



Bangladesh Journal of Urology

VOLUME 14

January 2011

NUMBER 1

CONTENTS

Editorial

- Prospect of Renal Transplantation in Bangladesh 1
Md. Habibur Rahman (Dulal)

Original Articles

- Comparison of Renal Function Before and After Pyeloplasty Determined by ^{99m}Tc - DTPA Renography 3
MW Islam, MN Hooda, KR Abedin, MF Islam, SA Khan, MS Islam, P Sultana, AKM ZI Bhuiyan
- Outcome of Orthotopic Neobladder After Radical Cystectomy 7
MA Salam, MS Islam, MM Uddin, MM Shafiqur, S Hasan, P Saha, KR Abedin, GM Maula
- Incidence of Chips Positive Carcinoma of Prostate Following Turp For Clinically Benign Prostatic Hyperplasia Patients with Normal Serum PSA 14
HF Karim, MN Hooda, MW Islam, MAK Sarker, KR Abedin, S Shahjamal, S Nabi, K Ara, F Khatoon
- Closure of Abdominal Defect by Using Native Detrusor Muscle for Bladder Exstrophy 19
ATMA Ullah, MIM Choudhury, S Regmi, AKMK Alam
- Dorsolateral Onlay OMG Urethroplasty Through Unilateral Urethral Mobilization in Anterior Urethral Stricture - Our Experience in Dhaka Medical College Hospital and Salam Urology & Transplantation Foundation of Bangladesh (SUTF) 22
MF Islam, ME Haque, MW Islam, MN Hooda, MS Alam, MF Naser, MA Awal, A Rasul, MA Rahman, I Kaisar, MR Chow, MM Rahman, SMM Alam, MA Salam
- Clinical Profile and Management of Uterovaginal Prolapse with Lower Urinary Tract Symptom (LUTS) 26
S Begum, S Sharmin, P Sultana, AN Chowdhury, P Sultana, S Nabi, MN Uddin, MM Hasan

Review Articles

- Common Neurogenic Bladder Disorder Due to Spinal Cord Injuries - A Review 31
ATM A Ullah, MS Hasan, TMS Hossain, MS Rahman

Case Report

- Vesical Injury During Total Abdominal Hystrectomy - A Case Report 35
MW Islam, MN Hooda, KR Abedin, MS Islam, AKMZI Bhuiyan

Abstract From Current Literature

36

BANGLADESH JOURNAL OF UROLOGY

EDITORIAL BOARD

Chairman	:	Prof. SAM Golam Kibria
Editor	:	Prof. MA Salam
Assistant Editor	:	Dr. AKM Khurshidul Alam
Members	:	Prof. MA Wahab Prof. AKM Anwarul Islam Major General (Dr.) Md. Ali Akbar (Rtd.) Prof. M Fakhruul Islam Dr. AKM Zamanul Islam Bhuiyan Dr. SM Mahbub Alam Dr. Isteaq Ahmed Shameem Dr. Md. Jahangir Kabir Dr. Md. Zahid Hasan Bhuiyan Dr. Md. Shafiqul Alam Chowdhury Dr. Md. Waliul Islam Maruf

BANGLADESH ASSOCIATION OF UROLOGICAL SURGEONS

EXECUTIVE COMMITTEE 2010 - 2011

President	:	Prof. AKM Anwarul Islam
Vice-Presidents	:	Prof. AKM Zamanul Islam Bhuiyan Prof. S.M. Mahbub Alam
Secretary General	:	Dr. Md. Nurul Hooda Lenin
Treasurer	:	Dr. Md. Mizanur Rahman
Joint Secretary	:	Dr. Md. Shafiqul Alam Chowdhury (Shamim)
Organizing Secretary	:	Dr. Tohid Mohammad Saiful Hossain
Scientific Secretary	:	Dr. Isteaq Ahmed Shameem
Office Secretary	:	Dr. Md. Mostafizur Rahman
Cultural Secretary	:	Dr. Md. Shawkat Alam
Press & Publication Secretary	:	Dr. Md. Waliul Islam Maruf
Members	:	Prof. MA Wahab Major General (Pror) Md. Ali Akbar (Rtd.) Prof. M. Fakhruul Islam Dr. Md. Jahangir Kabir Dr. AKM Khurshidul Alam Dr. Kazi Rafiqul Abedin Dr. ATM Aman Ullah Dr. Md. Abdul Awal
Zonal Organizing Secretaries	:	Dr. Md. Sabbir Ahmed Khan - Dhaka Dr. ABM Golam Robbani - Rajshahi Dr. Pranashis Saha - Sylhet Dr. Md. Monowar-UI-Haque (Shamim) - Chittagong Dr. Md. Zahid Hussain - Khulna Dr. Md. Shahidul Islam - Rangpur
Ex-officio	:	Dr. Md. Habibur Rahman Dulal

INFORMATION FOR CONTRIBUTORS

Papers :

Papers submitted must not have been published in whole or in part in any other journal, and are subject to editorial revision. It is a condition of acceptance for publication that copyright becomes vested in the journal and permission to republish must be obtained from the publishers.

Papers based on clinical investigation should conform to ethical standards as set out in the declaration of Helsinki. In the case of animals studies it is the responsibility of the author to satisfy the Board that no unnecessary suffering has been inflicted.

Legal Considerations :

Authors should avoid the use of names, initials, and hospital admission numbers which might lead to recognition of a patient. A patient must not be recognizable in photographs unless written consent of the subject has been obtained. A table or illustration that has been published elsewhere should be accompanied by a statement that permission for reproduction has been obtained from the author and publishers.

Preparation of Manuscript :

Two copies of each manuscript should be submitted and should indicate the title of the paper, the name (s), qualifications and full address of the authors(s), and be double-spaced typing on one side only of the paper, with a wide margin. Contributors should retain a copy in order to check proofs and in case of loss.

Manuscripts should be accompanied by a formal letter of request for publication which should be signed by all of the authors.

Papers generally shall be subdivided into :

Title page
Summary
Introduction (not headed)
Methods
Results
Discussion
Acknowledgements
List of references
Tables
Illustrations

Title Page :

There should be a separate title page, including the name(S), degrees and address (es) of author(s). It should be made clear which address relates to which author. Author's present address differing from those at which the work was carried out, or special instructions concerning the address for correspondence, should be given as a footnote on the title page and reference at the appropriate

place in the author list. If the address to which proofs should be sent is not that of the first-mentioned author, clear instructions should be given in a covering note and not on the title page. The title page should be paginated as page 1 of the paper.

A short running title containing not more than 50 characters and spaces should also be suggested.

Summary :

The summary will be printed at the beginning of the paper. It should be on a separate sheet, in the form of a single paragraph which gives a succinct account of the problem, the methods, results and conclusion and normally should be of 50-150 words. It may be used as it stands by abstracting journals.

Introduction :

The introduction should give a concise account of the background of the problem and the object of the investigation. Previous work should be quoted only if it has a direct bearing on the present problem.

Methods :

Methods must be described in sufficient in detail to allow the experiments to be interpreted and repeated by the reader. Any modification of previously published methods should be described and the reference given. If the methods are commonly used, only a reference to the original source is required.

Drugs :

When a drug is first mentioned it should be given the generic or official name, followed in parentheses by the chemical formula only if the structure is not well known, and by the capitalized proprietary name.

Results :

Description of experimental results, while concise, should permit repetition of the experiments by others. Data should not be repeated unnecessarily in text, tables and figures, and unwarranted numbers of digits should be avoided. Significance should be given as values of probability. The desired position of tables and figures may be indicated by written instruction enclosed within line and brackets, for example :

(Table-1 near here)

Discussion :

The discussion should not merely recapitulate the experimental results, but should present their interpretation against the background of existing knowledge. It should

include a statement of any assumptions on which conclusions are based.

Acknowledgement :

Acknowledgement will be printed in small type. They should be brief, and should include references to sources of drugs not freely available commercially.

References :

References should be limited. Only paper quoted in the text are to be listed in the bibliography. The references should be numbered consecutively as it appear in text and listed at the end of the article as in International Committee of Medical Journal Editors Uniform Requirements for Manuscripts Submitted to Biomedical Journals.

Examples.

I. Papers Published in Journal

Patel R, Mickey MR and Tersaki PL. Leucocyte antigens and disease. Association of HLA A2 and chronic glomerulonephritis. Br Med J. 1969; 2: 424-426.

II. Article in Books :

Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. In: Vogelstein B, Kinzler KW, editors. The genetic basis of human cancer. New York: McGraw-Hill; 2002. p. 93-113.

III. Books :

Grindley MF : Manual of histologic and special staining Nephrologic, Elammarion, Paris, 1965.

It is essential that authors verify the content and details of references which they list, as this responsibility cannot be accepted by either Editors or Publishers.

Table :

All tables should be on separate sheets and be capable, with their captions, of interpretation without reference to the text. They should be numbered consecutively with Roman numerals. Units in which results are expressed should be given in brackets at the top of each column and not repeated on each line of the table ditto signs are not used.

Illustrations :

Photographs should be unmounted glossy prints, and should be protected adequately for mailing. Surfaces should not be marred with clips, pins or by heavy writing on the back. Drawings, charts and graphs should be in black India ink on white paper. Illustrations should be clearly numbered on the back, preferably in soft pencil, with reference to the text, and using Arabic numerals, they should be accompanied on a separate sheet by a suitable legend. Lettering should be professional-looking, uniform, preferably in a common typeface, large enough to read at a reduced size, and in proportion to the illustrated material. Lines in the original must also be thick enough to allow for reduction magnifications especially in photomicrographs, should be indicated by a scale on the photograph itself, in order to remain appropriate after reduction.

The name of the author and title of the paper should also be written in soft pencil on the back of the illustrations.

It is emphasized that care taken in the original preparation of figures will obviate time consuming and expensive necessity of their revision.

PROSPECT OF RENAL TRANSPLANTATION IN BANGLADESH

There are two cores of renal disease patients in Bangladesh. Every year 40 thousands people are affected with renal diseases. Only 5%-10% of the affected people can be provided with treatment. Because the treatment cost of renal failure is very high. Every year thirty five thousand patients die due to renal failure. Among the renal failure patients 75% patients can not understand that they are suffering from the dreaded killer disease. In Bangladesh near about 80% of the patient's loss their kidney functions permanently due to Nephritis, Diabetes & Hypertension.

This message of renal disease is really a terrific situation in the country. To overcome this dangerous situation we have to be conscious about our health, we have to be educated & lastly it is mandatory to have the exact treatment of renal failure. The ESRD patients cannot survive with medications only. It is needed either regular dialysis or renal transplantation¹. ESRD patients can survive 5-15 years with dialysis and 10-15 years with renal transplantation. With renal hemodialysis patient can survive up to 30 years & after successful renal transplantation a patient can survive up to 33 years.

Living related renal transplantation was started in Bangladesh in 1982. The organ act law for transplantation is passed by parliament in 1990. Till today about 730 Kidney transplantation have been done in this country. Among them 407 were done in BSMMU, 182 in Kidney Foundation Hospital, 67 in BIRDEM, 20 in NIKDU⁶, 27 in United Hospital and remaining in other centers in the country. The common causes of ESRD in transplant patients were Chronic glomerulonephritis (58%), Diabetic nephropathy (9%) and Hypertension (8%)³. From 1988 to 2006 Cyclosporine, Azathioprine and Prednisolone were used as immunosuppressive drugs². Since 2007 Mycophenolate mofetil has replaced Azathioprine. The overall graft survival is 95% in one year, 82% in 5 years and 78% in 10 years⁶. The first year cost of transplantation is around 300,000 Taka⁶. Majority of the donors were parents (50%), sibling (30%) and spouse (10%). Majority (68%) had 50% HLA matching⁶. The common acute complications were acute rejection (21%), ATN (4.5%) and various types of infections³. Among the chronic complications post transplant

diabetes mellitus (18%) and chronic rejections (16%) were common.

There is steady improvement of both survival rate as well as well being of patients. Although the number is small as compared with burden of renal disease in this country, the cause of decreased number of kidney transplantation is due to lack of donor and facility available for surgical and medical management of the patients⁷. Cadaver can be of great source of donor⁴. However there is lack of infrastructure, awareness of the people, and ICU set up; these are the main obstacle to start deceased transplantation in our country⁷. We hope, this obstacle can be overcome within a short period of time.

Dr. Md. Habibur Rahman (Dulal)

Associate Professor
Department of Urology
Renal Transplant Surgery
BSMMU, Shahbag, Dhaka.

References:

1. Kuhrs. Chronic renal failure management. Lancet 1991; 338-423.
2. Hayes JM. The immunology and clinical use of current immunosuppressive therapy for renal transplantation. J Urol. 1993;149-437
3. M.A.Salam. principal & Practice of Urology; 1st edn; 2002; 953-979
4. Peter J. Morris & Stuart J. Knechtle kidney Transplantation: Principal and Practice: 6th edn; 2008; 126-131.
5. Vanholder R. Ringoir S: Evolution of renal replacement therapy by hemodialysis; a review. J Nephrol 1991; 3:190.
6. M.H. Rahman. Registry report of renal transplantation Bangladesh, Booklet of kidney foundation 2010; 16. (6th Annual conference and international scientific seminar).
7. HU Rashid. Progress of renal transplantation in Bangladesh. Booklet of society of organ transplantation, Bangladesh 2010;1 (1st international conference and scientific seminar).

OUTCOME OF ORTHOTOPIC NEOBLADDER AFTER RADICAL CYSTECTOMY

MA SALAM, MS ISLAM, MM UDDIN, MM SHAFIQR, S HASAN, P SAHA, KR ABEDIN, GM MAULA

Abstract

Objective: To assess the results of patients underwent radical cystectomy and orthotopic neobladder reconstruction (ONR) after radical cystectomy for muscle invasive transitional cell carcinoma of urinary bladder.

Patients And Methods: The medical records were retrospectively reviewed for 154 suitable consecutive patients undergoing radical cystectomy and orthotopic neobladder reconstruction between July 1998 and June 2007 in BSMMU Hospital and in a private medical institution at Dhaka, Bangladesh. The operating time, transfusion rates, complications, mortality rates, continence rates, potency rates, disease specific survival and overall survival were reviewed.

Results: The median (range) follow-up was 48 (6–113) months; all patients had a reconstruction with a 'Studer' type of neobladder. Retrospective review was possible in 98 patients. Data of other patient were incomplete or inadequate for result of potency and continence review. Full continence was defined as being dry and with freedom from pads. Continence could be assessed in 98 patients after orthotopic neobladder reconstruction. 96 patient out of 98 (97.95%) were classified as being fully continent, and two (2.40%) patient who were fully incontinent. The daytime continence rate was 99% (97 patients) and the nocturnal continence rate was preserved in 90 patients (91.83%). Of the 98 patients, 93 patients could empty their bladder leaving a residual urine less than 100 ml with a mean flow rate 12.5 ml/sec. Only five patients used (5.10%) intermittent self-catheterization (ISC). All of them had a very large neobladder, of 600 ml capacity or more. Of the 98 men with an orthotopic neobladder, 69 (70.40%) were potent before surgery (potency being defined as the ability to achieve and maintain an 'unaided' erection sufficient for sexual intercourse). Of these 69 patients, 57 (82.60%) were potent and 12(17.39%) were impotent after surgery. The patient who developed erectile dysfunction after surgery was given sildenafil 50 to 100 mg two hours prior to sexual contact. Of the 154 patients with malignancy after a median (range) follow-up of 48 (6–113) months, 109 (70.77%) remained alive with no sign of disease recurrence. During this period of follow up 32

patients developed tumor recurrence died from disease progression confirms the disease specific mortality was 20.77%. about, and 13 (8.44%) died from other causes indicate the over all survival is 79.22%

Conclusions: Orthotopic neobladder reconstruction provides excellent continence rates, and both acceptable complication and mortality rates. Suitable patients undergoing radical cystectomy should be offered orthotopic neobladder reconstruction.

Keywords: Radical cystectomy, Orthotopic neobladder reconstruction.

Introduction

If it is possible to create a new urinary bladder and if the patient can pass urine through the normal urethra, this would be the best gift for a patient whose bladder has to be removed for any reason for example after radical cystectomy^{1,2,4}. This innovative idea is a new approach of quality care in this part of the world. Following radical cystectomy the standard time tested gold urinary diversion has been the ileal conduit, but in the last 15 years efforts have been made to preserve the patients' body image by constructing continent bladder substitutes¹.

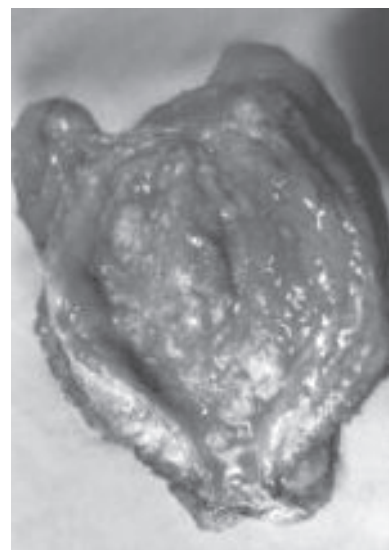


Fig : Resected specimen and sketch describing principle of neobladder reconstruction (ONR)

An orthotopic neobladder shares several normal bladder characteristics, which include a continence mechanism, adequate capacity at a low intravesical pressure and an antireflux mechanism capable of preventing upper tract dilatation¹. The creation of a neobladder by Camey and Le Duc² from small intestine, with preservation of the urethral sphincter mechanism at cystectomy, showed that this procedure was technically feasible. Several methods of neobladder construction have since been reported [3–6]. Studer et al.⁷ reported the use of a detubularized ileal pouch as a bladder substitute in patients with an intact urethra after cystectomy. Continent urinary diversion via an orthotopic neobladder offers patients distinct advantages over an ileal conduit^{8,9}. These include the potential for near normal voiding function, continence, easier urethral surveillance with a lowered urethral recurrence rate, and a superior body image.

Orthotopic neobladder reconstruction tends to be reserved for 'selected patients', partly because of the perceptions that the procedure is technically difficult and is associated with a higher rate of both peri operative and long-term morbidity.

In this paper we report a single centre experience of orthotopic neobladder reconstruction after radical cystectomy, assessing operative duration, transfusion rates, complications, continence, potency and cancer control.

Patients And Methods

All suitable patients scheduled for cystectomy should have the option of ONR. Any interested patient should be carefully counselled and where possible have the opportunity to meet other patients who have had an ONR. Careful selection of patients before surgery is required to ensure that they are sufficiently motivated to comply with voiding re-education and long-term urethral follow-up.



Fig: Graphic illustration of ONR



Fig: ONR is in progress

Contraindications to ONR are tumour in the prostatic urethra, other urethral diseases such as stricture, lack of understanding and motivation, body habitus, and rare local anatomical conditions such as shortness of the mesentery (discovered during surgery) and inflammatory bowel disease (e.g. Crohn's disease) affecting the chosen segment^{21,23}.

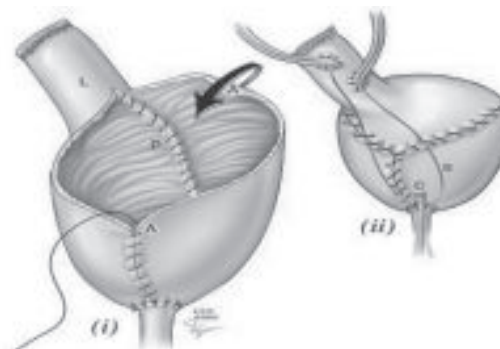


Fig: Neobladder reconstruction on progress

Between June 1994 and April 2003, 154 suitable consecutive patients (141 men and 13 women, median age 62 years, range 38–80) had a radical cystectomy and orthotopic neobladder reconstruction; all patient had invasive bladder neoplasm (151 TCC, two adenocarcinoma and one squamous cell carcinoma), and all had a modified Studer ileal neobladder.



Fig: Reconstructed orthotopic neobladder (ONR)

Studer neobladder, the surgical technique was similar to that proposed by Studer et al.¹⁰, whereby a portion of terminal ileum 54–60 cm long was isolated 25 cm from the ileocaecal valve. The segment of ileum was opened at the antimesenteric border, the margin of the resulted flat ribbon was approximated by a running continuous suture to make wider ribbon. Now the wide ribbon was reduplicated again to complete the sealed pouch. This form of neobladder, first developed by Hautmann et al.^{11,12}, is an intentionally large-capacity reservoir designed in an attempt to decrease the incidence of nocturnal incontinence. After surgery all patients were followed for oncological and functional evaluation; the median (range) follow-up was 48 (6–113) months.

Results

The mean operating time was 300 (195–510) min, Mean hospital stay 14 (11–42) days, blood loss 1000 (700–1500) mL. Blood transfusion rate was required in all patients. Complications were classified as early if they occurred within 30 days after surgery and late thereafter. There was one early death 5 days after surgery, from severe pneumonia burst abdomen and septicemia unresponsive to aggressive treatment.

Since orthotopic neobladder reconstruction (ONR) after radical cystectomy is a long procedure, early complications was not uncommon. Paralytic ileus was observed in 28 cases. They were temporary clinical problem and recover all with conservative medical treatment. Chest and wound infections were treated with appropriate antibiotics. Two patients had developed deep vein thrombosis (occurring at 10 and 12 days) both were anticoagulated and improved. A pouch leak occurred in two patients, both managed conservatively. There were six cases of Urosepsis requiring treatment with specific antibiotic therapy. Re-operation was required in two patients, caused by small bowel obstruction, re-suturing of the abdomen was performed in five patient those who had burst abdomen. After dehiscence (three), bleeding (one), and a ureteric anastomotic leak (one). The small bowel obstructions were managed by simple freeing of adhesions. Reanastomosis was required in the two patients with the leak from the initial uretero-ileal anastomosis. Intra peritoneal abscess was identified in two patients of which one needed intervention in the form of aspiration of purulent material under ultra sound guide. Myocardial infraction was seen in three patients and all of them survived with medical treatment in cardiac hospital. One patient developed anastomotic leak from ileum who had laparotomy on the 5th post operative

day and an ileostomy was created. But the patient developed septicemia which could not be controlled and the patient expired on 14 th post operative day.

Early complications

Paralytic ileus	28
Wound infection	08
Chest infection	04
Urosepsis	06
Uretero-enteric leak	02
Pouch leak	02
Burst abdomen	05
Intestinal obstruction	02
Intraperitoneal abscess	02
Myocardial infarction	03
Ileal anastomotic leak and Septicemia	01

Late complications includes five patients with an incisional hernia, two were surgically repaired. A neobladder calculus was found in one patient 2 years after surgery, which was treated by endoscopic litholopaxy. One patient developed stone around stents with in a course of eight weeks. There was one case of left VUR presenting 7 months after surgery with recurrent urinary tract infection; this was treated with low dose chemoprophylaxis, and resolved the symptoms.

At three months all the patient was evaluated with ultrasound cystodynamics which includes an ultrasound assessment to image the upper and lower urinary tract and also the post void residue. Uroflowmetry was performed to record the flow of urine. In 9 cases formal urodynamics was performed. All urodynamic finding were similar. The neobladder was large capacity and found to be of having low pressure system empty its content satisfactorily.

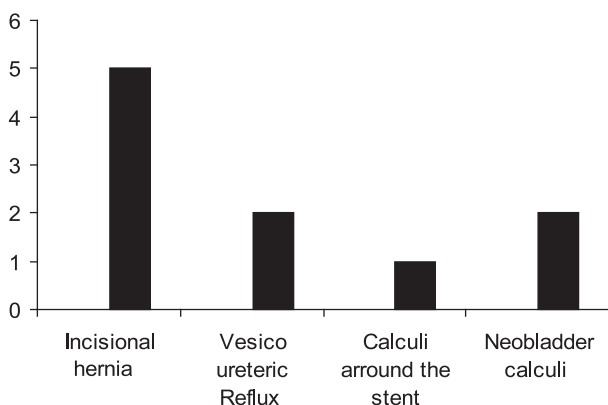
Retrospective review was possible in 98 patients. Data of other patient were incomplete or inadequate for result of potency and continence. Full continence was defined as being dry and with freedom from pads. Continence could be assessed in 98 patients after orthotopic neobladder reconstruction. 96 patient out of 98 (97.95%) were classified as being fully continent, and two (2.40%) patient who were fully incontinent. The daytime continence rate was 99% (97 patients) and the nocturnal continence rate was preserved in 90 patients (91.83%). Of the 98 patients, 93(94.89%) patients could empty

their bladder leaving a residual urine less than 100 ml with a mean flow rate 12.5 ml/sec. Only five patients used (5.10%) intermittent self-catheterization (ISC). All of them had a very large neobladder of 600 ml capacity or more. Of the 98 men with an orthotopic neobladder, 69 (70.40%) were potent before surgery (potency being defined as the ability to achieve and maintain an 'unaided' erection sufficient for sexual intercourse). Of these 69 patients, 57 (82.60%) were potent and 12 (17.39%) were impotent after surgery. The patient who developed erectile dysfunction after surgery was given sildenafil 50 to 100 mg two hours prior to sexual contact.

Of the 154 patients with malignancy after a median (range) follow-up of 48 (6–113) months, 109 (70.77%) remained alive with no sign of disease recurrence. During this period of follow up 32 patients developed tumor recurrence died from disease progression confirms the disease specific mortality was 20.77%. about , and 13 (8.44%) died from other causes indicate the disease specific survival is 85.71%

Late complications

Incisional hernia	5
Vesico ureteric Reflux	2
Calculi around the stent	1
Neobladder calculi	2



Urodynamic finding

Mean pouch capacity	:	562.5 ml.
Mean peak flow rate , mL/s	:	12.5 ml
Mean Post void residual urine	:	76 mL

Mortality

Disease specific mortality	n=32	20.77%
Other cause of death	n=13	08.44%
Over all mortality(48 month)	n=45	29.21%
Disease specific survival (48 month)	n=132	85.71%

Discussion

Gold standard treatment of the muscle invasive bladder cancer is radical cystectomy[1,2,3,5,6] The standard treatment for urinary diversion has been the ileal conduit, but in the last decade and a half, efforts have been made to preserve patient body image and quality of life by constructing continent bladder substitutes¹. An orthotopic neobladder shares several normal bladder characteristics, which include a continence mechanism, adequate capacity at a low intravesical pressure and an antireflux mechanism to prevent upper tract dilatation^{1,3,5,6}.

Lemoine in 1913 was credited with the first orthotopic reconstruction in a human. The patient initially underwent cystectomy and ureteric re-implantation into the rectum. Because of recurrent episodes of pyelonephritis the patient had a second procedure whereby the rectal segment was isolated and anastomosed onto the native urethra. The sigmoid colon was then re anastomosed to the anus. In 1979 Camey and Le Duc³ reported their experience of creating a neobladder from small intestine, with preservation of the urethral sphincter mechanism at cystectomy, and by doing so showed that this procedure was feasible. Several methods of neobladder construction have since been reported⁴⁻⁷.

Orthotopic Neo bladder Reconstruction (ONR) offers distinct advantages over an ileal conduit. These include the potential for near-normal voiding, continence, easier urethral surveillance with a lowered urethral recurrence rate, and a better body image^{7,8,9,10}. In many centers worldwide, ONR has replaced the ileal conduit as the standard form of reconstruction^{11,12}. Despite this, ONR tends to be reserved for 'selected patients' partly because the procedure is perceived to be technically difficult and associated with a higher rate of both perioperative and long-term morbidity.



Fig: Micturating Cystourethrogram following ONR

Despite these advantages, potential candidates for orthotopic neobladder reconstruction are still choosing ileal conduit diversion. This is because the former procedure is perceived to be both technically challenging and associated with an increase in both morbidity and mortality. This perception was explored by Gburek et al.¹³, who compared the outcomes of orthotopic ileal neobladder (Studer type) and ileal conduits; these authors concluded that an orthotopic neobladder reconstruction is safe and with similar perioperative and long-term morbidity to an ileal conduit. This was the case even if the cystectomy was a salvage one, and even if the patient had co morbidity factors^{13,16}. In the present study, the operative duration recorded for the orthotopic neobladder reconstruction compares favorably with those previously reported [14]. Although of longer duration with a longer inpatient stay than an ileal conduit we consider that, with increased experience, the operative duration for orthotopic reconstruction will decrease. The median blood loss in this series is 1000 mL and the transfusion rate of 100% is similar to that in our experience of constructing an ileal conduit. Patients with other comorbidities that increase their anesthetic risk are excluded from orthotopic reconstruction, in theory to decrease their chances of re-operation and both intra- and postoperative complications. The re-operation rate for the ileal conduit is reported to be 10–14% [13,15]. From the present series, the proportion of patients requiring a second laparotomy was 8%, similar to that of other reported series (9.6–15%)^{23,15}.

The early and late complication rates for the present series were 23% and 13%, respectively; the early rate was slightly higher than previously reported rates of 9–18%; this rate may decrease as experience with the technique increases. However, early complications were generally self-limiting and managed conservatively, with no influence on the overall outcome. The late

complication rate (13%) was consistent with previous reports (6–24%)^{1,13,16,17}. In the present study the mortality rate was 1% (one death from severe septicemia following anastomotic leak 5 days after surgery), consistent with other reported rates for orthotopic neobladder reconstruction. The mortality rate for cystectomy and ileal conduit formation has been reported as < 2%^{18,19}.

Of the 154 patients with malignancy after a median (range) follow-up of 48 (6–113) months, 109 (70.77%) remained alive with no sign of disease recurrence. During this period of follow up 32 patients developed tumor recurrence died from disease progression confirms the disease specific mortality was 20.77%, and 13 (8.44%) died from other causes indicate the disease specific survival is 85.71% is consistent with other series^{19,20,21}.

After ONR, continence is probably influenced by the characteristics of the reservoir (large capacity and low pressure) and the rhabdo sphincteric mechanism. Essential to maintaining continence after ONR is the minimal manipulation of the muscle fibers, facials attachments and innervations of the rhabdo sphincter. Nerve-sparing procedures improve not only subsequent potency but also continence, probably by preserving the innervations of the smooth muscle component of the external sphincter. In all patients, voiding occurs via the native urethra and is initiated by abdominal straining. The patient determines the time to void, either by a feeling of abdominal fullness or by following a strict regimen of 'voiding by the clock' every 4–6 h (because of the poorly localized feeling of bladder 'discomfort' at capacity). Patients are encouraged to 'double void' to ensure that their neobladder are empty. Should patients 'void by the clock' they are encouraged to set an alarm clock to awaken and then empty their neobladder once at night. In the present series, the daytime continence rate was 99%; values reported in other series are 92–

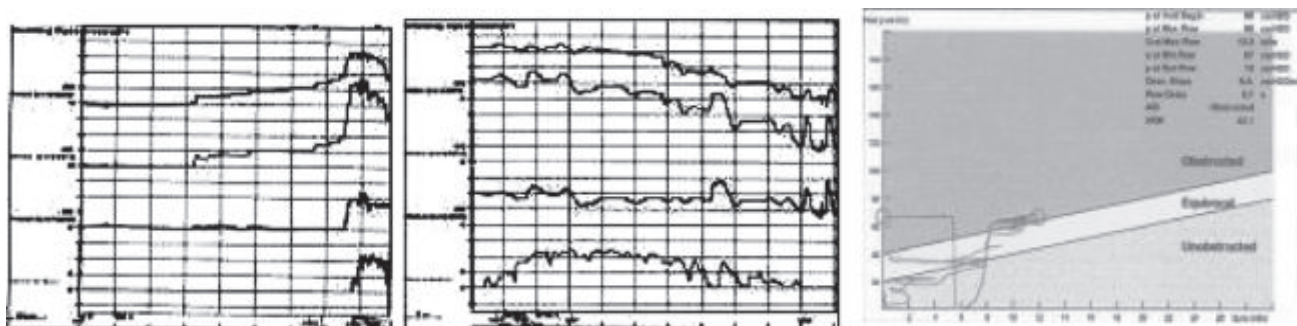


Fig: Urodynamic tracing of a patient following ONR

98%^{1,17,18}. In the present series 78% of patients were continent at night, again similar to the 74–83% nocturnal continence rates reported previously^{1,17,18}. The median (range) time to achieve full continence was 4 (1–12) months, again similar to that reported by others¹⁴. Five of the patients in the present series used ISC, the incidence of which varies after orthotopic neobladder reconstruction, depending on the capacity of the of neobladder. We realized that when the neo bladder capacity is too large the emptying of the bladder is poor conversely neobladder of smaller capacity empties better.

In the present series, 70.77% of patients were alive and well with no sign of recurrence at a median follow-up of 48 months. In this period 20.77% died from tumour recurrence resulting in disease progression. Although the recurrence rate is acceptable, it is important that patients choosing an orthotopic neobladder understand the potential risk of a urethral recurrence and the need for long-term surveillance of the retained urethra. Men undergoing orthotopic diversion, even with high-risk factors for urethral recurrence, appear to have a lower incidence of urethral recurrence than those undergoing cutaneous diversion²²; the exact reasons for this are unclear. We recommend that all suitable patients undergoing radical cystectomy should be considered for orthotopic neobladder reconstruction, contraindications to this being staging of > pT2b, TCC in the prostatic urethra, other urethral diseases, e.g. stricture, lack of understanding and motivation, habitus, and rare local anatomical conditions such as shortness of the mesentery (discovered during surgery) and inflammatory bowel disease (e.g. Crohn's disease)

The resulting quality of life is an important determinant for patients considering an orthotopic neo bladder reconstruction (ONR). Bladder substitutions have a cosmetically more appealing result than ileal conduits, as a urostomy appliance is not required. In addition, there are documented improvements in the quality of life when compared to an ileal conduit²³⁻²⁵. Yoneda et al. using the Sickness Impact Profile questionnaire, reported that quality of life was better in the neobladder than the ileal conduit group, especially in terms of mental, physical and social functioning in daily life²⁴.

Conclusion

In the present series the vast majority of patients undergoing orthotopic neobladder reconstruction were continent, avoiding the need for a cutaneous stoma or external urostomy appliance, thus helping them to retain

their body image. The results show that not only are the continence rates excellent, but there is no greater morbidity and mortality than the gold standard urinary diversion the ileal conduit. Moreover the cost of the external appliance for lifetime is too expensive for the patients. Despite these advantages, careful patient selection and counseling are required to ensure that patients are sufficiently motivated to comply with voiding re-education and long-term urethral follow-up. Patients satisfying the criteria for orthotopic neobladder reconstruction should be offered it, and the orthotopic reservoir should now be considered with the ileal conduit as 'best practice' in urinary diversion after radical cystectomy. All patients undergoing cystectomy should now have the option of a neobladder reconstruction and this technique is going to set a new Gold standard.

Acknowledgement

We gratefully acknowledge the contribution of all the staffs of department of urology, BSMMU, Comfort Nursing Home Pvt.Ltd.

References

1. Benson MC, Seaman EK, Olsson CA. The ileal neobladder is associated with a high success and low complication rate. *J Urol* 1996; 155 : 1585–8
2. Camey M, Le Duc A. L'entérocystoplastie avec cystoprostatectomie totale pour cancer de la vessie. Indications, technique opératoire, surveillance et résultats sur quatre-vingtsept cas. *Ann Urol (Paris)* 1979 13 : 114–123
3. Light JK, Marks JL. Total bladder replacement in the male and female using the ileocolonic segment (Le Bag). *BJU Int* 1990; 65 : 467–72
4. Melchior H, Spehr C, Knop-Wagemann I, Persson MC, Junemann KP. The continent ileal bladder for urinary tract reconstruction after cystectomy: a survey of 44 patients. *J Urol* 1988; 139 : 714–8
5. Hautmann RE, Miller K, Steiner U, Wenderworth U. The ileal neobladder: 6 years of experience with more than 200 patients. *J Urol* 1993; 150 : 40–5
6. Kock NG, Ghoneim MA, Lycke KG, Mahran MR. Replacement of the bladder by the urethral Kock pouch: functional results, urodynamics and radiological features. *J Urol* 1989; 141 : 1111–6
7. Studer UE, Ackermann D, Cassanova GA, Zingg EJ. Three years' experience with an ileal low pressure bladder substitute. *Br J Urol* 1989; 63 : 43–52

8. Martins FE, Bennett CJ, Skinner DG. Options in replacement cystoplasty following radical cystectomy: high hopes or successful reality. *J Urol* 1995;153:1363–72
9. Bjerre BD, Johansen C, Steven K. Health-related quality of life after cystectomy: bladder substitution compared with ileal conduit diversion. A questionnaire survey. *Br J Urol* 1995; 75 : 200–5
10. Studer UE, Casanova GA, Luisier J, Zingg EJ. Bladder substitute realized by means of an ileal segment. *J Urol (Paris)* 1988; 94 : 273–7
11. Hautmann RE, Egghart G, Frohnberg D, Miller K. The ileal neobladder. *J Urol* 1988; 139:39–42
12. Stein JP, Lieskovsky G, Ginsberg DA, Bouchner BH, Skinner DG. The T pouch: an orthotopic ileal neobladder incorporating a serosal lined ileal anti reflux technique. *J Urol* 1998; 159: 1836–42
13. Gburek BM, Lieber MM, Blute ML. Comparison of Studer ileal neobladder and ileal conduit urinary diversion with respect to Perioperative outcome and late complications. *J Urol* 1998; 160 : 721–3
14. Rogers E, Scardino P. A simple ileal substitute bladder after radical cystectomy: experience with a modification of the Studer pouch. *J Urol* 1995; 153 : 1432–8
15. Hautmann RE, de Petriconi R, Gottfried HW, Kleinschmidt K, Mattes R, Paiss T. The ileal neobladder: complications and functional results in 363 patients after 11 years of follow up. *J Urol* 1999; 161 : 422– 8
16. Studer UE, Danuser H, Merz VW, Springer JP, Zingg EJ. Experience in 100 patients with an ileal low pressure bladder substitute combined with an afferent tubular isoperistaltic segment. *J Urol* 1995; 154 : 49–56
17. Cancrini A, De Carli P, Pompeo V et al. Lower urinary tract reconstruction following cystectomy. experience and results in 96 patients using the orthotopic bladder substitution of Studer et al. *Eur Urol* 1996; 29 : 204–9
18. Lerner SP, Skinner E, Skinner DG. Radical cystectomy in regionally advanced bladder cancer. *Urol Clin North Am* 1992; 19 : 713–23
19. Skinner DG, Lieskovsky G. Contemporary cystectomy with pelvic node dissection compared to preoperative radiation therapy plus cystectomy in management of invasive bladder cancer. *J Urol* 1984; 131 : 1069–72
20. Studer UE, Danuser H, Hochreiter W, Springer JP, Turner WH, Zingg ET. Summary of 10 years' experience with an ileal low-pressure bladder substitute combined with an afferent tubular isoperistaltic segment. *World J Urol* 1996; 14 : 29–39
21. Kulkarni JN, Pramesh CS, Rathi S, Pantvaidya GH. Long-term results of orthotopic neobladder reconstruction after radical cystectomy. *BJU Int* 2003; 91 : 485–8 22
22. Benson MC, Seaman EK, Olsson CA. The ileal neobladder is associated with a high success and low complication rate. *J Urol* 1996; 155 : 1585–8
23. Meyer J-P, Drake B, Boorer J, Gillatt D, Persad R, Fawcett D. A three-centre experience of orthotopic neobladder reconstruction after radical cystectomy: initial results. *BJU Int* 2004; 94 : 1317– 21
24. Yoneda T, Igawa M, Shinna H, Shigeno K, Urakami S. Postoperative morbidity, functional results and quality of life of patients following orthotopic neobladder reconstruction. *Int J Urol* 2003; 10: 119–25 28
25. Hobisch A, Tosun K, Kinzl J et al. Quality of life after cystectomy and orthotopic neobladder versus ileal conduit urinary diversion. *World J Urol* 2000; 18: 338–44

Authors:

Uro-Oncology Division, Department of Urology, Bangabandhu Sheikh Mujib Medical University, Sahabagh Avenue, Dhaka 1000.

ORIGINAL ARTICLES

COMPARISON OF RENAL FUNCTION BEFORE AND AFTER PYELOPLASTY DETERMINED BY ^{99m}Tc -DTPA RENOGRAPHY

MW ISLAM¹, MN HOODA¹, KR ABEDIN¹, MF ISLAM¹, SA KHAN¹, MS ISLAM², P SULTANA³, AKM ZI BHUIYAN⁴

Abstract

Objective: To evaluate the renal function before and after pyeloplasty using ^{99m}Tc -DTPA renography to determine the outcome of pyeloplasty done for pelviureteric junction obstruction.

Materials and Methods: This study was done in the department of urology, National Institute of Kidney Diseases and Urology from July 2008 to June 2009. Forty eight patients were included in this study who underwent Anderson Hynes pyeloplasty for pelviureteric junction (PUJ) obstruction. All patients were evaluated with diuretic ^{99m}Tc -DTPA renography before and at 3 months after operation. Ultrasonography was performed to categorize the severity of hydronephrosis before renography. The outcome of pyeloplasty was evaluated by comparing preoperative and postoperative differential renal function determined by ^{99m}Tc -DTPA renography.

Results: Forty eight patients with unilateral hydronephrosis were included in this study. Of these patients 32 male and 16 female with mean age 24.8 years (range 5 years to 42 years). Diuretic renography was done using ^{99m}Tc -DTPA in all patients preoperatively and at 3 months postoperatively. Preoperative mean differential renal function was 8.11% (range 0 to 22%) and postoperative mean differential function was 20.48% (range 0 to 42.8%) at 3 months. In 44 (91.67%) case there was significant improvement of renal function where in remaining 4 patients no change was observed.

Conclusion: Renal function improved after Anderson Hynes pyeloplasty regardless the age of the patient at surgery which was determined by ^{99m}Tc -DTPA renography. Pyeloplasty performed on patients with relatively better differential function had better results.

Keywords: Hydronephrosis, PUJ obstruction, ^{99m}Tc -DTPA renography. Differential renal function, Anderson Hynes pyeloplasty.

Introduction:

Hydronephrosis due to PUJ obstruction occurs in all paediatric age groups, but today the majority of cases are identified and diagnosed in the perinatal period¹. Beyond neonatal period UPJ obstruction is seen during

childhood and adolescence to a lesser degree. Current understanding of the pathophysiology of obstructive uropathy is incomplete and there is controversy in regard to the indication and optimal timing of surgical management in diagnosed cases of UPJ obstruction^{2,3}. The most popular procedure is the Anderson Hynes dismembered pyeloplasty which can be done with or without stenting. Dismembered pyeloplasty for congenital obstructive uropathy appears to offer resolution of impairment of urinary flow but its effectiveness in reversing impaired renal function is questionable, because many patients treated with pyeloplasty renal function continues to deteriorate after surgery⁴. However, some studies have shown that even obstructed kidney with relative impairment of renal function have the capacity to improve⁵.

To evaluate the renal functional status and outcome of different treatment modalities, commonly used and relatively cheap investigation is radionuclide ^{99m}Tc -DTPA renal scan⁶⁻⁷.

The present study was conducted to compare the renal function determined by DTPA renogram before and after pyeloplasty.

Materials and Methods:

This prospective study was done in the department of urology, National Institute Kidney Disease and Urology from July 2008-June 2009. A total of 48 patients were included in the present study with unilateral hydronephrosis due to pelviureteric junction obstruction. Patients with bilateral renal obstruction, VUR, malformation of urinary tract, solitary kidney with obstruction and associated with bladder dysfunction were excluded from the study. All patients were initially assessed by ultrasonography to categorize the severity of hydronephrosis before pyeloplasty. Then the patients evaluated with ^{99m}Tc -DTPA renography. Dynamic sequential images of the kidney were obtained in posterior position immediately after IV administration of 2mCi dose of ^{99m}Tc -DTPA and the study continued for 30 minutes. A 1mg/kg dose of furosemide was given intravenously at 11th minute after injecting the radionuclide.

Anderson Hynes pyeloplasty with stenting was done based on a combined interpretation of the diuretic renography and ultrasonography. Patients were discharged from the hospital on 10th postoperative day and were advised to come for removal of the stent after one month. Then renography were performed to determine the differential renal function at 3 months. Statistical analysis was performed using statistical software with paired Student's t test and statistical significance considered at p=0.05.

Results:

All the included 48 patients (mean age 24.8±13.6 years, range 5-42 years) with unilateral hydronephrosis underwent Anderson Hynes pyeloplasty. There were 32 (66.67%) males and 16 (33.33%) females. Hydronephrosis on the left side was in 30 (62.50%) cases and on the right side 18 (37.50%) cases. In all patients there was ultrasonographic evidence of moderate to severe hydronephrosis. Hydronephrosis was moderate in 21 patients (43.75%) and severe in 27 (56.25%) patients (Table-I).

Table-I

Distribution of patients according to Degree of Hydronephrosis on Ultrasonography Preoperatively (n= 48)

Degree of Hydronephrosis	No. of Patients	Percentage
Moderate	21	43.75
Severe	27	56.25
Total	48	100

Diuretic renography was done using ^{99m}Tc-DTPA in all patients preoperatively and 3 months postoperatively. Preoperative differential function was less than 20% in 42 (87.50%) cases, 20% -30% in 6 (12.5%) cases (Table-II) and mean renal function was 8.11% (range 0 to 22).

Table-II

Distribution patients according to preoperative differential renal function on DTPA renogram (n=48)

Differential renal function	No. of Patients	Percentage
<20%	42	87.50
20%-30%	6	12.50
Total	48	100

All the 48 patients underwent Anderson Hynes pyeloplasty with stenting. Stent was removed after one month. Then diuretic renography was done at 3 months postoperatively. Renal function improved significantly postoperatively. Postoperative renal function was less than 20% in 27 (56.25%) cases, between 20 to 30% in 15 (31.25%) cases and more than 30% in 6 (12.50%) cases (Table-III).

Table-III

Distribution patients according to postoperative differential renal function on DTPA renogram (n=48)

Differential renal function	No. of Patients	Percentage
<20%	27	56.25
20%-30%	15	31.25
>30%	6	12.50
Total	48	100

Mean differential function was 20.48% (range 0-42.8). Four patients with differential renal function 0% preoperatively did not improve postoperatively after 3 months and it remained as before.

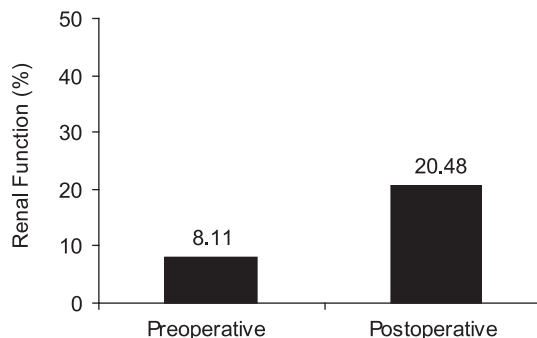


Fig-1: Mean renal function before and after pyeloplasty.

Table-IV

Changes in differential renal function before and after pyeloplasty.

Differential renal function (%)	Prepyeloplasty	Postpyeloplasty	t	df	P -value
Mean ± SD	8.11± 8.06	20.48±14.73	6.84	47	<.001
Range	0-22	0-42.8			
Change of Differential function		12.61			

Paired Student's t test.

Overall paired t test comparison of differential renal function before and after pyeloplasty revealed significant improvement of differential renal function (mean 8.11% versus 20.48%, $p < .001$) (Table-IV).

Discussion:

In the present study, the renographies of all 48 patients treated by means of Anderson Hynes pyeloplasty for unilateral pelviureteric junction obstruction were analyzed. ^{99m}Tc-DTPA renography was performed in each patient both preoperatively and postoperatively at 3 months.

Of the 48 patients DTPA scans before and after pyeloplasty 44 (91.67%) patients showed improvement in the post pyeloplasty scan. Four other patients had no change. Patient with pre operative renal function <20% had limited improvement. Among 42 patients with renal function less than 20% had improved renal function between 20-30% in 13 cases and 2 had improved more than 30%. Some advocate early repair using a differential function of <35-40% as an indication for surgery, so that renal functional potential is thereby maximized⁶⁻¹¹.

Palmer et al. performed a multicentre prospective randomized study of high grade obstructive unilateral hydronephrosis for the Society for Fetal Urology¹². Patients had at least grade 3 hydronephrosis and renal function greater than 40% for study inclusion. In patients who underwent surgical procedures renal scintigraphy showed significant improvement of hydronephrosis and drainage time 6 and 12 months respectively, after pyeloplasty compared with those who continued on the observation protocol. Palmer et al. inferred that early surgical therapy improves renal drainage and hydronephrosis. In the present study patients with moderate hydronephrosis had better improvement postoperatively than severe hydronephrosis which agree with study done by Palmer et al.

In the present study renal functional differences did not depend on patient's age at surgery. McNeily et al. reviewed 75 cases of unilateral paediatric ureteropelvic junction obstruction in which nuclear renograms were available for renal function measurement¹³. They did not observe any age related changes in renal function postoperatively from that at presentation and concluded that increasing patient age does not adversely affect functional outcome after pyeloplasty. Their results are consistent with the present study.

In the present study six patients had preoperative renal function between 20%-30% and out of them 4 (66.67%)

patients improved their renal function above 30% and other two improved their function but it remained below 30%. So, relatively better kidney had improved surgical outcome in terms of renal function. Chertin et al. performed a study with 113 patients with moderate to severe hydronephrosis. In all patients postoperative follow up ultrasound and renal scan revealed significant improvement of hydronephrosis and wash out curve pattern¹⁴. There was a significant difference between moderate and severe hydronephrosis in regard to renal function improvement postoperatively, 66% in moderate hydronephrosis and 16% in severe hydronephrosis, $p < 0.05$. So these findings are consistent with the present study.

In the study by Ulman et al. eight children were operated because of a reduction in differential function of >10% and none of them had permanent loss of renal function and differential function recovered to more than the levels before deterioration¹⁵. In the present study 44 (91.67%) patients out of 48 patients also had improvement in their renal function which is also consistent with the results of Ulman et al. These observations are also similar to the results of Chertin et al¹⁶. In their study 36 of 44 children operated because of deterioration in differential functions of more than 5% regained their initial level of kidney function 6-12 months after surgery. It is found that the results of most of the studies are consistent with the results of the present study.

Conclusion:

In this study all patients had moderate to severe hydronephrosis. There was significant improvement of renal function after Anderson Hynes pyeloplasty. So, which may be considered as an effective treatment option for most of the patient with pelviureteric junction obstruction. Pyeloplasty performed on patients with relative better differential function had better results but patient age at surgery did not had any impact on improvement of postoperative renal function.

References:

1. Corteville, J.E. Gray, D.C. and Crane, J.P: Congenital hydronephrosis: correlation of fetal ultrasonographic findings with infant outcome. *Amer. J. Obst. Gynec.*, 165: 384, 1991.
2. King, I., Coughlin, P.E.W., Bloch, E.C. Bowie, I.D. Ansong, K. and Hanna, M.K: The cases for immediate pyeloplasty in the neonate with ureterpelvic junction obstruction. *J. Urol.*, 132: 725, 1984.

3. Ransley, P.G. and Manzoni, G.A.: "Extended" role of DTPA scan in assessing function and UPJ obstruction in neonate. *Dial Ped. Urol.*, 8: 6, 1995.
4. Josephson, S., Dhillon, H.K. and Ransley, P.G.: Post-natal management of antenatally detected, bilateral hydronephrosis. *Urol Int*, 51: 79, 1993.
5. Koff, S.A.: neonatal management of unilateral hydronephrosis, Role for delayed intervention. *Urol Clin North Am*, 25: 181, 1998.
6. Niemczyk P, Krisch EB, Zeiger L Marmar JL. Use of diuretic renogram in evaluation of patients before and after endopyeloplasty. *Urology* 1999;53:271-5.
7. Roarke MC, Sandler CM, Provocating imaging: Diuretic renography. *Urol clin North Am* 1998; 25: 227-49.
8. Blyth B, Synder HM, Duckett JW. Antenatal diagnosis and subsequent management of hydronephrosis. *J Urol* 1993; 149: 693-8.
9. Ransley PG, Dhillon HK, Gordon I, Duffy PG, Dillon MJ, Barratt TM. The postnatal management of hydronephrosis diagnosed by prenatal ultrasound. *J. Urol* 1990; 144: 584-7.
10. Palmer LS, Maizels M, Cartwright PC, Fernbach SK, Conway JJ, Surgery versus observation for managing obstructive grade 3-4 unilateral hydronephrosis: a report from the Society for fetal Urology. *J Urol* 1998: 159: 222-8.
11. Cartwright PC, Duckett JW, Keating MA et al. Management apparent ureteropelvic junction obstruction in the newborn. *J Urol* 1992; 148: 1224-8.
12. Palmer LS, Maizels M, Cartwright PC, Fernbach SK, Conway JJ, Surgery versus observation for managing obstructive grade 3-4 unilateral hydronephrosis: a report from the Society for fetal Urology. *J Urol* 1998: 159: 222-8.
13. MacNeily, A.E., Maizels, M., Kaplan, W.E. Firlit, C.F. and Conway, J.J.: Does early pyeloplasty really avert loss of renal function? A retrospective review. *J. Urol.*, part 2, 150: 769, 1993.
14. Chertin B, Fridmans A, Knizhnik M, Hadas-Halperin I, Hain D, Farkas A, Does early detection of ureteropelvic junction obstruction improve surgical outcome in terms of renal function? *J Urol* 1998; 162: 1037-40.
15. Ulman I, Jayanthi VR, Koff SA. The long-term following of newborns with severe unilateral hydronephrosis initially treated nonoperatively. *J Urol* 2000; 164: 1101-5.
16. Cheritin B, Rolle U, Farkas A, Puri P. Does delaying pyeloplasty affect renal function in children with a prenatal diagnosis of pelvi-ureteric junction obstruction? *BJU Int* 2002: 90: 72-5.

Authors:

1. Assistant Professor, Department of Urology, NIKDU
2. Assistant Professor, Department of Urology, Rangpur Medical College
3. Lecturer, Enam Medical College, Savar
4. Professor & Head, Department of Urology, NIKDU

INCIDENCE OF CHIPS POSITIVE CARCINOMA OF PROSTATE FOLLOWING TURP FOR CLINICALLY BENIGN PROSTATIC HYPERPLASIA PATIENTS WITH NORMAL SERUM PSA

HF KARIM¹, MN HOODA², MW ISLAM⁴, MAK SARKER³, KR ABEDIN⁵, S SHAHJAMAL⁶, S NABI⁷, K ARA⁸, F KHATOON⁹

ABSTRACT

A cross sectional study was performed to evaluate the frequency of chips positive carcinoma of prostate following TURP for clinically benign prostatic hyperplasia patient with normal serum PSA. A total of 250 patients were initially screened & 100 patients were included into the study according to the selection & exclusion criteria. They were evaluated by using IPSS, a physical examination including DRE & neurological examination to exclude any neurological deficit & neurologically related bladder dysfunction. The prostate was next assessed by transabdominal US. Serum PSA level was then measured & at a cut off value of < 4 ng/ml were enrolled in this study. In our study only 2 patients were found having adenocarcinoma. Therefore incidence of carcinoma prostate in clinically BPH patients with normal s. PSA is low. Low incidence in present series revealed the usefulness of s.PSA screening method. To avoid unusual systemic needle biopsy for diagnostic purpose s.PSA measurement should be done.

Introduction

Carcinoma of the prostate is the most common form of malignancy in males as followed closely by lung cancer and the second leading cause of cancer death. It is more common in developed than developing countries.

The incidence rates show a 63 fold difference between countries, being lowest in Far East countries such as China- Shanghai (2.5 per 10⁵) and highest in US blacks in Detroit (158 per 10⁵). US blacks have a particularly high risk of prostate cancer with almost a two fold high incidence rate than that for US whites¹. Prostatic cancer is extremely rare in Asians².

The incidental carcinomas includes those cases of prostatic carcinoma that are neither suspected nor detected clinically, are diagnosed by histopathological examination of tissue harvested by TURP or millin's or transvesical prostatectomy of clinically BPH patients.

Most prostatic carcinomas arise from the peripheral zone of the gland and there is considerable scope for sampling

error at the time of the original transurethral prostatectomy, if the presence of carcinoma is unsuspected, which may lead to an inaccurate assessment of tumour volume³.

There are a number of similarities between benign prostatic hyperplasia (BPH) and cancer. Both display a parallel increase in prevalence with patient age according to autopsy studies (86.2% and 43.6%, respectively, by the ninth decade), although cancer lags by 15-20 years. Both require androgens for growth and development and both respond to antiandrogen treatment regimens. Most cancers arise in prostates with concomitant BPH (83.3%), and cancer is found incidentally in a significant number of transurethral prostatectomy (TURP) specimens (10%). The clinical incidence of cancer arising in patients with surgically treated BPH is approximately 3%. BPH may be related to a subset of prostate cancer which arises in the transition zone, perhaps in association with atypical adenomatous hyperplasia (AAH). It is important to exclude cancer in patients presenting with symptoms of bladder outlet obstruction presumably due to BPH. For such patients, digital rectal examination (DRE) and, at least in high-risk patients, serum prostate specific antigen (PSA) determination is recommended. Transrectal ultrasound (TRUS) should be employed in patients with elevated PSA levels to determine the volume of the prostate, the relative contribution of BPH to volume, and the PSA density (ratio of PSA level to volume). Biopsy should be obtained from any area suspicious for cancer. Early detection and treatment of cancer when it is localized offers the greatest chance for cure⁴.

The extensive pool of asymptomatic prostate disease in the population, which increased substantially with age, suggests that the frequent use of transurethral resection of the prostate in recent decades has had a large effect on prostate cancer incidence. Besides this, TURP almost always performed to relieve outflow obstruction but not as a diagnostic procedure. Before the widespread use of PSA screening, frequency of incidental carcinoma in prostate chips were more⁵.

PSA is a glycoprotein. MW is 33,000 and acts as a serine protease and found exclusively in the epithelial cells of the prostate. PSA is measured in the serum. PSA used as a tumor marker have occurred since 1980s and widely used as a clinical marker of prostate cancer by 1988⁶. In pre PSA period TURP was a usual procedure for symptomatic relieve in case of obstructive features due to BPH and it had a great role for higher prevalence rate of incidental carcinoma. Now-a-days incidental findings of prostatic carcinoma decreased markedly due to strict and purposive screening by PSA as well as DRE and Trans abdominal ultrasound. Considering cut off value 4 ng/mL of PSA we can exclude suspicious cases. By judging this cut off value surgeons can avoid inadvertent operative procedure in case of BPH patients. In our country there is no study on actual prevalence rate of incidental carcinoma in patients with PSA value less than 4ng/mL. So this study is a little endeavor to elucidate the prevalence rate of incidental carcinoma of BPH patients having PSA level d"4ng/mL.

Materials and Methods

This cross sectional and interventional study was conducted from July 2007 to December 2008 in the Department of Urology, Sir Salimullah Medical College and Mitford Hospital, Dhaka. Study populations were suffering from BPH who attended the Urology OPD, SSMC and Mitford Hospital with LUTS. Purposive sampling technique was used with a sample size of 100. Inclusion criteria were IPSS >20, Posts void residual volume > 100, Peak urine flow rate (Q_{max}) <10ml/sec, Serum PSA normal (d"4ng/mL), DRE-Prostate is enlarged, no suspicious nodules, USG-no hypoechoic nodules. Exclusion criteria were clinically palpable suspicious nodules, Serum PSA >4ng/mL. The initial evaluation consisted of the IPSS, a physical examination including DRE and neurological examination to exclude any neurological deficit and neurologically related bladder dysfunction. The prostate was next assessed by Transabdominal USG. Prostate volume, echopattern, and post void residue (PVR) of urine also measured. Serum PSA level was then measured. Uroflowmetry was done in relevant cases. After proper evaluation the selected patients were undergone TURP. All prostatic chips were embedded. The paraffin embedded blocks were sectioned at 4 microns. Samples were taken randomly for histopathological examination. All the data were checked and edited after collection. Then the data were entered into the computer and analyzed with the help of SPSS-14(SPSS incorporation, Chicago, IL, USA) window version 14 software programmed. After processing of all available information, statistical analysis was done.

Result and observations

Table I
Incidence of enlarged prostate among different age group (n=100)

Age (in year)	Frequency	Percent
>60	23	23.0
60-70	68	68.0
>70	9	9.0
Total	100	100.0

Mean ± SD (Range) = 65.67 ± 6.26 (50-80)

Table shows the age distribution of the patients. The average age of the patients was 65.67 years. The youngest patient was 50 years old and the oldest was 80 years. This highest incidence of BEP was noted in 60 to 70 years age group.

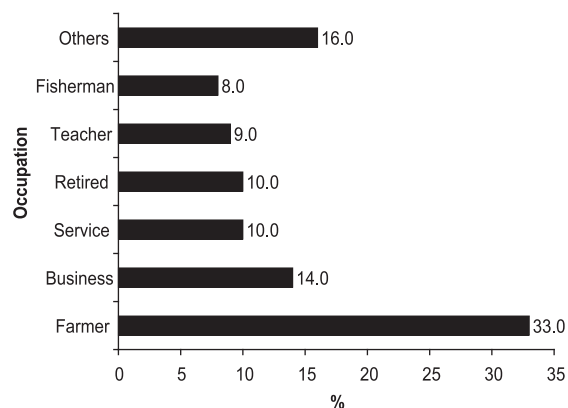


Fig.-1: Occupation of the patients

Table II
Prostatic findings by digital rectal examination (n=100)

	Frequency	Percent	Enlarged
• Slightly enlarged	13	13.0	
• Moderately enlarged	68	68.0	
• Hugely enlarged	19	19.0	
Upper limit			
• Can be reached	77	77.0	
• Can not be reached	23	23.0	
Tenderness			
• Tender	12	12.0	
• Not tender	88	88.0	

On per rectal digital examination prostate gland was found to be enlarged in all cases. Of them 68.0% had moderate enlargement, 19.0% had huge enlargement and 13.0% had mild enlargement. Upper limit of prostate gland can be reached at 77.0% patients. Out of all patients 12.0% had tenderness of DRE and 88.0% non tender.

Table III

Transabdominal ultrasonographic findings (n=100)

Ultrasonographic findings	Frequency	Percent
Volume of prostate (in gm)		
• <40	73	73.0
• 40-60	17	17.0
• >60	10	10.0
Echo pattern		
• Homogenous	100	100.0
• Non homogenous	0	.0

Out of all patients maximum 73.0% patients had prostatic volume less than 40 gram, 17.0% had 40 to 60 gram and 10.0% had more than 60 gram. Echo pattern is homogenous in 100% cases.

Table IV

Distribution of the respondents by serum PSA (ng/ml) level (n=100)

Serum PSA level	Frequency	Percent
<2.00	5	5.0
2.01-3.00	7	7.0
>3.01	88	88.0
Total	100	100.0
Mean ± SD (Range)	3.47 ± 0.64	0.6-3.9

Out of all patients 5.0% patients' serum PSA level were less than or equal to 2 ng/ml, 7.0% patients were between more than 2 to 3 ng/ml and 88.0% patients serum PSA level were more than 3 ng/ml. Mean (± SD) PSA was 3.47 (± 0.64) and the minimum and maximum values were 0.6 and 3.9 respectively.

Table V

Distribution of the respondents by histological findings (n=100)

Histological findings	Frequency	Percent
Nodular hyperplasia (no evidence of malignancy)	80	80.0
Nodular hyperplasia with prostatitis	18	18.0
Prostatic intraepithelial neoplasia	0	0.0
Adenocarcinoma	2	2.0

Histopathological examination of the specimens showed 80.0% had nodular hyperplasia, 18.0% nodular hyperplasia with prostatitis and 2.0% had adenocarcinoma. No patient had got prostatic intraepithelial neoplasia.

The two patients having adonocarcinoma of prostate are found with Gleasons score- 7 (4+3) and 7 (3+4).

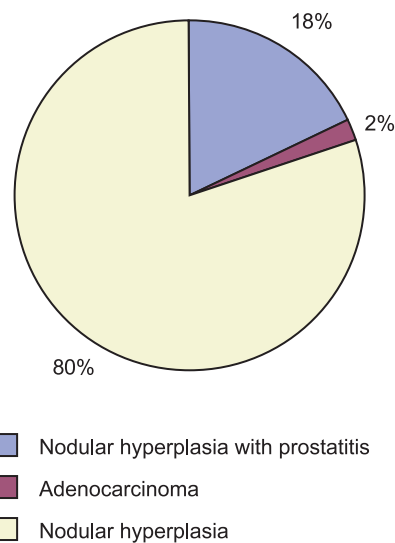


Fig.-2: Histopathological findings

Discussion

Benign prostatic hyperplasia is a growing global health burden. As expected male lifetime is increasing rapidly, more men will need treatment. Transurethral resection of the prostate (TURP) has been the gold standard for active treatment since the 1970s⁷. A large number of investigators have shown that examination of every fragments of TURPs or serial sectioning in retropubic prostatectomy specimens can detect many prostatic carcinoma which are mostly undetected in conventional procedure of sampling the prostatic tissue for routine histology. Inadequate sampling rather than inaccurate

pathological evaluation is the most frequent problem in the diagnosis of prostatic cancer. Small lesion whether localized by rectal examination or radiography are not always easy to punctate and while, needle biopsies from clinically suspicious cases can be thoroughly examined pathologically, they commonly lack neoplastic foci. In contrast TURP provide much tissue that extensive pathological evaluation is not usually done in routine histology practice. Gross inspection and palpation for carcinoma in prostatectomy specimens have been unrewarding for most pathologists and random sampling is preferred technique. Since the majority of prostatic tissue removed for benign condition is an important consideration while histopathological examination.

The average age of the patients of present series was 65.67 years. The youngest patient was 50 years old and the oldest was 80 years. This highest incidence of BPH was noted in 60 to 70 years age group.

Similar observation was made in Shaikh et al (2000)⁸. The average age of patients treated with TURP in their study was 66 years (range 54-80 years) and maximum patients were belonged to 61 to 70 years age range

Histopathological examination of the specimens of TURP chips showed 80.0% nodular hyperplasia, 18.0% nodular hyperplasia with prostatitis and 2.0% adenocarcinoma. No patient had got prostatic intraepithelial neoplasia. Histopathological diagnosis of some previous studies in Bangladesh showed frequency of incidental carcinoma of prostate ranged from 4.0 to 10.6% (Khan 1983; Hossain 1984; Islam 1985) and much higher from the rate of present series. The two chips positive patients of our study had Gleasons score of 4 (2+2) and 5 (3+2).

In review of 108 cases in which suprapubic operation was performed for benign hyperplasia of the prostate, Treiger et al found malignancy in 12.6% of the cases.

Of the 75 cases of apparently benign prostatic obstruction analyzed by Myer's in 1991⁹ in which there was no clinical evidence of carcinoma and which were operated either by the suprapubic route or by transurethral resection, 29.4% revealed malignancy.

Labess (1952) found malignant tissue in 9.2% of a consecutive series of 98 cases clinically diagnosed as benign enlargement.

Boring CC and Squires TS (1992)¹⁰ found carcinoma in 23 or 46% of a consecutive series of 50 prostate obtained from men over 50 years.

In a pathological study of 490 prostates which were diagnosed non-malignant, both macroscopically and microscopically in postmortem examination, Kahler (1939) by further examination of these glands found 54 (11.0%) cases of carcinoma.

A total of 14 such patients were identified and the outcome of TURP was analyzed by Radhakrishnan et al (2004)¹¹. Three patients were found to have cancer in the resected specimen.

All of the above study shows higher frequency rate of incidental carcinoma. Jones et al (2009)¹² showed a comparison between pre-PSA era (1986–1987) and the PSA era (1994–2000), excluding patients with known CaP. A total of 228 men without a known history of prostate cancer underwent TURP during the pre-PSA era time frame and 501 underwent the procedure during the PSA era time frame. Malignancy diagnosed at the time of TURP decreased from 14.9 to 5.2% of patients in the pre-PSA and PSA eras, respectively. In our study we have excluded all patients having serum PSA level more than 4ng/mL. Mean (\pm SD) PSA was 3.47 (\pm 0.64) and the minimum and maximum values were 0.6 and 3.9 respectively This was the reason behind low incidence rate of carcinoma in our study. Histopathological examination of the specimens showed 80.0% had nodular hyperplasia, 18.0% nodular hyperplasia with prostatitis and 2.0% had adenocarcinoma with confidence level of -0.74 to 4.74.

These two patients are advised for staging evaluation and were treated accordingly.

Conclusion

Before the widespread use of PSA screening, frequency of incidental carcinoma in prostate was more as revealed by various studies described elsewhere in this paper. Actually TURP is almost always performed to relieve out-flow obstruction but not as a diagnostic procedure. In this study along with digital rectal examination and transabdominal ultrasound we have used PSA as a screening method at a cut off value of 4ng/mL and patients having below this level were enrolled here only. Lower rate of incidental carcinoma of prostate in the present series revealed the usefulness to follow the preoperative screening methods that is DRE, USG & PSA. To avoid unusual systemic needle biopsy and TURP for diagnostic purpose PSA should be done.

References:

1. Stevens A, Milne R, Stein K, Robertson J, 1997, 'The diagnosis, management and costs of prostate

- cancer in England and Wales', Health Technology Assessment, vol.1, no. 3, pp-1-70.
2. Rassweiler J, Teber D, Kuntz R, Hofmann R. Complications of transurethral resection of the prostate (TURP)—incidence, management, and prevention. *Eur Urol.* 2006 Nov;50(5):969-79
 3. Ford TF, Cameron KM, Parkinson MC and O'donoghue EPN, 1984, 'Incidental Carcinoma of the Prostate: Treatment Selection by Second-look TURP', *British Journal of Urology*, vol. 56, pp-682-686.
 4. Bostwick DG, Cooner WH, Denis L, Jones GW, Scardino PT, Murphy GP, 1992, 'The association of benign prostatic hyperplasia and cancer of the prostate', *Cancer*, vol. 70, no. 1(Suppl), pp-291-301.
 5. Merrill RM, Feuer EJ, Warren JL, Schussler N and Stephenson RA, 1999, 'Role of Transurethral Resection of the Prostate in Population-based Prostate Cancer Incidence Rates', *Am J Epidemiol*, vol. 150, pp-848-60.
 6. Matlaga BR, Eskew LA, McCullough DL, 2003, 'Prostate biopsy: Indications and technique', *The Journal of Urology*, vol. 169, pp-12-19.
 7. Mosli HA, 1996, 'Survey of urological centres and review of the current practice in the evaluation and treatment of prostatic diseases in the Kingdom of Saudi Arabia', *Saudi Med J*, vol. 17, pp-718-24.
 8. Shaikh AR, Siyal AR, Shaikh NA, 2000. 'Transurethral resection of Prostate; Early experience in rural Sindh', *The Professional* vol. 07, no. 02
 9. Myers, 1991, The Investigators of the American Cancer Society National Prostate Cancer Detection Project. The American Cancer Society National Prostate Cancer Detection Project. 1991, 'Findings on the detection of early prostate cancer in 2425 men', *Cancer*, vol. 67, pp. 2949–58.
 10. Boring CC, Squires TS, Heath CWJr, 1992, 'Cancer statistics for African Americans', *CA* vol. 42, pp. 7-18.
 11. Radhakrishnan S, TJ Dorkin TJ, Sheikh N and DR Greene DR, 2004, 'Role of transition zone sampling by TURP in patients with raised PSA and multiple negative transrectal ultrasound-guided prostatic biopsies', *Prostate Cancer and Prostatic Diseases*, vol. 7, pp-338–342.
 12. Jones JS, Follis HW and JR Johnson JR, 2009, 'Probability of finding T1a and T1b (Incidental) prostate cancer during TURP has decreased in the PSA era', *Prostate Cancer and Prostatic Diseases*, vol. 12, pp-57–60.
- Authors:**
1. Registrar, Cancer Institute
 2. Assistant Professor, Department of Urology, NIKDU
 3. Assistant Professor, Sir Salimullah Medical College
 4. Assistant Professor, Department of Urology, NIKDU
 5. Assistant Professor, Department of Urology, NIKDU
 6. Assistant Professor, Department of Urology, NIKDU
 7. Assistant Professor, Cardiology, NICVD
 8. Assistant Professor, Microbiology, IEDCR
 9. Senior Registrar, BIHS

CLINICAL PROFILE AND MANAGEMENT OF UTEROVAGINAL PROLAPSE WITH LOWER URINARY TRACT SYMPTOM (LUTS)

*S BEGUM¹, S SHARMIN², P SULTANA³, AN CHOWDHURY⁴, P SULTANA⁵, S NABI⁶, MN UDDIN⁷, MM HASAN⁸

Abstract:

Genital prolapse affects the quality of life of many women during their pre-menopausal and post menopausal years. The aim of the study is to record the aetiological aspect, precipitating factors in the causation of genital prolapse. The objective is to evaluation of cases in terms of clinical profile, different modalities of treatment and the complication associated with prolapse. It is a prospective type of study was carried out in the Department of Obst. & Gynae in district hospital Comilla from January 2009 to December 2009. 72 cases of uterovaginal prolapse admitted in the study period were enrolled in this study. In this study most of the cases (36.11%) were in the age group between 51-60 yrs, having 5-9 children (54.16%) and early resumption of activity after delivery (52.77%), prolonged labour (22.22%) and chronic cough (27.77%) is the common cause. In this study maximum cases were poor (56.94%) and something coming down per-vagina (100%), urinary problem (72.22%) and backache (62.50%) is the main symptom. Most of the patient had 2^o uterovaginal prolapse and vaginal hysterectomy with ant colporrhaphy with or without posterior colpoperinorrhaphy is the main method of treatment.

Key words: Uterovaginal Prolapse, lower urinary tract symptom

Introduction:

Uterovaginal prolapse is a downward descent of uterus and or vaginal wall through the pelvic aperture of uterovaginal hiatus^{1,2}. It is a highly prevalent chronic or residual maternal morbidity in South East Asia, frequently among Bangladeshi women.

In Bangladesh uterine prolapse appear to be widespread, but little published evidence exist. The most commonly perceived causes of prolapse was reported by gynaecologist is lifting heavy weight, including the postpartum period. Most reports describe heavy household and physical working during pregnancy as well as pre and post delivery is the main causes and risk factors for this problem in Bangladesh. Similarly lack of access to skilled attendant during delivery,

frequent conceiving, giving birth too many children and lack of nutritious food are also responsible³.

There are various modalities of treatment among them hysterectomy, specially vaginal hysterectomy has the advantage that no abdominal incision is needed, thereby reducing operative pain and hospital stay. This can be combined with anterior colporrhaphy and posterior colpoperineorrhaphy. Open abdominal or laparoscopic sacrohysteropexy can be performed if the women wishes to retain her uterus. The uterus is attached to the longitudinal ligament over the sacrum, mesh is used to hold the uterus in placed⁴. Sacrospinous fixation is one of the treatment of prolapse uterus. Unilateral or bilateral fixation of uterus to the sacrospinous ligament, performed by via vaginal route. It has lower success rate than sacrohysteropexy. Risk of injury to the pudendal nerve and vessels and sciatic nerve. In this study most of the patient treated by vaginal hysterectomy with anterior colporrhaphy and post colpoperinorrhaphy was done when necessary. The objective of the study is to summarize the clinical profile and management of uterovaginal prolapse attending in Gynae & obst department in general hospital Comilla.

Materials and Method:

This was a prospective type of study, carried out in the department of Gynae & obst in general hospital Comilla, from January 2009 to December 2009. All the patient admitted with uterine prolapse taken as target population. Sampling was done perpusively. Total 72 patients of uterovaginal prolapse were included in this study.

Data sheet and questionnaire form was made for recording all relevant parameters. After admission a detail socio-demographic history was taken. A details history including menstrual, obstetric and family involvement history was taken. General, physical and pelvic examinations were done. Various investigation reports were noted and type of operation and complication also recorded. All the information were analysed result were presented in tables.

Results:

This study was carried out on 72 cases of genital prolapse in general hospital Comilla in 2009.

Table-I
Age distribution of patients (n=72)

Age group (yrs)	No. of patients	Percentage (%)
31-40	13	18.05
41-50	24	33.33
51-60	26	36.11
61-70	06	8.33
> 70	03	4.16

Table-I shows most of the cases were in the age group between 51-60 yrs (36.11%).

Table-II
Distribution of parity (n=72)

Parity	No. of patients	Percentage (%)
0	0	0
1-4	30	41.66
5-9	39	54.16
> 10	03	4.16

Table-II shows most of the women had 5-9 children (54.16%).

Table-III
Etiology of genital prolapse (n=72)

Etiology	No. of patients	Percentage (%)
H/O prolonged labour	16	22.22
Lifting heavy weight	18	25
Early resumption of activity	38	52.77
Application of forcep	00	00
Chronic cough	20	27.77
Chronic constipation	12	16.66

Table-III show early resumption of activity is the most common cause (52.77%).

Table-IV
Socioeconomic condition (n=72)

Socioeconomic condition	No. of patients	Percentage (%)
Poor	41	56.94
Middle class	25	34.72
Upper middle class	06	8.33

Table-IV shows maximum cases belongs to the poor socioeconomic condition (56.94%).

Table-V
Symptomatology of genital prolapse (n=72)

Presenting symptoms	No. of patients	Percentage (%)
Something coming down	72	100
Urinary incontinence (stress)	05	6.94
Discharge	30	41.66
Defaecation problem	16	22.22
Backache	45	62.5
Urinary problem	52	72.22

Table-V shows all cases had the common problems something coming down the per vagina (100%) about 72.22% cases suffered from LUTS.

Table-VI
Examination finding (n=72)

Findings	No. of patients	Percentage (%)
Uterine problem		
• 1 ⁰	08	11.11
• 2 ⁰	58	80.55
• 3 ⁰	06	8.3
Cystocoele	72	100
Hypertrophied cervix	10	13.88
Uterine atrophy	38	52.77
Rectocoele	54	75
Decubitous ulcer	15	20.83
Discharge	30	41.66

Table-VI shows most of the cases had 2⁰ uterine prolapse (80.55%) & all the patient had uterine problem with cystocoele (100%).

Table-VII
Types of operation done (n=72)

Name of operation	No. of patients	Percentage (%)
Vaginal hysterectomy with anterior colporrhaphy and post clopperineorrhaphy	57	79.16
Vaginal hysterectomy with anterior colporrhaphy	12	16.66
Fothergill,s operation	02	2.77
Vault repair	01	1.38

Table-VII shows all the patient are managed surgically. Most of the patient treated by vaginal hysterectomy with anterior colporrhaphy and post clopperineorrhaphy (79.16%).

Table-VIII
Morbidity during and after operation (n=72)

Complications	No. of patients	Percentage (%)
Bleeding		
• average	30	41.66
• more than average	08	11.11
• minimal	34	47.22
Temperature	16	22.22
UTI	15	20.83
Urinary retention	03	4.16
Blood stained discharge	23	31.94

Table-VIII shows most of the patient had minimal blood loss (47.22%) during operation & blood stained discharged is the common postoperative complication (31.94%).

Discussion:

This study was carried out with an aim to find out the clinical profile and management pattern of uterovaginal prolapse in Bangladesh. Total 72 patients were admitted in department of Obstetric & Gynaecology in general hospital Comilla with uterovaginal prolapse during the period of 1st January 2009 to 31st December 2009 were enrolled in the study.

In this study most of the patients (36.11%) were in age group between 51-60 years, followed by 33.33% within

41-50 years and 18.05% within 31-40 years. A total 479 woman were examined by swift the average age of their series was 44 years.⁵ In Sultans study (2008) Shows maximums patients (57.0%) were belonged to 51 years and above age group⁶. Out of all patients in this study 54.16% were multipara having number of children 5-9 and none of the patient were nullipara.

In Marahatta & Shah⁷ maximum numbers of women were having children eight and more (48.51%) only 1.9% of women with genital prolapse were nulliparous. In Sultans series 96% were multipara and 4% were nullipara⁶. In this study more than 52% patients gave history of early resumption of house hold activity during puerperium and 25% lifted heavy weight during their daily activities, 27.77% patients had history of chronic cough, 22.22% patients had H/O prolonged labour and 16.66% had chronic constipation. In Sultans study 36.0% patients had chronic cough, 35% had H/O lifting heave weight, 13.0% chronic constipation, 42% prolonged labour & 3% had forcep delivery⁶. The study conducted by Bodner Adler et al. showed most of affected women were smoker and most of them were post menopausal, 35% of affected patients had chronic COPD, nearly all patients reported that they were working heavily during pregnancy as well as in the postpartum period (87.%), extensive physical labour during pregnancy and immediately after delivery, low availability of skilled birth attendants, smoking and low maternal weight due to lack of nutritious food were mainly responsible for prolapse uterus ,12.5% patients had family history of uterovaginal prolapsed.⁸ Most of the patient did not known about their family history of prolapse in Khan K. series 23.47% had family history⁹.

About the socioeconomic study of the patients 56.94% patients were poor, 34.72% middle class and 8.33% belongs to upper middle class. In Sultans series 63.% were from lower class, 37.0% from middle class and 33.0% patients were come from urban , 67.0% from rural area.⁶ Which is more or less similar to this study. All the study population had something coming down P/V, (72.22%) had urinary problem, 62.5% cases had backache, 41.66% patients had vaginal discharge, 22.22% had defecation problem and 6.94% patient had urinary incontinence (stress). In Sultans study 2008 all cases had something coming down per vagina, 97.0% had backache, 97.0% and 82.0% had complications of frequency of micturation and sense of incomplete voiding respectively ,5% had complaints of retention of urine, 59% cases had complaints of difficulty in defecation and 41% had constipation⁶.

In Luka et al. series the prevalence of prolapse was 70%, stress incontinence 15.0% and overactive bladder was 13.0%¹⁰. In Khan K. (2005) series 100% cases had complaints of some thing coming out per vagina, then urinary problem (69.57%) including stress incontinence (14.78%). 39% cases had backache, excessive discharge with defecation problem in 26.09% cases. In this study 80.55% cases were second degree uterine prolapse, 11.11% had first degree prolapse and 8.3% had third degree prolapse, 100% patients had cystococle, 75% patients had rectococle, 52.77% patients had uterine atrophy, 41.66% had vaginal discharge, 20.38% had dicubitus ulcer and 13.88% patients had hypertrophied cervix. In Sultana's series maximum 66.0% patients had second degree uterine prolapse followed by 19.0% third degree, 15% had first degree prolapse. 13% patients had vault prolapse, 76% patient had moderate cystococle followed by 18.0% had large and 6.0% had mild cystococle, 64.0% patients had mild rectococle and 36.0% patients had moderate rectococle⁶. A study in Italy showed 65.3% had prolapse degree I and 34.7% degree II and III¹¹. This is not consistence with the present study but more or less similar to Sultana's study.

Out of all patients 79.16% had vaginal hysterectomy with anterior colporrhaphy and post colpopembeorrhaphy, 16.66% patient had only vaginal hysterectomy with ant colporrhaphy, 2.77% patients had fothergills operation and 1.38% had vault repair. In Sultana's series all patients had gone through vaginal hysterectomy with anterior colporrhaphy and 76.0% patients had done post colpoperineorrhaphy⁶. In Khan series 60.07% required vaginal hysterectomy with pelvic floor repair, followed by vaginal hysterectomy with anterior colporrhaphy in 20% cases, only 3.34% cases underwent Fother gill's operation and 0.87% i.e. one case underwent laparoscopic assisted vaginal hysterectomy⁹. In the present study 41.66% patients had average blood loss, 11.11% had more than average and 47.22% had minimal blood loss, 33.94% had secondary haemorrhage, 22.22% cases had fever in post operative period, 20.83% cases had urinary tract infection. In Chowdhury's study 14% had pyrexia, 10% urinary tact infection and 7% had haemorrhage¹².

In Khan series 17% had pyrexia, 17% had UTI, 2.6% had retention of urine, 64% had more than average and 35% had minimal blood loss, blood stained vaginal discharge was 56%. This study was more or less similar to present study. In Sen's study 25% had pyrexia, 20%

had UTI, 5% had retention of urine and 4% had excessive blood loss¹³.

Conclusion:

In conclusion this study may give some idea about lack of maternity care during their antenatal, intranatal and postnatal period, which should reach to every corner of our country. Genital prolapse cases come from remote villages. To reduce the genital prolapse we should take attempt to provide maternity benefit including extra nutritional supplement to the pregnant mothers like other develop countries, to update the training program for skilled birth attendants and to improve transport facilities. Education, awareness of health status of the people and acceptance of "Two child family norm" may improve the living standard to some extant and prevent the occurrence of genital prolapse also. Whatever may the cause genital prolapse with lower urinary tract symptom (LUTS) can be managed successful by surgical method.

References:

1. Bhatta. N. Jeffcoatee's Principles of Gynaecology, 6th ed. Arnold, London, 2001:263-81.
2. Cardozo L. prolapse. In Whitfield CR, ed. Dewhurst's Textbook of obstetrics and Gynaecology for postgraduates. Oxford: Blackwell Science, 1995:642-652.
3. Begum A, Khan HT. Obstetric related residual morbidities among the women in Bangladesh, J Prev Soc Med. 1999; 18(1): 22-29.
4. Alan H. DeCherney Lauren Nathan. Pelvic organ prolapse. Current obstetric & gynaecologic diagnosis and treatment, 10th edition McGraw-Hill, Medical Publishing Department New York. 2007:p. 720-735.
5. Swift SE. The distribution of pelvic organ support in a population of female subjects seen for routine gynaecological health care. Am J Obstet Gynaecol 2000;183(2): 277-285.
6. Sultana N. Clinical profile & management of 100 cases of uterovaginal prolapse in Holy Family Red Crescent Medical College Hospital, Dhaka (Dissertation) Bangladesh College of Physicians & Surgeons, 2008:64.
7. Marahatta RK, Shah A. Genital prolapse in women of Bhaktapur, Nepal. Nepal Med Coll J 2003;5(1): 31-33.
8. Bodner- Adler B, Shrivastava C, Bodner K. risk factor for uterine prolapse in Nepal. Int urological J (2007) 18: 1343-1346.

9. Khan K. Surgical management of genital prolapse and its immediate morbidity, (Dissertation) Dhaka: Bangladesh College of Physicians & Surgeons, 2005:54.
10. Lukacz ES, Lawrence JM, Contreras R, Nager CW, Luber KM, Parity, Mode of Delivery, and pelvic floor disorders. *Obstet Gynaecol* 2006;107:1253-1260.
11. Progetto Menopusa Italia Study Group. Risk factor for genital prolapse in non hysterectomized women around menopause. Results from a large cross sectional study in menopausal clinic in Italy. *Eur J. Obstet Repord Biol* 2009; 93(2): 135-140.
12. Chowdhury SK. Operative treatment of genital prolapse in young women. *J Indian MA.* 80:11-12.
13. Sen S. Mukherjee KK, Chakraborty BK. Genital prolapse J. *I Indian MA.* 1984; 82: 159-161.

Authors

1. Assistant Professor, Obs. & Gynae, Comilla Medical College.
2. Medical Officer, Obs. & Gynae. General Hospital, Tangail.
3. Medical Officer, Obs. & Gynae. General Hospital, Comilla.
4. Assistant Professor, Obs. & Gynae, Comilla Medical College.
5. Lecturer F Medicine, Enam Medical College, Savar, Dhaka.
6. Assistant Professor, Cardiology, NICVD.
7. Assistant Professor, Urology, Comilla Medical College.
8. Assistant Professor, Urology, Comilla Medical College.

DORSOLATERAL ONLAY OMG URETHROPLASTY THROUGH UNILATERAL URETHRAL MOBILIZATION IN ANTERIOR URETHRAL STRICTURE - OUR EXPERIENCE IN DHAKA MEDICAL COLLEGE HOSPITAL AND SALAM UROLOGY & TRANSPLANTATION FOUNDATION OF BANGLADESH (FUTF)

MF ISLAM¹, ME HAQUE¹⁰, MW ISLAM¹, MN HOODA¹, MS ALAM², MF NASER², MA AWAL³, A RASUL², MS ALAM², MA RAHMAN⁴, I KAISAR⁵, MR CHOW⁶, MM RAHMAN⁷, SMM ALAM⁸, MA SALAM⁹

Abstract:

Introduction: Circumferential urethral mobilization may result in ischemia of urethra in conventional anterior dorsal onlay urethroplasty. We performed dorsolateral onlay OMG urethroplasty in anterior urethral stricture through unilateral mobilization of urethra to preserve its vascular supply.

Objective: To evaluate the feasibility and short term outcome of using dorsolateral onlay OMG urethroplasty in anterior urethral stricture through unilateral urethral mobilization.

Method: In this prospective study, 27 patients with average age of 38 years underwent anterior dorsolateral onlay OMG urethroplasty through unilateral urethral mobilization in tertiary care hospital. In all patients, the surgical approach to the anterior urethra was made only along one side leaving the urethra attached to the corpora cavernosa on the opposite side thus preserving its vascular supply intact on one side. The cause of stricture was instrumentation in four cases (14%), lichen sclerosis in thirteen cases (48%), unknown in seven cases (25%) and infection in three cases (11%). The stricture site was bulbar in 10 cases and panurethral in 17 cases. Average length of the stricture segment was 4cm and 9 cm in bulbar and panurethral respectively. Of 27 patients, 20 received previous treatment. Clinical outcome was considered a failure when postoperative Q_{max} was <10ml/sec and/ any instrumentation were needed. Patient who underwent previous urethral reconstruction surgery was excluded from the study.

Result: Of the 27 patients, 25 had (92%) successful outcome and 2 (8%) were failure. Two failed cases underwent successful optical internal urethrotomy. Follow up period was 4 months to 20 months.

Conclusion: Dorsolateral onlay urethroplasty of anterior urethral stricture preserving vascular supply along one side of its entire length of reconstruction is a simple and may be a reliable solution for better outcome.

Key words: Urethroplasty, Anterior urethral stricture, Dorsolateral onlay.

Introduction:

Reconstruction of urethral stricture is still challenging. Various methods have been described. The conventional approach for management of long segment anterior urethral stricture is a two-stage Johanson repair along with the use of free grafts if required.^{1,2,3} Barbugli *et al* and Asopa *et al* described dorsal graft urethroplasty in different ways.^{5,7} In 2000, Kulkarni *et al* described a new, full length one stage OMG urethroplasty in patients with panurethral stricture due to lichen sclerosis with the preservation of unilateral vascular supply of urethra.⁽⁶⁾ We applied this technique to reconstruct anterior urethral stricture including panurethral stricture in our centre. Here is our experience.

Patients and Methods:

In this prospective study from March 2009 to August 2010, 27 patients with average age of 38 years (range: 25 to 57 years) underwent one sided anterior dorsolateral onlay OMG urethroplasty while preserving the vascular supply of opposite side of urethra. The study was undertaken in the dept. of Urology, DMCH & Salam Urology and Transplantation Foundation (SUTF).

Preoperative evaluation included history, physical examination, urinalysis, USCD, and retrograde and voiding cystourethrography. The cause of urethral stricture was previous urethral instrumentation in 4 cases (14%), unknown in 7 cases (25%), lichen sclerosis in 13 cases (48%) and infection in 3 cases (11%). The stricture site was bulbar in 10 and panurethral in 17 cases. Average length of the stricture segment was 4 cm and 9 cm in bulbar and panurethral respectively. Of them 20 patients received previous treatment: Optical internal urethrotomy in 14 (70%), dilatation in 6(30%). Patients with non obliterative anterior urethral stricture were included in the study while previous urethroplasty or other urethral abnormalities (ie PUDD, hypospadias etc.) were excluded from the study.

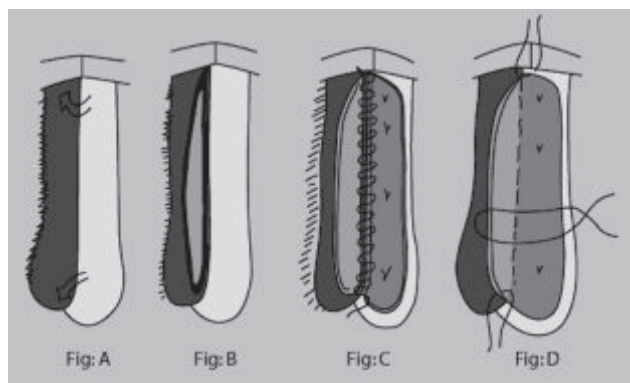


Figure 1⁹: (A) Mobilization of urethra beyond midline dorsally, (B) Dorsal urethrotomy, (C) Graft sutured to medial urethral margin, (D) Free margin of the graft sutured to lateral urethral margin.

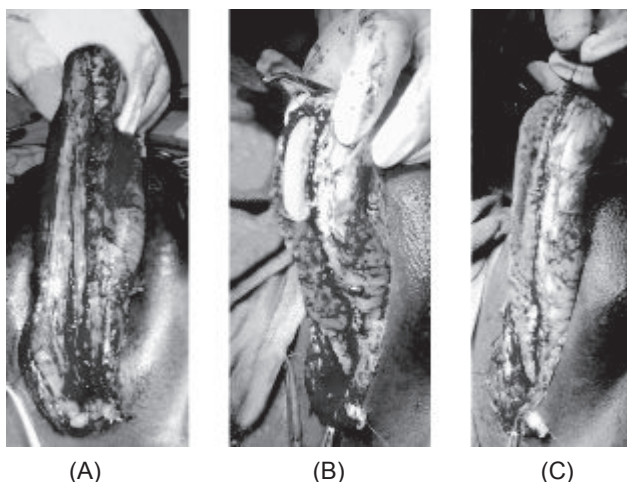
An intra-operative urethroscopy was performed to evaluate the caliber of the narrow urethra and the remaining urethra. We performed the dorsolateral onlay procedure only when a guide wire could be negotiated through the non obliterative stricture segment. Urethroplasty was started by a midline perineal approach, with the patient in a high lithotomy position. The penis was everted through the perineal incision. The urethra was mobilized from left side of the ventral aspect to beyond the midline on the dorsal aspect [Figure 1A]. Fascia and vascular attachments on the other side of the urethra were left intact. Maximum distal and proximal limits of dissection were meatus and bulbomembranous junction. Urethrotomy was made in the midline dorsally [Figure 1B]. Appropriate sized buccal mucosal grafts were harvested (from one or both cheeks). The length of the area to be grafted was measured by the incised length of the urethra. Graft sizing was appropriate by this method; hence, preventing chordee. After defatting, the graft was sutured proximally to the open urethra by a few interrupted sutures at the apex and at the medial urethral margin. Then, one edge of the graft was sutured to the medial urethral margin, which was in place and fixed to the corpora [Figure 1C]. This was performed by continuous suturing using 5/0 polyglactin sutures until the distal apex. At the distal apex, few interrupted sutures were taken. Quilting sutures were applied to keep the graft apposed to the tunica. A 14 Fr Foleys catheter was kept. The other margin of the graft was sutured to the lateral margin of the urethra and the tunica of corpora [Figure 1D]. These three tissues were taken together

while approximating the lateral edge, thereby anchoring both graft and urethral margin to the corporal tunica. During the entire procedure, care was taken to prevent stretching of the graft, which might result in chordee. A corrugated drain was kept. The bulbospongiosus muscle was approximated in the midline. Subcutaneous tissues and skin were closed with interrupted absorbable sutures.

In patients with panurethral strictures, a midline perineal incision was made and the bulbar urethra was dissected on the left side from the corpora cavernosa. On the right side, the urethra remains attached to the corpora cavernosa along its entire length, thus preserving its lateral vascular blood supply. By invaginating the penis into the perineal incision, the penile urethra was similarly dissected, only along the left side, from the corpora cavernosa up to the coronal sulcus. On the left side, the urethra was partially rotated and dorsal midline urethrotomy was made. A wide meatotomy was performed dorsally from the meatus through the urethra inside the glans. The first oral mucosa graft was sutured to the dorsal edge of the meatus and pushed inside the opened penile urethra and fixed to the corpora cavernosa. Another oral mucosa graft was applied to the corpora cavernosa opposite the bulbar urethra. Quilting sutures were used to spread and fix the graft to the corpora. The right side of the oral graft was sutured to the attached margin of urethral mucosal. A Foley 14F catheter was inserted. The urethra was rotated to its original position over the graft. Interrupted 5/0 polyglactin sutures were used to stabilize the urethral margins onto the corpora cavernosa over the graft on the left side. At the end of the procedure, the graft was completely covered by the urethra. The catheter was left in situ for 3 weeks.

The patient ambulated on the first postoperative day and was discharged from the hospital 5 days after surgery. All patients received broad-spectrum antibiotics and were maintained on oral antibiotics until the catheter is removed. At 3 weeks after surgery, the bladder was filled with contrast medium, the Foley catheter was removed and voiding cystourethrography was performed.

The results were classified into the following outcomes. Success was defined as a maximum flow rate of >10 ml/sec., normal RGU, and/or urethroscopy (with a 19 fr. sheath). Failure was defined as the presence of obstructive urinary tract symptoms, Qmax <10 ml/sec., stricture diagnosed on retrograde urethrogram/urethroscopy, and the need for any postoperative urethral intervention.



(A) Mobilization of urethra and dorsal urethrotomy,
 (B) Graft placement and ongoing tubularization of urethra
 (C) Complete tabularization of urethra

Fig.-2: Different stages of dorsolateral onlay urethroplasty (Peroperative pictures)

Result:

Our short term observation on average 12 months (from 4 months to 20 months) demonstrates satisfactory result in 25 (92%) patients. Clinical outcome was considered as failure when any postoperative instrumentation was needed. In all patients, postoperative voiding cystourethrography was performed 3 weeks after surgery. Uroflowmetry was performed 4 monthly. Urethrography and urethroscopy were performed in patients with symptoms of poor stream and $Q_{max} < 10\text{ml/sec}$. Two failed cases developed nonobliterative proximal anastomotic stricture and had a successful outcome with OIU. Both of the failures were in the patients of panurethral stricture (Table 1, Table 2). We found postoperative chordee in four cases (23.5%) of panurethral stricture. Three patients developed wound infection. Urethral diverticulum was not found in any of the patients. Operative time was 2.5 hours to 4.5 hours.

Table-I

Average pre and post operative $-Q_{max}$ in different groups

Average	Bulbar stricture	Panuethral stricture
pre operative $-Q_{max}$	08.1 ml/sec	06.9 ml/sec
post operative $-Q_{max}$	17.3 ml/sec	16.5 ml/sec

Table-II

Outcome in different group (Success- $Q_{max} > 10\text{ml/s}$, Failure- $Q_{max} < 10\text{ ml/s}$)

Post operative $-Q_{max}$	Bulbar stricture (17)	Panurethral stricture (10)
$>10\text{ml/s}$	10 (100%)	15(88%)
$<10\text{ml/s}$	00	2(12%)

Discussion

In the original dorsal onlay techniques the urethra is circumferentially mobilized from the corpora cavernosa for better exposure of its dorsal surface which becomes convenient to spread and fix the graft over the underlying albuginea.^{5,6} A circumferential dissection of the whole anterior urethra risks the vascularity of the urethra, which may be more important if the meatus is involved with disease and the distal-most urethra is extensively dissected, such as is seen with concomitant lichen sclerosis. The Barbagli procedure with circumferential mobilization of the urethra for dorsal onlay patch has a success rate of 99% and 66% in the short- and long-term, respectively.⁸ However, in long segment anterior urethral strictures, circumferential urethral mobilization may jeopardize the lateral vascularity of the urethra.

Inlay patch by ventral urethrotomy for the management of anterior stricture urethra was described by Asopa. His procedure preserves lateral vascular supply. But there are difficulties in placement of long wider grafts which may become folded.⁷

Kulkarni et al have shown good result with dorsal onlay technique through dorsolateral mobilization of urethra.⁽⁴⁾

We applied the technique to maintain the urethral vascularity on one side of the urethra while keeping the graft in a dorsolateral onlay fashion. Technically, it is as easy as the Barbagli procedure. It also preserves the one-sided bulbar artery in addition to maintaining the native lateral vascularity at the meatus and the distal urethra.

We found postoperative chordee in four cases (23.5%) of panurethral stricture. In this procedure, as the urethra is not completely mobilized off the corpora so appropriate graft sizing would prevent the chordee.

Our experience with small number of sample over short period is good but long term follow up is necessary to comment on actual outcome.

Conclusion:

Various published articles eluded that dorsal patch urethroplasties are the mainstay of treatment for single-stage repair of long segment anterior urethral strictures. Dorsolateral patch by one-sided urethral mobilization may be a good alternative to extensive circumferential mobilization of urethra. In this study of a limited number of patients, we found it to be a technically feasible, easily adoptable and successful procedure. Though short-term follow-up of 12 months (from 4 months to 20 months) Shows encouraging result but long-term results of this procedure are yet to be evaluated. Data collection is ongoing for further long term follow-up.

References:

1. Al-Ali M, Hajaj RA 2001. 'Johanson's staged urethroplasty revisited in the salvage treatment of 68 complex urethral stricture patients: Presentation of total urethroplasty', *Eur urol*, vol.39,pp.268-71
2. Schreiter F. 1998 'Two-stage urethra-plasty' *Urology A*, vol.37, pp.42-50
3. Bouchot O, Cases C, Bochereau G, Prunet D, Buzelin JM. 1995. 'Urethroplasty in two stages using skin graft. *Prog urol*, vol.5, pp.551-5.
4. Kulkarni S, Barbagli G, Sansalone S, Lazzeri M, 2009, 'One sided anterior urethroplasty; a new dorsal onlay graft technique', *BJUI* , vol.104,pp.1150-1155
5. Barbagli G, Selli C, Palminteri E. 1996, 'Dorsal free graft urethroplasty' *J Urol* ,vol.155,pp.123-6
6. Kulkarni SB, Kulkarni JS, Kirpekar DV.2000, 'A new technique of urethroplasty for balanitis xerotica obliterans.' *J Urol*,vol.163 (Suppl.),pp.352 (abstract V31)
7. Asopa HS, Garg M, Singhal GG, Singh L, Asopa J, Nischal A.2001, ' Dorsal free graft urethroplasty for urethral stricture by ventral sagittal urethrotomy approach.' *Urology*, vol. 58,pp.657-9
8. Barbagli G, Morgia G, Lazzeri M.2008, 'Dorsal onlay skin graft bulbar urethroplasty: Long-term follow-up' *Eur Urol*, vol.53, pp. 628-33.
9. Singh BP, Pahtak HR, Adnankar MG 2009 'Dorsolateral onlay urethroplasty for anterior urethral stricture by a unilateral urethral mobilization approach' *Indian J Urol*, 25,vol.25, pp. 211-4

Authors:

1. Assistant Professor of Urology, NIKDU
2. Assistant Professor of Urology, DMCH
3. Assistant Professor & R/S, NIKDU
4. Registrar, NIKDU
5. Consultant Urologist, Salam Urology & Transplantation Foundation (SUTF)
6. Consultant Urologist, DMCH
7. Assistant Professor of Urology, DMCH
8. Professor & Head of the Dept., Urology, DMCH
9. Professor of Uro-Oncology, BSMMU & President of Salam Urology & Transplantation Foundation (SUTF)
10. Assistant Professor of Urology, NICRH, Dhaka

CLOSURE OF ABDOMINAL DEFECT BY USING NATIVE DETRUSOR MUSCLE FOR BLADDER EXSTROPHY

ATMA ULLAH¹, MIM CHOUDHURY², S REGMI¹, AKMK ALAM¹

Introduction

Bladder exstrophy is a congenital anomaly that has been little bit difficult to correct. Advances in reconstructive surgery, have impacted on the care of these patients. The ideal reconstruction is directed to accomplish closure of the abdominal wall and bladder with subsequent correction of reflux, bladder neck revision for continence, and anatomical and functional repair of the epispadias. External and internal diversion may still be required for classical exstrophy when the bladder is represented by a fibrous patch and other complicating anomalies prevent closure or subsequent growth of the bladder¹.

In such case, repair of anterior abdominal wall defect is also challenge. We present here a case where we used the native detrusor muscle of the patient after stripping off its mucosa to cover the muscular defect in the lower abdomen, and then the wound was covered by using local skin flaps.

Case Report

This 27 years old unmarried male patient from Comilla presented to us with the complaints of defect in anterior abdominal wall & penis and continuous dribbling of urine since birth causing wetting of his clothes and foul smell, along with occasional loin pain treated with antibiotics & analgesics. He failed to seek proper medical advice in due time due to poverty and illiteracy.

Abdominal examination reveals absence of umbilicus & anterior abdominal wall in the lower part, the part is formed by the posterior wall of the bladder which is protruded through the defect and is covered by red congested mucosa with areas of keratinization. When the exposed mucosa is reduced, the wet trigone and the ureteric orifices can be seen through which there is dribbling of urine. Also the firm edge of the defect can be felt, along with the widely separated pubic bones. There is diversification of recto with recto inserted wide apart.

The penis is short. There is no EUM and the urethra is laid open in the whole of the dorsal aspect. Scrotum is normally developed with smaller testis in the left side. Some areas of excoriation can be seen in the scrotal



Fig.-1: Preoperative appearance of the lower abdominal wall & the genitalia.

skin. So, our clinical diagnosis was bladder exstrophy with epispadias totalis.

Biopsy was taken from the bladder which revealed squamous metaplasia of the lining epithelium with subepithelial proliferation of capillaries & infiltration by inflammatory cells. There was no evidence of malignancy.

Ultra sonogram of KUB region was done to see the state of upper urinary tract which revealed both kidneys to be normal in size, shape & position. PCS was not dilated in both sides. Pubic symphysis was wide apart in plain X-Ray of KUB region. Serum creatinine & IVU was normal.

Patient was properly counseled & prepared for anesthesia before operation. First, urinary diversion was done in the form of ileal conduit and the muscular abdominal wall defect was repaired by using the native detrusor muscle of the urinary bladder itself after stripping off its mucosa. Finally the wound was covered by paired inguinal skin flaps.



Fig 2: Preoperative Planning.



Fig 5: Final appearance after operation.



Fig 3: Approximation of Detrusor muscle with lower part of Rectus Abdominis muscle .

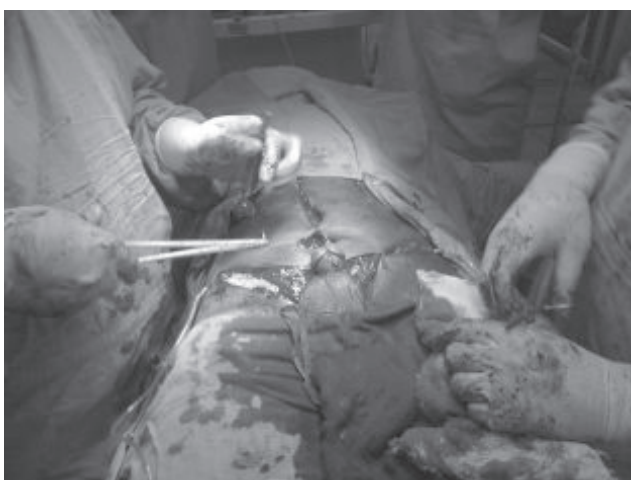


Fig 4: Approximation of the skin flaps.

Discussion

This case didn't present to us at the ideal time for reconstruction. He came to us at the age of 27 with incontinence as the main problem that is hampering his social life. The solution for this problem could be urinary diversion or neobladder formation by different ways, for example, using rectus abdominis muscle flap, micro vascular free flap using latissimus dorsi, etc as well as reconstruction of the abdominal wall^{2,3}. Neobladder formation as well as closure of abdominal muscle defect needs pubic osteotomy or destruction osteogenesis of pubis bone but it is quite expensive and not possible in our situation. So we decided to perform urinary diversion in the form of ileal conduit and reconstruction of the muscular abdominal wall defect using the native detrusor muscle. Then the wound over the muscle was covered by bilateral inguinal flaps based on the superficial inferior epigastric artery⁴.

In case of extrophy bladder, abdominal wall is already weak especially in the infraumbilical part because of the lack of skeletal muscle and herniation may occur through this weakness. So, muscular reconstruction of the anterior abdominal wall is essential to prevent this complication. When we are not using detrusor muscle for neobladder formation, it is better to use it for reconstruction of the abdominal wall than doing cystectomy. However, we are concerned about the existing bladder mucosa which has already undergone metaplastic changes, with the chance of conversion to malignancy. So, before using the detrusor muscle, we must obtain biopsy from the epithelium to rule out malignancy and have to strip it off from the submucosal layer without hampering the vascular supply to the muscles.

References

1. John P. Gearhart, Robert D. Jeffs. State-of-the-Art Reconstructive Surgery for Bladder Exstrophy at the Johns Hopkins Hospital AJDC. (1989), 143, 1475-1478
2. S. Celayir, N. Kilic, M. Elicevik and C. Buyukunal. Rectus abdominis muscle flap (RAMF) technique for the management of bladder exstrophies: late clinical outcome and urodynamic findings. British Journal of Urology (1997), 79, 276–278
3. P P Rickham. The Incidence and Treatment of Ectopia Vesicae [Abridged] Proceedings of the Royal Society of Medicine, Section of Urology. (1960), 389-392
4. Simon J. Ectopia vesicae. Lancet 1852;2:568
5. Steffensen W, Ryan J, Sinclair E. A method of closure of the abdominal wall defect in exstrophy of the bladder. Am J Surg 1956;92:9

Authors

1. Department of Urology, BSMMU, Dhaka
2. Plastic Surgery Unit, BSMMU, Dhaka

COMMON NEUROGENIC BLADDER DISORDER DUE TO SPINAL CORD INJURIES- A REVIEW

ATM A ULLAH¹, MS HASAN², TMS HOSSAIN³, MS RAHMAN⁴

Introduction:

The term neurourology used to describe the study of the interaction between the nervous and genitourinary systems. Indeed, neurourology includes the study of nervous system interactions with the upper urinary tract, lower urinary tract (LUT), as well as its impact on sexual function, which also is frequently affected by neurologic disease.¹ Neurogenic bladder (NGB) is a term used frequently to refer to bladders that have become dysfunctional from a variety of sources (such as long-term obstruction). For the purposes of this review, Neurogenic bladder refers only to conditions where a known neurological disease has affected bladder function, a systemic disease that has resulted in neuropathy causing bladder dysfunction, or abnormal urodynamic findings suggestive of neurological disease. In 2002, the International Continence Society (ICS) redefined the terminology of the lower urinary tract, with regards to both symptoms and urodynamic findings. Many of the commonly used terms were replaced such as detrusor instability (idiopathic detrusor overactivity) and detrusor hyperreflexia (neurogenic detrusor overactivity).² In this review article, we will focus on the neurovesical dysfunction in spinal cord injury (SCI) are chronic pain, muscular atrophy, loss of voluntary control over bladder, inability to produce erection, ejaculation, infertility and autonomic dysreflexia.

Anatomy:

The LUT is comprised of the bladder, which acts as the urinary reservoir, the outlet, which includes the bladder neck, the prostatic urethra, the external urethral sphincter, and remainder of the urethra (bulbar and penile urethra). The LUT serves two main functions: storage and emptying of urine. To store urine, it requires a number of conditions to be met. The bladder outlet must be closed at rest, and the bladder body must be able to accommodate increasing volumes of urine. The bladder must be able to inhibit

involuntary contraction. These functions are controlled by a series of highly coordinated neural circuit.

The peripheral efferent innervation is provided by three sets of nerves: the sacral parasympathetics (pelvic nerves), thoracolumbar sympathetic (hypogastric nerves), and somatic nerves (pudendal nerve)³. The pelvic nerves, with origins from the S2-S4 spinal cord, are plexiform-type nerves that are primarily responsible for innervation of the detrusor muscle and smooth muscle of the external sphincter. Stimulation of pelvic nerves results in activation of muscarinic receptors and resultant detrusor contraction. The pelvic nerves are also responsible for noncholinergic activation of the detrusor muscle. The hypogastric nerves, on the other hand, functions mainly to relax the detrusor (adrenergic effect) and contract the bladder neck and external urethral sphincter (a adrenergic).

The innervation of the external urethral sphincter is complex and thought to be regulated by a number of different nerves. Primarily, the external urethral sphincter is controlled by somatic nerves, with nerve roots emanating from S2-S4 (Onuf's Nucleus in the ventral horn). Stimulation, or activation of somatic nerves will allow the external urethra to relax. Continence is mediated through sympathetic stimulation via hypogastric nerves, which contract the sphincter. Afferent innervation of the bladder is complex, but essentially is comprised of two fiber types. The A δ fibers are myelinated axons located in the detrusor muscle, which transmit information about passive distension (bladder filling) and active contraction via their ability to detect stretch and tension of the bladder wall. In contrast, the C-fibers are unmyelinated fibers located in the urothelium of the bladder that detect noxious or thermal stimuli and are activated in times of filling during distention of the bladder as well as in pathological states. It has been demonstrated in cats with spinal cord injuries, for example, that bladder contractions are mediated by C-fibers. Similarly, patients with interstitial cystitis, have been shown to have an upregulation of nerve growth factor (NGF), which has been shown to play a role in the development of peripheral neurons, particularly C-fibers. Both fibers have cell bodies located in the dorsal

root ganglia of the sacral and thoracolumbar spinal cords. Their afferent activity plays a crucial role in the spinal reflexes³.

Bladder filling and voiding are regulated by a number of complex reflex pathways including the guarding reflex and the micturition reflex. These reflexes are mediated by central nervous system (CNS) pathways involving the aforementioned nerves, and an understanding of these pathways is dysfunction. as the bladder starts to fill, low level afferent activity from the bladder causes inhibition of parasympathetic stimulation to the bladder body with simultaneous activation of the external urethral sphincter. This inhibition allows the bladder to fill passively, without reflex contractions, with the bladder outlet to remaining closed. The guarding reflex refers to the collective group of urethral reflexes that increases sphincteric activity up until the point of micturition.

Early during bladder filling, afferent nerves carry signals to periaqueductal gray area (PAG) that acts to stimulate sympathetic outflow to the bladder and urethra, causing bladder relaxation and increased tone of the urethral sphincter. Later, after increased afferent activity is sensed, the act of voiding is initiated in the prefrontal cortex that has direct projections periaqueductal gray area. Through its communication with the pontine micturition centre, the periaqueductal gray area removes tonic inhibition of parasympathetics and inhibition of sympathetic outflow occurs. impulses traveling in the spinobulbospinal pathway result in contraction of the bladder and relaxation of the urethral sphincter and the micturition reflex is initiated.

Spinal Cord Injury:

For long years, death as a result of genitourinary disease was common among SCI patients. However over the past 50 years, there has been a dramatic reduction in urological causes of death in SCI patients. This is due largely to our understanding, diagnosis, and treatment of neurogenic bladder dysfunction from SCI. Lower urinary tract symptoms (LUTS) resulting from SCI will vary depending on the level and completeness of injury. The completeness of injury is determined by the American Spinal Injury Association (ASIA A-E) impairment scale, with ASIA A referring to patients with a complete and total paralysis below the injury level and ASIA E being patients who are normal. After spinal shock resolves and, if the distal autonomic segments remain viable, injuries rostral to the suprasacral spinal cord will result in neurogenic detrusor overactivity (NDO) with or without detrusor-sphincter dyssynergia (DSD). The precise

mechanism by which neurogenic detrusor overactivity (with or without DSD) develops has yet to be determined. De Groat and Yoshimura recently proposed that the CNS damage induces changes of the C-fiber afferents. They claimed that the injured spinal neurons may release neurotrophic factors, specifically NGF that remodel C-fiber afferents, rather than direct injury to the C-fibers themselves. The SCI patients who develop neurogenic detrusor over activity ± DSD are exposed to high bladder storage pressures, reflex voiding and, potentially, increased detrusor leak point pressures (DLPP) when compliance is altered, which can result in upper tract damage if not adequately managed⁷. with that in mind, urodynamics (UDS) have become a mainstay in evaluation of lower urinary tract dysfunction.

Recent literature has sought to determine if ASIA classification may impact UDS findings. In 2008 Moslavac et al compared UDS findings in patients with incomplete and complete SCI in order to determine if there was a difference in DLPP and cystometric capacities between groups. Fifty ASIA A patients and 30 ASIA B-E patients who had neurogenic detrusor overactivity were included in the analysis. No significant difference was noted in mean DLPP between groups (79 ± 30 cm H₂O vs 70 ± 29 cm H₂O, p=0.234, respectively). Similarly, with regards to cystometric capacities the two groups did not demonstrate any significant difference (239 ± 107 ml vs 227 ± 125 ml, p=0.655). These findings suggest that clinical mechanisms to stratify the injury do not predict urodynamic findings or appropriately stratify urological risk.

Treatment options and strategies for patients with neurogenic bladder dysfunction secondary to SCI have evolved a great deal over the past 50 years. This evolution and trend was captured by Cameron et al in their large analysis of treatment trends in SCI patients. Study group investigated bladder management over a 33-year period (1972-2005) by using the National Spinal Cord Injury Database. Bladder management on discharge from rehabilitation, for 24762 patients at 5-year intervals was recorded. Over the course of the study period, the proportion of patients who managed their bladder with an indwelling catheter decreased from 33.1% in 1972 to 23.1% in 2005, at least 165% from 1986 to 1995. Condom catheter usage steadily decreased over the study period from 34.6% to 1.5%. Their explanation for the drop off is based on a 2009 study by Pan et al and is centered around the need for a high level of patient and physician compliance following sphincterotomy, since repeat procedures are often necessary. Clean intermittent

catheterization (CIC) usage increased dramatically from 12.6% at study in 1972 to 56.2% in 1995, which was essentially maintained until study end. They also investigated bladder management as a function of years after injury and concluded that indwelling catheter usage increased steadily from zero years after injury (23.2%) to 30 years after injury (45.1%). Conversely, use of CIC decreased as a function of years postinjury, with CIC rates being 45% at zero years and 43.3% at 30 years postinjury⁹.

Pharmacotherapy has become a cornerstone in treatment of patients with neurogenic bladder dysfunction from SCI. medical therapy is useful in trying to minimize the impact of complications associated with neurogenic detrusor overactivity such as urinary tract infection (UTI), bladder calculi, incontinence, vesicoureteral reflux, and upper tract damage. Antimuscarinics increase bladder capacity and compliance, reducing intravesical pressures. the use of antimuscarinics and their role in increasing MCC and improving compliance in Neurogenic bladder dysfunction has been well documented.

incontinence, vesicoureteral reflux, and upper tract damage. Antimuscarinics increase bladder capacity and compliance, reducing intravesical pressures. The use of antimuscarinics and their role in increasing MCC and improving compliance in Neurogenic bladder dysfunction has been well documented.

Recently, the use of intravesical botulinum A toxin (BTX-A) injection has become a primary therapy, albeit still off-label, for patients who have neurogenic detrusor overactivity as a result of SCI. In a study of 214 patients, Wefer et al reported on the effect of BTX-A injections on urodynamic parameters. A significant decrease in mean maximal detrusor pressure (45 ± 26 cm H to 30 ± 21 cm H p.OO and increase in maximum cystometric capacity (333 ± 139 ml to 394 ± 124 ml, $p = .00$) were noted. Compliance was also significantly increased in this study¹⁰. Similar findings were reported by Giannantoni et al in their 6-year follow-up of patients with repeated (typically at 6-9 months intervals) detrusor injections of BTX-A. There was a significant decrease in number of catheterizations, incontinence episodes, and UTI/year. Maximum cystometric capacity increased significantly from 243 ± 65 cc to 421 ± 56 cc ($p = .001$) at 6 years. DLPP also decreased significantly from 97.6 ± 32.4 cm 1120 at baseline to 23.8 ± 10.8 cm 1120 at 6 years ($p = .01$)

Sacral neuromodulation (SNM) has also gained popularity in the treatment of Neurogenic bladder

dysfunction in the SCI population. The procedure involves placing leads into the S3 root and connecting it to a generator. Although the exact mechanism of action is unknown it appears to have success. In 2009, Lombardi et al reported their success in 24 patients (11 with neurogenic detrusor overactivity and 13 with retention) at a median of 61 months follow-up. Variables looked at were volume per catheterization, mean number of CIC, mean urinary frequency, and mean voided volume. Across the board, all variables showed a significant improvement in parameters ($p < .05$). Although this study demonstrated success of sacral neuromodulation in SCI, this is typically not patient population in which neuromodulation is successful. The success may possibly be due to the small sample size, with a large number of incomplete cervical injuries. The Finetech-Brindley stimulator is another neuromodulatory system widely used in Europe. Indicated in SCI patients with areflexic or hypocontractile bladders, the device involves a posterior sacral rhizotomy serving to eliminate any detrusorexternal sphincter dyssynergy (DESD). The Brindley stimulator requires an intact neural pathway between the sacral spinal cord and the pelvic nerve. Long-term results have shown the device to be very effective in the proper patient population¹².

Autonomic dysreflexia (AD) is one of neurogenic bladder dysfunction in the setting of SCI. The autonomic dysreflexia is a sudden and severe sympathetic response to noxious stimuli below the level of a spinal cord lesion. The autonomic dysreflexia can affect patients who have lesions T6 or higher. Generally, symptoms of autonomic dysreflexia include hypertension and headache above the level of the lesion, usually with bradycardia, although tachycardia and arrhythmias are possible. Most commonly, bladder distension is the inciting factor for autonomic dysreflexia, with less common stimuli being fecal impaction, stones, appendicitis, decubitus ulcers, or fractures in long bones. Treatment of autonomic dysreflexia includes removing the noxious stimuli such as bladder drainage as well as removing all tight clothes, and sitting the patient upright. If conservative measures do not resolve autonomic dysreflexia, pharmacologic treatment can be initiated in the form of oral nifedipine, nitroglycerin paste (above the level of lesion), or a sodium nitroprusside drip. In patients who have a known history of autonomic dysreflexia, medical prophylactic treatment is warranted with alpha blockers or sublingual nifedipine prior to procedure¹³.

Conclusion

Management of neurogenic bladder dysfunction is very important for urologists and patients. For the patient it is a tremendous burden, with respect to not only social situations and potential impact on kidney function and recurrent bladder infections, but for the urologist it poses many dilemmas as far as diagnostic and treatment strategies. For the clinician the role of UDS is necessary for diagnosis and treatment of these patients. It is important to understand that symptoms do not always correspond to UDS findings and baseline UDS might be necessary in a select population. Goals of treatment in patients with neurogenic bladder dysfunction should be aimed at reduction of symptoms, improvement of quality of life, preservation of sexual function, avoidance of symptomatic urinary tract infections, and preservation of upper tract function. Last 2 Decades urological care has improved dramatically and, as a result, the morbidity associated with urological conditions in the setting of neurological disease has gradually decreased, We expect that development of less invasive strategies to deal neurogenic bladder conditions to improve the care that we can deliver to our patients.

References

1. Grunewald V. Neuromodulation/neurostimulation. *World J Urol.* 1998; 16(5):299-300.
2. Abrams P, Cardozo L, Fall M, et al. The standardisation of terminology in lower urinary tract function: report from the standardisation subcommittee of the International Continence Society. *Urology.* 2003 ;6 1(1): 37-49.
3. Chancellor MB, Yoshimura N. Physiology and pharmacology of the bladder and urethra. In: Wein A, ed. *Campbell-Walsh Urology.* 9th ed. Philadelphia, PA: Saunders Elsevier; 2006:1922-1977.
4. Biering-Sorensen F, Craggs M, Kennelly M, Schick E, Wyndaele JJ. International urodynamic basic spinal cord injury data set. *Spinal Cord.* 2008;46(7):5 13-516.
5. Biering-Sorensen F, Craggs M, Kennelly M, Schick E, Wyndaele JJ. International lower urinary tract

function basic spinal cord injury data set. *Spinal Cord.* 2008; 46(5): 325-330.

6. Maynard FM Jr, Bracken MB, Creasey G, et al. International standards for neurological and functional classification of spinal cord injury. American Spinal Injury Association. *Spinal Cord.* 1997;35(5):266-274.
7. McGuire EJ, Woodside JR, Borden TA, Weiss RM. Prognostic value of urodynamic testing in myelodysplastic patients. *J Urol.* 1981; 1 26(2):205-209.
8. Pan D, Troy A, Rogerson J, Bolton D, Brown D, Lawrentschuk N. Longterm outcomes of external sphincterotomy in a spinal injured population. *J Urol.* 2009; 181 (2):705-709.
9. Cameron AP, Waliner LP, Tate DG, Sarma AV, Rodriguez GM, Clemens JQ. Bladder management after spinal cord injury in the United States 1972 to 2005. *J Urol.* 2010;184(1):213
10. Wefer B, Ehlken B, Bremer J, Ct a!. Treatment outcomes and resource use of patients with neurogenic detrusor overactivity receiving botulinum toxin A (BOTOX) therapy in Germany. *World J Urol.* 2010; 28(3): 385-390.
11. Giannantoni A, Mearini E, Del Zingaro M, Porena M. Six-year follow up of botulinum toxin A intradetrusorial injections in patients with refractory neurogenic detrusor overactivity: clinical and urodynamic results. *Eur Urol.* 2009;55(3):705-71 1.
12. Vasavada SP, Rackley RR. Electrical stimulation for storage and emptying disorders. In: Wein A, ed. *Campbell-Walsh Urology.* 9th ed. Philadelphia, PA: Saunders Elsevier; 2006:2147-67.
13. Alan J, Wein M. Lower urinary tract dysthncion in neurologic injury and disease. In: Wein A, ed. *Campbell-Walsh Urology.* 9th ed. Philadelphia, PA: Saunders Elsevier; 2006.

Authors:

Department of Urology, Bangabandhu Sheikh Mujib Medical University, Dhaka

CASE REPORT

VESICAL INJURY DURING TOTAL ABDOMINAL HYSTRECTOMY - A CASE REPORT

MW ISLAM¹, MN HOODA¹, KR ABEDIN¹, MS ISLAM¹, AKMZI BHUIYAN²

A 45 years old multipara, who underwent total abdominal hysterectomy two days back a local clinic of Narayanganj district, was brought to Dhaka and admitted in National Institute of Kidney Diseases & Urology with abdominal pain, distension and anuria. Only a few ml. of urine mixed with blood was drained through urethral catheter following abdominal hysterectomy. She had episode of hypertension. She was pale and febrile. CBC showed anemia leucocytosis. Serum creatinine and RBS were normal. Abdominal USG revealed empty urinary bladder, normal kidneys and free fluid in the peritoneal cavity.

After adequate resuscitation including two units of blood transfusion, laparotomy was done through the previous longitudinal incision of total abdominal hysterectomy. Lower abdominal cavity was found full of fluid mixed with blood and clots. The cavity was aspirated, cleaned and on thorough survey, the uterine stamp, Fallopian tubes, ovaries & ureters were found intact. The urinary bladder was found injured and Foley's catheter inside the bladder with inflated balloon. Both the anterior and posterior walls of the urinary bladder were partly incised and a part of the posterior bladder wall was found anchored by stitches with the uterine stamp. The bladder wall was made free from the uterine stamp and repaired in two layers using 3-0 vicryl suture. After putting 5 Fr. baby feeding tube in the ureters, through which urine was found coming freely. The feeding tubes were then removed and the anterior wall of the urinary bladder was repaired with vicryl after putting a 3 way 18 Fr. Foley's Catheter in the urinary bladder also normal saline irrigation was started. The whole abdominal cavity was finally surveyed and toileted and after placing a drain in the pelvic cavity, the incision was closed in layers. Post operative period was uneventful and the patient recovered rapidly and was discharged after removing the stitches

on 9th day with an advised to remove of Folly's catheter in local hospital on 14th post operative day.

Discussion

Total abdominal hysterectomy is an increasingly common procedure now a days in our country for pelvic inflammatory disease & fibroid uterus. Prior catheterization of the patient is mandatory as a preventive measure from vesical injury. But there may be adhesion of the urinary bladder with uterus especially in cases of repeated pelvic surgery and only the drainage of bladder may not be enough to prevent injury to the bladder. So after opening the abdomen during total abdominal hysterectomy, proper assessment of the surrounding structures especially urinary bladder is necessary irrespective of catheterization.

Vesical injury during total abdominal hysterectomy is not an uncommon event but preventable if appropriate measure and care is taken before and during operation.

References:

1. Jozwik M, Jozwik M, Lotocki W. Vesicouterine fistula-an analysis of 24 cases from Poland. *Int J Gynaecol Obstet.* 1997 May; 57(2):169-72.
2. Guerriero WG. Operative injury to the lower urinary tract. *Urol Clin North Am.* 1985May; 12(2):339-48.
3. Oboro VO, Dare FO, Fadiora SO, Aderounmu AO, Adeoti ML, Ajadi AM. Ureteric injuries following pelvic operations. *East Afr Med J.* 2002 Nov; 79 (11): 611-3.

Authors:

1. Assistant Professor of Urology, NIKDU.
2. Professor, Head of the Dept. of Urology & Director, NIKDU.

ABSTRACT FROM CURRENT LITERATURE

Combined Mathieu and Snodgrass urethroplasty for hypospadias repair: A prospective randomized study

Ehab O ElGanainy, Yaser M Abdelsalam, Mohamad M Gadelmoula and Mahmoud M Shalaby

Department of Urology, Assiut University Hospital, Assiut, Egypt

Objectives: To evaluate the outcomes of combined Mathieu and Snodgrass urethroplasty for distal hypospadias repair and to compare them with the two techniques separately.

Methods: Between January 2006 and February 2009, patients with distal hypospadias were prospectively randomized to undergo one of the three following urethroplasty techniques: Mathieu urethroplasty, Snodgrass urethroplasty or a combination of the two. Operative time, intraoperative, early and late postoperative complications were reported for each procedure.

Results: 101 patients were included in this study. The Mathieu technique was used for 30 patients, Snodgrass repair was carried out in 37 patients and 34 patients underwent the combined technique. Operative time ranged from 43 to 120 min. Eight patients developed urethrocutaneous fistulae. Meatal stenosis was encountered in five cases. Thirty-seven patients had rounded meatus, while a slit-like urethral opening was found in 64 cases.

Conclusions: In our hands, the combined Mathieu and Snodgrass urethroplasty technique provided a better cosmetic outcome than the Mathieu technique with no incidence of meatal stenosis as seen with the Snodgrass technique.

International Journal of Urology (2010) 17, 661–665 © 2010 The Japanese Urological Association

Safety and efficacy of docetaxel, estramustine phosphate and hydrocortisone in hormone-refractory prostate cancer patients

Yoshihiro Nakagami, 1 Makoto Otori, 1 Noboru Sakamoto, 1 Shoji Koga, 2 Riu Hamada, 1 Tadashi Hatano and Masaaki Tachibana

¹Department of Urology, Tokyo Medical University, and ²Department of Urology, Edogawa Hospital, Tokyo, Japan

Objective: To assess the combination of docetaxel (DTX), estramustine phosphate (EMP) and hydrocortisone for

patients with hormone-refractory prostate cancer (HRPC).

Methods: A total of 63 patients with HRPC were treated with a chemotherapeutic regimen including DTX, EMP, and hydrocortisone. Clinical and pathological features were correlated to serum prostate-specific antigen (PSA) recurrence and survival rates. Incidence and degree of toxicities were also retrospectively reviewed.

Results: A median of 11 courses of chemotherapy was administered per patient. PSA levels decreased by >50% in 32 (51%) patients and >90% in 18 (29%) patients. Median time to PSA progression was 6 months (range from 1 to 41 months) and median time of overall survival was 14 months (range from 1 to 56 months). In a univariate analysis to predict overall survival, PSA, hemoglobin, alkaliphosphatase, and performance status prior to the chemotherapy were significant factors. Despite grade 3–4 neutropenia in 87% of patients, grade 5 interstitial pneumonia in one patient and grade 4–5 myocardial infarction in two patients were recognized, the regimen seemed to be relatively safe.

Conclusions: Combination chemotherapy with DTX, EMP and hydrocortisone provides survival benefits for patients with HRPC with an acceptable toxicity profile. We need to further evaluate who might benefit most from this regimen.

International Journal of Urology (2010) 17, 629–634 © 2010 The Japanese Urological Association

Efficacy of endoscopic subureteral injection for vesicoureteral reflux in adults with decreased bladder compliance

Kyu Sung Lee, 1 Deok Hyun Han, 1 Jae Yong Jeong, 1 Young Suk Lee and Jae Wook Ko

¹Department of Urology, Sungkyunkwan University School of Medicine and ²Division of Clinical Pharmacology, Clinical Trial Center, Samsung Medical Center, Seoul, South Korea

Objective: To evaluate the outcome of endoscopic subureteral injection (ESI) in adults with vesicoureteral reflux (VUR) associated with decreased bladder compliance (D-BC).

Methods: We retrospectively reviewed the medical records of 46 consecutive patients who underwent ESI

for VUR at a single tertiary academic center. Fourteen patients (17 ureter units) who had underlying neurological disease with decreased bladder compliance, as determined by filling cystometry, were grouped as D-BC. Thirty-two patients (47 units) who had no signs or symptoms that suggested neurogenic lower urinary tract dysfunctions were grouped as normal bladder compliance (N-BC). We compared the cure rates for ESI between groups, defining cure as complete resolution of reflux on voiding cystourethrogram.

Results: In 70.6% of the D-BC group and 70.2% of the N-BC group, VUR resolved completely after the first injection ($P = 0.977$). One failed unit of D-BC was cured after second ESI, and seven failed units of N-BC were cured after additional treatments (second ESI, two patients; ureteroneocystostomy, five patients). No additional treatments were applied to three units of D-BC or seven units of N-BC without symptoms. No complications related to the ESI were observed.

Conclusions: The ESI was found to be effective in adults with VUR regardless of the bladder compliance. As a minimally invasive procedure with a favorable outcome, ESI may represent the first choice for treatment of VUR even in adults with D-BC.

*International Journal of Urology (2010) 17, 650–655 ©
2010 The Japanese Urological Association*

Urodynamic effects of solifenacin in untreated female patients with symptomatic overactive bladder

Yoshinori Tanaka,¹ Naoya Masumori² and Taiji Tsukamoto²

¹Department of Urology, Hokkaido Prefectural Esashi Hospital, Esashi, and ²Department of Urology, Sapporo Medical University School of Medicine, Sapporo, Hokkaido, Japan

Objectives: To investigate the urodynamic effects of solifenacin in untreated female patients with symptomatic overactive bladder (OAB).

Methods: A total of 52 untreated female patients with OAB symptoms were given 5 mg solifenacin once daily for 12 weeks. Before and after treatment, the frequency volume chart, overactive bladder symptom score (OABSS), postvoid residual volume, filling cystometry and adverse events were evaluated.

Results: After solifenacin treatment, OAB symptoms were improved, voided volume was increased and voiding

number was decreased. Bladder capacities at the first sensation of bladder filling, first desire to void and strong desire to void were significantly increased. Intravesical pressure at the first sensation of bladder filling was significantly decreased. Detrusor overactivity (DO) disappeared in five patients. For 28 patients with persisting DO after treatment, bladder capacity at DO was significantly increased. Both groups with and without DO at baseline had significant improvements of OAB symptoms.

Conclusions: Solifenacin urodynamically increases bladder capacity in female patients with symptomatic OAB.

*International Journal of Urology (2010) 17, 796–800 ©
2010 The Japanese Urological Association*

Outcome of different post-orchietomy management for stage I seminoma: Japanese multi-institutional study including 425 patients

Tomomi Kamba,¹ Toshiyuki Kamoto,² Kazutoshi Okubo,¹ Satoshi Teramukai,³ Yoshiyuki Kakehi,⁴ Tadashi Matsuda⁵ and Osamu Ogawa¹

¹Department of Urology, Kyoto University Graduate School of Medicine, ³Translational Research Center, Kyoto University Hospital, Kyoto, ²Department of Urology, Faculty of Medicine, Miyazaki University, Miyazaki, ⁴Department of Urology, Faculty of Medicine, Kagawa University, Kagawa, and ⁵Department of Urology, Kansai Medical University, Hirakata, Osaka, Japan

Objectives: To clarify the contemporary clinical outcome of stage I seminoma and to provide information on treatment options to patients.

Methods: A retrospective analysis of 425 patients who underwent orchietomy for stage I seminoma between 1985 and 2006 at 25 hospitals in Japan. Relapse-free survival rates were calculated using the Kaplan–Meier method and clinicopathological factors associated with relapse were examined by univariate and multivariate analyses using the Cox proportional hazards model.

Results: A total of 30 out of 425 patients had relapsed. Relapse-free survival rates at 10 years were 79, 94 and 94% in the surveillance, chemotherapy and radiotherapy groups, respectively. Post-orchietomy management and rete testis invasion were identified as independent predictive factors associated with relapse. Rete testis invasion remained to be an independent predictive factor,

even if the cases with relapses in the contralateral testis were censored. Only one patient, who relapsed after adjuvant radiotherapy, died of the disease. Overall survival at 10 years was 100, 100 and 99% in the surveillance, chemotherapy and radiotherapy groups, respectively. More than half of the patients were lost to follow up within 5 years.

Conclusions: The outcome of Japanese patients with stage I seminoma is similar to previously published Western reports. Surveillance policy is becoming a popular option in Japan, although the relapse rate in patients opting for surveillance policy is higher than those opting for adjuvant chemotherapy or radiotherapy. Rete testis invasion is an independent predictive factor associated with relapse regardless of the post-orchietomy management. Long-term follow up is mandatory for detection of late relapse.

International Journal of Urology (2010) 17, 980–988 © 2010 The Japanese Urological Association

Effects of phosphodiesterase-5 inhibitors on Leydig cell secretory function in oligoasthenospermic infertile men: a randomized trial

Fotios Dimitriadis†, Stavros Tsambalas†, Panagiota Tsounapi*, Hiroshi Kawamura†, Evlalia Vlachopoulou†, Nikolaos Haliasos†, Stavros Gratsias†, Takeshi Watanabe*, Motoaki Saito‡, Ikuo Miyagawa* and Nikolaos Sofikitis†*

*Department of Urology, Tottori University School of Medicine, ‡ Department of Pathophysiological and Therapeutic Science, Division of Molecular Pharmacology, Faculty of Medicine, Tottori University, Yonago, Japan, and † Laboratory of Molecular Urology and Genetics of Human Reproduction, Department of Urology, Ioannina University School of Medicine, Ioannina, Greece

Objective: To evaluate the effects of phosphodiesterase-5 inhibitors (PDE5-i) on Leydig cell secretory function (LCSF).

Patients and Methods: In all, 75 men with oligoasthenospermia were treated daily for 12 weeks with either vardenafil (23 men, group A), sildenafil (25 men, group B) or L-carnitine (26 men, group C); a further group of 22 men with oligoasthenospermia (group D) received no treatment. Serum levels of insulin-like-3 peptide (INSL3) were evaluated before and after the end of the treatment in each of groups A, B and C,

respectively. Serum INSL3 levels were measured in each participant of group D before and after the 12-week experimental period.

Results: Within group A and B, the peripheral serum mean INSL3 concentration, sperm concentration, percentage of motile spermatozoa, and percentage of morphologically normal spermatozoa were significantly greater after PDE5-i treatment than before.

Conclusion: We suggest that PDE5-i enhances LCSF, as the mean INSL3 concentration was significantly greater after PDE5-I administration than before, within groups A and B. This enhancement in LCSF might contribute to the increase in sperm concentration and sperm motility after administration of PDE5-i.

© 2010 B J U I N T E R N A T I O N A L | 1 0 6, 11 81 – 11 8 5

Extracorporeal shockwave lithotripsy vs ureteroscopy as first-line therapy for patients with single, distal ureteric stones: a prospective randomized study

Paolo Verze, Ciro Imbimbo, Gennaro Cancelmo, Massimiliano Creta, Alessandro Palmieri, Francesco Mangiapia, Roberto Buonopane and Vincenzo Mirone

Department of Urology, University Federico II of Naples, Naples, Italy

Objective: To compare extracorporeal shockwave lithotripsy (ESWL) and ureteroscopy (URS) as first-line treatments for patients with distal ureteric stones.

Patients and Methods: In all, 273 patients with single, monolateral, radiopaque, distal ureteric stones of 0.5–1.5 cm were enrolled in a prospective randomized trial. Patients were randomized to undergo ESWL (137) or URS (136). The electromagnetic Modulith SLX lithotripter (Storz Medical, Switzerland) was used for ESWL and a semi-rigid ureteroscope was used for URS. Patients in both groups were compared for overall stone-free rates (SFRs), re-treatment rates, need for auxiliary procedures and complication rates. A subgroup analysis was performed in both groups according to stone size of d”1 cm and >1 cm.

Results: Patients in the ESWL group achieved a 92.70% overall SFR with a 44.88% retreatment rate and an 11.02% auxiliary procedure rate. Complications occurred in 15.32% of patients treated with ESWL. Patients in the URS group achieved a 94.85% overall SFR with a

re-treatment rate of 7.75% and an auxiliary procedure rate of 18.60%. Complications occurred in 19.11% of patients treated with URS. In the ESWL group, the need for re-treatments and for auxiliary procedures as well as the incidence of complications was significantly higher in patients with stones of >1 cm. In patients with stones of d"1 cm treated with ESWL the need for re-treatments and for auxiliary procedures as well as the incidence of complications was significantly lower than for those treated with URS.

Conclusion: In centres where both techniques are available, ESWL should be the preferred treatment for patients with single distal ureteric stones of d"1 cm and URS should be reserved for patients with stones of >1 cm.

© 2010 B J U I N T E R N A T I O N A L | 1 0 6, 1 7 4 8
– 1 7 5 2

The relationship of palliative transurethral resection of the prostate with disease progression in patients with prostate cancer

Tracey L. Krupski*†, George J. Stukenborg†, Kihyuck Moon* and Dan Theodorescu*‡

*Department of Urology, † Paul Mellon Urological Cancer Institute, and ‡ Department of Public Health Sciences (Biostatistics), University of Virginia, Charlottesville, Virginia, USA

Objectives: To test, in a prostate-cancer population based database, the validity of the finding that in single-institution series, palliative transurethral resection of prostate (TURP) is associated with an increased risk of progression.

Patients and Methods: Using the Surveillance Epidemiology and END Results Registry, we identified men who had a TURP subsequent to their diagnosis of prostate cancer, from 1998 or 1999. The outcome of interest was disease progression, as defined by the initiation of androgen deprivation therapy or procedures indicating progressive urinary obstruction. Multivariable logistic regression analysis was used to assess the adjusted odds of signal events related to disease progression adjusting for the concurrent effect of the covariates.

Results: There were 29 361 men with prostate cancer and 2742 (9.3%) had a TURP after the diagnosis. These men had a mean age of 75 years and were unlikely to undergo definitive primary treatment. Men receiving

TURP were more likely to undergo orchidectomy than men who did not have a TURP (odds ratio 1.64; 95% confidence interval 1.03–2.60) even after adjusting for differences in

cancer-directed treatment, tumour stage and grade, prostate-specific antigen level, race, and age at diagnosis. These men were also more likely to have malignant urinary obstruction (ureteric and bladder outlet) than were men who did not have TURP.

Conclusion: The requirement for TURP is an adverse prognostic marker even when this is adjusted for classical tumour characteristics. Although the exact reasons for this finding are unclear, consideration should be given to adjuvant treatment in patients undergoing TURP.

© 2010 B J U I N T E R N A T I O N A L | 1 0 6, 1 4 7 7
– 1 4 8 3

A 20-year follow-up of the mesh wallstent in the treatment of detrusor external sphincter dyssynergia in patients with spinal cord injury

Ahmad Abdul-Rahman, Soran Ismail, Rizwan Hamid and Julian Shah

Spinal Cord Injuries Centre, Royal National Orthopaedic Hospital, Stanmore, London, UK

Objective: To assess the long-term (20 years) effectiveness of the UroLume wallstent TM (Pfizer Inc., UK) in the treatment of detrusor external sphincter dyssynergia (DESD) in patients with spinal cord injury (SCI).

Patients and Methods: Twelve patients with quadriplegia secondary to SCI underwent external striated sphincter stenting with the UroLume wallstent in place of sphincterotomy for DESDH"20 years ago. The mean (range) age was 41.8 (26–65) years. Eleven patients had cervical level injury whilst one had a thoracic injury. All the patients were shown to have high pressure neurogenic detrusor overactivity and DESD with incomplete emptying on preoperative videocystometrograms (VCMG).

Results: Six of the 12 patients have now been followed-up for a mean (range) of 20(19–21) years. Of the remaining six, two were lost to follow-up at 1 and 3 years, but both remained free of complications during that time. Two patients developed encrustation causing obstruction, requiring stent removal within 1 year of

insertion. Another patient with an adequately functioning stent died 7 years after stent insertion from a chest infection. The twelfth patient developed bladder cancer 14 years after stent insertion and underwent cystectomy with urinary diversion. VCMG follow-up of the six patients showed a significantly sustained reduction of maximum detrusor pressure and duration of detrusor contraction at the 20-year follow-up. Five of these six patients developed bladder neck dyssynergia of varying degrees as shown on VCMG within the first 9 years of follow-up. All were successfully treated with bladder neck incision (BNI) where the last BNI needed was at 12 years. We did not encounter any problem with stent migration, urethral erosion, erectile dysfunction or autonomic dysreflexia.

Conclusion: Urethral stenting using the UroLume wallstent is effective in the management of DESD in patients with SCI and provides an acceptable long-term (20-year follow-up) alternative to sphincterotomy. The failures manifest within the first few years and can be managed easily with stent removal without any significant problems. Bladder neck dyssynergia was the long-term complication which was treated successfully with BNI. It has no significant interference with erectile function, being reversible, minimally invasive and has a shorter hospital stay.

© 2010 B J U I N T E R N A T I O N A L | 1 0 6, 1 5 1 0 – 1 5 1 3

The 1 year outcome of the transobturator retroluminal repositioning sling in the treatment of male stress urinary incontinence

*Peter Rehder, Michael J. Mitterberger, Renate Pichler, Andrea Kerschbaumer and Bernhard Glodny**

Departments of Urology and *Radiology, Medical University Innsbruck, Innsbruck, Austria

Objective: To evaluate the efficacy and safety of a transobturator retroluminal repositioning sling suspension in the treatment of male stress urinary incontinence (SUI) after prostate surgery.

Patients and Methods: In 118 men with SUI after prostatic surgery, a transobturator retroluminal repositioning sling suspension was implanted. Patients were evaluated including: complete history and physical examination, 24-h pad test, a questionnaire (International Consultation on Incontinence Questionnaire, Short-Form), urodynamic evaluation and endoscopy. The

surgical technique was described previously. The findings before and at 1 year after sling placement were compared.

Results: At the 12-month follow-up, 73.7% of the men were cured, 16.9% were improved, and 9.3% were still incontinent. After sling placement the daily pad use decreased significantly ($P<0.001$), while the ICIQ-SF improved significantly ($P<0.01$). The detrusor voiding pressure, postvoid residual urine volume and maximal flow rates remained unchanged, while the Valsalva leak-point pressure improved significantly ($P<0.01$). In 19.5% of the men, there was transient scrotal pain or perineal discomfort. In 5.1% of the men, postoperative urinary retention occurred but resolved spontaneously after a few weeks of catheter placement. In 1.7% of the men adductor pain was reported, which resolved spontaneously. There were no major complications.

Conclusion: The transobturator retroluminal repositioning sling suspension for the treatment of male SUI is effective and safe with a low complication rate after 1 year of follow-up.

© 2010 B J U I N T E R N A T I O N A L | 1 0 6, 1 6 6 8 – 1 6 7 2

Partial nephrectomy for selected renal cortical tumours of > 7 cm

Michael E. Karellas, M. Frank O'Brien, Thomas L. Jang*, Melanie Bernstein and Paul Russo*

Department of Surgery, Urology Service, Memorial Sloan Kettering Cancer Center, New York, NY, USA

Objective: To examine our institutional experience in patients treated with partial nephrectomy (PN) for renal cortical tumours (RCTs) of ≥ 7 cm, as PN is an accepted surgical approach for appropriate RCTs of < 7 cm but there are limited data on the use of PN for larger tumours.

Patients and Methods: After Institutional Review Board approval, we examined our prospectively collected surgical database for patients treated with PN for RCTs of ≥ 7 cm between 1989 and 2008. Pertinent demographic, clinical, surgical and pathological data were reviewed.

Results: In all, 34 patients (37 renal units) were identified for analysis with a median (interquartile range, IQR) age of 63 (52–71) years, median (IQR) tumour size of 7.5 (7.2–9.0) cm with the largest tumour being 19 cm. In 31 renal units (28 patients, 84%) carcinoma was evident,

with 16 renal units (43%) having conventional clear cell carcinoma, followed by papillary in eight renal units (21%). Currently, 20 of these 28 patients (71%) are disease free, three are alive with metastatic disease (two had known preoperative metastatic disease), three died from disease and two died from other causes. The median (IQR) preoperative estimated glomerular filtration rate was 65 (55–73) mL/min/1.73 m², compared with

55(47–74) mL/min/1.73 m² after PN ($P=0.003$, paired Student's *t*-test).

Conclusions: Our findings suggest that PN for RCTs of > 7 cm can be safely performed and provide effective tumour control for selected patients. PN should be considered for patients with appropriate tumours, solitary kidneys or pre-existing renal insufficiency.

© 2010 B J U I N T E R N A T I O N A L | 1 0 6, 1 4 8 4
– 1 4 8 7.