

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