

Nigerian Journal of Urology

The Official Publication of the Nigerian Association of Urological Surgeons
Volume 10 No. 1 & 2 (March and September) 2020

DOI: 10.5281/zenodo.6623222

The Editorial Board of the Nigerian Journal of Urology

Editor-inChief

Prof AME Nwofor

Editors

Prof Ndu Eke

Prof O.B.Shittu

Prof J.C Orakwe

Prof V. Ramyil

Prof. A Essiet

Assistant Editor

Prof. C.K Oranusi

Prof. F Ugwumba

Editorial Advisers

Prof O.O.Mbonu

Prof S.N.C Anyanwu

Prof J.O.Esho

Prof C.A. Attah

Editorial Notices

The Nigerian Journal of Urology (NJU) is normally published twice a year in March and September.

Subscription

Members of the Nigerian Association of Urologic Surgeons receive the NJU as part of their membership subscription.

Non-Member Subscription

The annual subscription rate in Nigeria is ₦1,000.00 (post free). The annual subscription rate for the rest of the world is \$100 (post free). Cheques should be made payable to the Nigerian Journal of Urology and addressed to the Editor - in - Chief.

Correspondence

All correspondence including manuscripts for publication should be addressed to:

Professor AME Nwofor
Editor - in - Chief
Nigerian Journal of Urology
Department of Surgery
Nnamdi Azikiwe Teaching Hospital
Nnewi, Nigeria
Email : nigerian.j.urology@gmail.com

All Rights Reserved

No part of this publication may be reproduced, stored in retrieval system or be transmitted in any form or any means without the written permission of the Editor - in- Chief.

Instructions to Contributors

Papers selected for publication are based on merit and on the condition that they have not been published or submitted elsewhere for publication. The Editor does not necessarily agree with the views of the contributors and advertisers, they do not have legal responsibility for such views. Materials cited for publication will include scientific research papers read at the meetings of the Society and their abstracts as well as suitable papers. The Nigerian Journal of Urology, publishes original articles, special articles (by invitation), reviews, case reports, correspondence and notes.

Preparation of Manuscripts

Manuscripts (3 copies) should be clear, typewritten with double spacing on one side of the paper not longer than A4 (206x294). Manuscripts need not resemble closely the contribution to the meetings of the Society. Original Scientific Articles should consist of the following section:

Title page
Summary
Introduction
Patients and Methods
Results
Discussion
Acknowledgement(s)
References

Tables
Legend to Figures

An electronic copy in Word format should be included at the time of submission.

Title Page

The title page should contain the following:

- (i) Title of the article which should be clear and concise.
- (ii) A title not exceeding 40 letters and spaces for uses as a nursing headline.
- (iii) The names and initials of author(s).
- (iv) The departments and institutions where the work was done and their address.
- (v) Name and correct address of Corresponding author.
- (vi) Keywords (not more than 5 words).

Abstract (Structured)

A structured abstract (of not more than 150 words) should be written on the second page of manuscript stating the objectives, methods, main results and major conclusions.

Figures and Tables

Only tables and figures that are essential should be submitted. Tables (3copies) should be numbered in Roman Numerals. Figures (3copies) should be expertly drawn and photographs should be black and white, glossy in camera-ready form. Unmounted photographs are welcome and should be numbered in Arabic numerals. Figures should be numbered lightly at the back, and the top end indicated. Legend to the figures should be typed on a separate sheet of paper.

References

Authors must submit only essential references and should not write works that they have read without stating that the source of the information is secondary. Reference quoted must be indicated by the numbers 1, 2 in the text and numbered and listed in the reference list consecutively. The abbreviated journal title should follow the style in the Index Medicus. Authors could be quoted in the text but if there are more than six, only the first six should be listed followed by et al. In the reference list, however, the names of all authors should be included. References should be as follows: author(s) name(s), title of paper, name of journal, year of publication, volume number, first and last pages, e.g.

Jaja S.J. Lung Function in Young Nigerian Adults. West Af. J. Med. 1991; 10: 262-285.

Reference to Book and Monographs

- (a) E.L. Farquharson Textbook of Operative 3rd ed. E. And S Living Edinburgh and London. 1996, 76-78.
- (b) Moser H.W. Ceramidasee Deficiency in Standbury J. B. And Fredickson, D.S. The metabolic Basis of Inherited Diseases 4th ed. New York, McGraw Hill Book Company 1978; 702-710.
Article in Press should not be cited.

Proofs

Corrected proofs should be sent back within 10 days.

Offprints/Reprints are not free. The sum of ₦ 15, 000.00 will be charged for accepted manuscripts to cover page charges. Reprints may be ordered by the author before publication.

Units of Measurement

All measurement should be expressed in SI (Systeme Internationale) Units.

Acknowledgements

Only the assistance of those who contributed significantly in the study or the preparation of the paper (excluding secretariat assistance which is assured in all cases) should be acknowledged.

NIGERIAN JOURNAL OF UROLOGY

The Official Publication of the Nigerian Association of Urological Surgeons

Volume 10 No. 1 & 2 March - September 2020

Contents

Original Articles

Single Stage Buccal Mucosa Graft Urethroplasty for Long Segment Anterior Urethral Strictures: Experience and Outcome From A Tertiary Hospital

M Abdullahi 1

Comparison of Biochemical Efficacy of Bilateral Orchiectomy and Medical Castration (Goserelin) in Patients with Advanced Prostate Cancer at Lagos State University Teaching Hospital, Lagos

MO Omorinde, SO Ikurowo, EA Jeje, OA Omisanjo, AA Abolarinwa 6

Prognostic Factors and Outcome of Treatment in Patients With Fournier's Gangrene in a Tertiary Institution in Nigeria

EA Obiesie, AME Nwofor, CK Oranusi, TU Mbaeri, OO Mbonu11

Efficacy of Urine Cytology in the Diagnosis of Bladder Cancer in Aminu Kano Teaching Hospital: Comparism of Cytology and Histological Findings

SAUwal, SU Alhassan, AA Sani, A Abdulkadir, AM Sharfuddeenhi, A Muzzammil, Y Bashir17

Review Article

Urinary Microbiome

TG Adedeji24

Case Reports

Premature Ejaculation: Response to Increasing the Frequency of Ejaculation. Report of a Case.

LI Okeke, CU. Okeke, OM Farinre, I Eze, HO Ekwuazi, SO Ogunlayi, AO Takure, SA Adebayo30

Abstracts

Abstracts Presented at the 22nd Scientific Conference & AGM of the Nigerian Association of Urological Surgeons (NAUS), Benin City, 2017.33

Single Stage Buccal Graft Urethroplasty for Long Segment Anterior Urethral Strictures: Experience and Outcome From A Tertiary Hospital.

M Abdullahi

Department of Surgery, Bayero University, Kano/Aminu, Kano Teaching Hospital, Kano, Nigeria.

Abstract

Background: Urethral stricture is one of the common urologic diseases constituting significant workload to urology practice worldwide. The prevalence is estimated to be 229–627 per 100,000 males and its effects on the quality of life of those with the disease are enormous. Successful treatment of urethral stricture has been a challenge to urologists particularly long segment and complex strictures. This led to several procedures to evolve over past several decades. Substitution urethroplasty has become the gold standard procedure for the treatment of long segment anterior urethral strictures. **Objective:** To document the experience and outcome of use of single stage buccal graft urethroplasty for treatment of long segment anterior urethral stricture in a tertiary hospital. **Patients and Method :** It was a retrospective descriptive study of all patients who were treated for long segment anterior urethral stricture by single stage buccal graft substitution urethroplasty in our hospital from 2016 to 2021(5years). Medical records of patients were retrieved and their information about bio-data, presentation, risk factors for urethral stricture, investigations done. The type of buccal graft harvest and onlay and outcome including complications were extracted and entered into the already designed proforma. The generated data was entered into excel sheets and analyzed using special package for social sciences (SPSS) and results presented in tables and figures. **Results:** A total of 45 patients were treated for long segment anterior urethral stricture by single stage buccal graft substitution urethroplasty between 2016 and 2021(5years) of which the records of 42 patients were retrieved and data was collected and analyzed. All were males within the age range of 35 to 78 years and a mean age of 57.2years \pm 7.4SD. The risk factors for urethral stricture were past history of purulent urethritis (59.5%), prolong catheterization (21.5%), urethral trauma (9.5%), past urethral surgery (9.5%). The site of the urethral stricture was found as follows; Penile urethra (61.9%), Penobulbar (26.2%), Bulbar urethra (7.1%) and Panurethra (4.8%). Intra operative length of the stricture was found as follows: <5cm (21.4%), 5-10cm (23.8%), 10 -15cm (50%) and >15cm (4.8%). The buccal graft onlay procedures used were dorsolateral onlay (73.8%), dorsal onlay (14.3%), ventral onlay (11.9%). Following urethroplasty catheter was removed as follows: <4weeks (42.9%), 4-6weeks (38.1%) and >6weeks (19%). Complications recorded were: Surgical site infection (21.4%), urethral diverticulum (4.8%), urethrocutaneous fistula (2.4%) and recurrence (4.8%). Majority of the patients (66.7%) had no complication. **Conclusion:** Single stage buccal graft substitution urethroplasty for long segment anterior urethral stricture has overall good success rate with minimal complications.

Keywords : Single stage, Buccal graft, Long segment urethral stricture

Address for Correspondence:

Dr Muzzammil Abdullahi
Department of Surgery, Bayero University, Kano
E-mail: muzzammilabdullahi77@gmail.com

Introduction

Urethral stricture is one of the common urologic diseases constituting significant workload to urology practice worldwide. The prevalence is estimated to be 229–627 per 100,000 males and its effects on the

quality of life of those with the disease are enormous¹. In Sub-Saharan Africa, the incidence is probably higher, due to the higher prevalence of poorly treated urethritis in addition to other aetiologies². Early reports almost completely attributed urethral stricture to gonococcal urethritis. However, several other causes have been identified and they include trauma, iatrogenic, post hypospadias repair, lichen sclerosis, post prostatectomy, radiotherapy, and catheter induced. Whereas trauma and iatrogenic causes are commonest in developed countries, inflammatory causes have now become infrequent¹, while in developing countries the inflammatory causes are still frequent². The management of the disease has evolved all over the world though not uniformly. A good history and physical examination contribute immensely to the diagnostic process. Retrograde urethrography (RUG) remains the gold standard investigation, while urethrosonography, computerized tomography (CT), and magnetic resonant imaging (MRI) are presently seen as adjunct to RUG³. Successful treatment of urethral stricture has been a challenge to urologists particularly long segment and complex strictures. This led to several procedures and their evolution over several decades. Open surgical repair using grafts or flaps, called substitution urethroplasty, has become the gold standard procedure for anterior urethral strictures that are not amenable to excision and primary anastomosis (long segment and complex strictures)⁴. Oral mucosa harvested from the inner cheek (buccal mucosa) is an ideal material, and is most commonly used for substitution urethroplasty, the use of buccal mucosa was first described in 1941^{4,6} and reintroduced in 1992^{4,6}. It possesses the advantages of constant availability, easy harvesting, favorable immunological properties (resistance to infection) and good tissue characteristics (a thick epithelium, high content of elastic fibers, thin lamina and rich vascularization). Onlay augmentation on the ventral side (ventral onlay) or dorsal side (dorsal onlay, Barbagli procedure) has been widely used for bulbar urethral stricture with comparable success rates. Most penile urethral strictures can be repaired in a one-stage procedure either by dorsal inlay with ventral sagittal urethrotomy (Asopa technique) or dorsolateral onlay with one-sided urethral dissection (Kulkarni technique); however, staged urethroplasty remains the procedure of choice for complex strictures, including strictures associated with genital lichen sclerosis or failed hypospadias^{1,4}. We undertook a retrospective study to document the experience and outcome of single stage buccal graft

urethroplasty for patients managed for long segment anterior urethral stricture in a tertiary hospital.

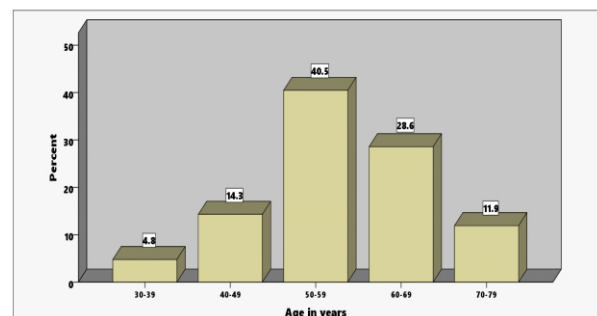
Patients and Method

It was a retrospective descriptive study of all patients who were treated for long segment urethral stricture by single stage buccal graft substitution urethroplasty in our hospital from 2016 to 2021(5years). Ethical approval was obtained from the research and ethics committee of the hospital for the conduct of the study. Particulars of the patients who had the procedures over the period covered by the study were retrieved from the theatre register and their medical records were collected with the help of the record staffs of the hospital. Information about the patients' bio-data, presentation, risk factors for urethral stricture, investigations done, the type of buccal graft harvest and onlay and outcome including complications were extracted and entered into the already designed proforma. The generated data was entered into excel sheets and analyzed using special package for social sciences (SPSS) and results presented in tables and figures.

Results

A total of 45 patients were treated for long segment anterior urethral stricture by single stage buccal graft substitution urethroplasty between 2016 and 2021(5years) of which the records of 42 patients were retrieved and data was collected and analyzed. All were males within the age range of 35 to 78 years and a mean age of 57.2years \pm 7.4SD, the age distribution is shown in Fig 1.

Figure 1: Age distribution of the patients



Past history of purulent urethritis is the most common risk factor for urethral stricture among our patients as shown in Figure 2

The site of the urethral stricture was found as follows;

Penile urethra (61.9%), Penobulbar (26.2%), Bulbar urethra (7.1%) and Panurethra (4.8%). Intra operative length of the stricture estimated to ascertain the length of the graft to be used was found as follows: <5cm (21.4%), 5-10cm (23.8%), 10 -15cm (50%) and >15cm (4.8%). Different buccal graft onlay procedures were used depending on the site of the stricture as shown in Table 1.

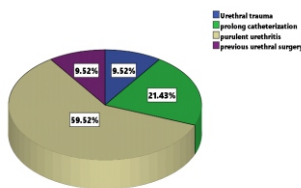


Figure 2: Risk Factors for Urethral Stricture

Table 1: Buccal Graft Onlay Procedures

Buccal graft onlay procedure	Frequency	Percent
Dorsal onlay	6	14.3
Dorsolateral onlay	31	73.8
Ventral onlay	5	11.9
Total	42	100.0

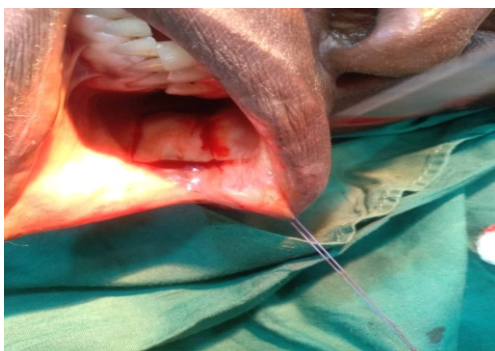


Figure 3: Harvesting Buccal Graft

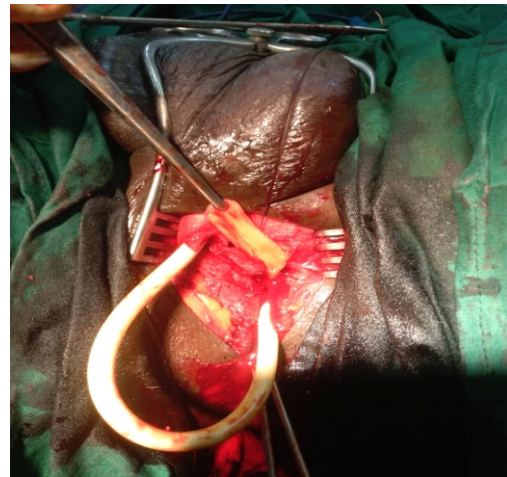


Figure 4: Urethra lay open with the graft

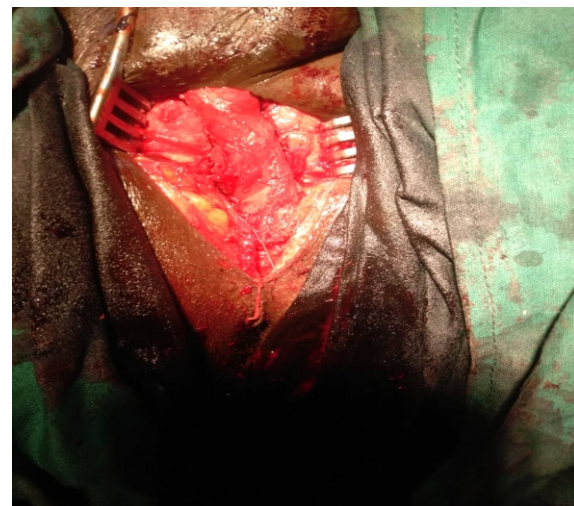


Figure 5: Urethra after Reconstruction

Table 2: Complications of Single Stage Buccal Graft Urethroplasty

Complications	Frequency	Percent
Surgical site infection	9	21.4
Urethral diverticulum	2	4.8
Urethro-cutaneous fistula	1	2.4
Recurrence	2	4.8
None	28	66.7
Total	42	100.0

Figure 3, 4, and 5 below shows an intraoperative buccal graft harvesting, urethral layered open with the graft and urethral after reconstruction respectively. The duration of urethral catheter was based on satisfactory healing with no evidence of contrast leakage on peri-catheter RUG as follows: <4weeks (42.9%), 4-6weeks (38.1%) and >6weeks (19%). Few complications were recorded among our patients who were followed up for a period between 6-12months post surgery. Majority had good outcome as shown in Table 2.

Discussion

The mean age of our patients is 57.2years \pm 7.4SD which is similar to finding from a study with larger sample size from the same region⁷. The risk factors for urethral stricture in our patients are largely previous urethritis and previous catheterization. These risk factors are known to predispose patients to have long segment urethral stricture which all the patients had. This further explains why most of the strictures were found at the penile and peno-bulbar region of the urethra^{2,3}. The findings are similar to those from other studies^{8,9}.

The length of the stricture in more than half of our patients was greater than 10cm; this differs from findings in other studies done in Asia^{10,11} which found most stricture length between 5-8cm. This could be explained by the different aetiologies of the stricture. Dorsolateral buccal graft onlay was used in majority of patients owing to site of most of the strictures and being simple to perform with good results in previous studies¹¹. The catheter was removed in less than 6weeks for most patients, however it was prolonged in few patients due to delayed healing as evidenced by contrast leakage on peri-catheter RUG. Successful

urethroplasty evidenced by non recurrence of the stricture after 6-12months was achieved in more than 80% of the patients; this is also similar to findings from other studies¹²⁻¹⁵.

Conclusion

The use of single stage buccal graft substitution urethroplasty for long segment anterior urethral stricture has overall good success rate with minimal complications.

Acknowledgement

Special thanks to Dr Ahmad Sani, registrar at the Department of Surgery, Aminu Kano Teaching Hospital(AKTH), Kano for retrieving patient information from operating theatre register and to staff of Department of records, AKTH for retrieving the medical record of patients.

References

1. Eshioibo I, Eghosa A, Quincy A, Emmanuel E. Aetiology And Evaluation Of Men With Urethral Stricture And The Current Role Of Urethroplasty In The Treatment Of Anterior Urethral Strictures. *EMJ Urol*. 2018; 6[1]:82-89.
2. Irekpita E, Udefiagbon . A Review of the Epidemiology and Management of Urethral Stricture Disease in Sub-Saharan Africa. *Current Medical Issues* 2019; 17:118-124.
3. Joshua A B, Bradley F S et'al. Urethral Strictures in Males. *www.medscape.com* 2018.
4. [Akio H. Substitution urethroplasty using oral mucosa graft for male anterior urethral stricture disease: Current topics and reviews. *International Journal of Urology* 2017;](#)

5. Barbagli G, Balò S, Sansalone S, Lazzeri M. Dorsal onlay graft bulbar urethroplasty using buccal mucosa. *African Journal of Urology* 2016;22:5–10.
6. Shariful Islam MD, Asaduzzaman MD, Kaiser A, Salam MA, Shawkatalam MD Outcome Of Single Stage OMG. Urethroplasty By Kulkarni Technique In Comparison With Johanson's Staged Urethroplasty For Management Of Pan-Urethral Stricture. *Bangladesh J. Urol.* 2016; 19(2):78-84.
7. Ajape AA, Kuranga SA, Kura MM, Olanipekun HB. Autologous buccal mucosa harvest under local anesthesia: Feasibility, safety, and acceptance for substitution urethroplasty. *Urol Ann* 2019; 11:298-303.
8. Eshioho I, Ehizomen E, Omosofe F, Onuora V. Buccal mucosal graft urethroplasty for proximal bulbar urethral stricture: A revisit of the surgical technique and analysis of eleven consecutive cases. *Niger Med J* 2016;57:266-71.
9. Idorenyin CA, Samaila IS, Chima GO, Ayodele OS, Nuhu KD, Venyir MR. Dorsal onlay buccal mucosal graft urethroplasty for bulbar urethral stricture; a single centre experience. *Pan African Medical Journal* 2020; 36:305.
10. Yidong L, Likai Z, Weijing Y, Ping P, Ming W. One-stage dorsal inlay oral mucosa graft urethroplasty for anterior urethral stricture. *BMC Urology* 2014, 14:35.
11. Vikram P., Shishir D., Ritesh V., Murigendra H. Single stage: dorsolateral onlay buccal mucosal urethroplasty for long anterior urethral strictures using perineal route *IBJU Int. n braz j urol* 2016; 42 (3) : .
12. Ujwal Kumar, N.K. Jha. Dorsal onlay substitution urethroplasty using buccal mucosa and penile skin grafts - our experience. *International Journal of Contemporary Medical Research* 2019; 6(7):G1-G4.
13. [Felix C., Simon B., Mariya D., Anastasia V E, Stella L I, and Daniela E A, et'al. Single-stage tubular urethral reconstruction using oral grafts is an alternative to classical staged approach for selected penile urethral strictures. *Asian J Androl.* 2020; 22\(2\): 134–139.](#)
14. Ngwobia PA, Ahmed MU. Practice of the use of oral mucosa graft urethroplasty among Nigerian urologists.. *Int Surg J.* 2020 May; 7(5):1351-1356.
15. Winston M, Christian AA. One-Stage Urethroplasty for Strictures at a Rural Hospital. *Ann Afr Surg.* 2019; 16(1):16–19.

Comparison of Biochemical Efficacy of Bilateral Orchidectomy and Medical Castration (Goserelin) in Patients with Advanced Prostate Cancer at Lagos State University Teaching Hospital, Lagos.

MO Omorinde*, SO Ikuero*, EA Jeje**, OA Omisanjo*, AA Bolarinwa*

Urology Division, Department of Surgery, *Lagos State University Teaching Hospital, Ikeja. Lagos. **Lagos University Teaching Hospital, Idi-Araba, Lagos, Lagos State.

Abstract

Background: PCa is a leading cause of cancer-related deaths among men and it is the most commonly diagnosed cancer among Nigerian men. Most of the patients with PCa in Nigerian hospitals present with advanced disease and this requires ADT which can be in form of surgical or medical castration. This study was designed to determine which of the two options is more efficacious. **Aim:** The study compared the biochemical efficacy of medical castration (Goserelin) with bilateral orchidectomy in reducing serum testosterone and serum PSA in patients with advanced PCa. **Design and setting of the study:** A prospective, hospital based, non-randomized clinical study was conducted over one year period from November 2016 - October 2017. Each patient was followed up for six months. Patients who met the inclusion criteria were recruited consecutively into two groups; surgical and medical castration groups after obtaining written informed consent. Serum testosterone and PSA were measured before prostate biopsy was done using chemiluminescent immunoassay. Serum testosterone and PSA were repeated at 1, 3 and 6 months following commencement of treatment in the two groups. Data were analyzed using the Statistical Package for Social Sciences (SPSS IBM) version 20.0. **Results:** Fifty patients were studied, twenty-five patients in each group. The percentage drop in median serum testosterone at 1,3 and 6 months for the orchidectomy group was 85.40%, 91.30%, 91.90% respectively and the percentage drop in median serum testosterone for the medical castration(Goserelin) group at 1,3 and 6 months was 87.30%, 93.80%, 94.00% respectively. The percentage drop in median serum PSA at 1,3 and 6 months for orchidectomy treatment group was 69.40%, 97.50% and 99.20% respectively and for medical castration(Goserelin) group, the percentage drop in median serum PSA at 1,3 and 6 months was 68.40%, 96.80%, 98.20% respectively. Local complications associated with orchidectomy were scrotal hematoma (20%) and surgical site infection (28%). Injection site reaction (8%) was recorded in goserelin group. All patients in both groups had hot flushes, reduced libido and weak erection as systemic side-effects. **Conclusion:** Medical castration (Goserelin) and surgical castration(Orchidectomy) are both equally efficacious in the short term, in the treatment of advanced prostate cancer.

Keywords: Prostate Cancer, Medical castration, orchidectomy, PSA, testosterone.

Introduction

Prostate cancer (PCa) is a leading cause of cancer-related deaths among men. It is the most commonly

diagnosed cancer among Nigerian men and the leading cancer among men of African descent in the USA, Caribbean, and SSA.² In the United States, PCa has been described to be more prevalent among the African-Americans with an incidence of 248.5 per 100,000 in contrast to 156.7 per 100,000 in white American men³. Men of African descent have the highest incidence and mortality rates of PCa worldwide.⁴ A published data by Badmus et al³ in Ile-Ife reported hospital prevalence rate of 182.5 per 100,000 male admission in the hospital. In a

Address for Correspondence:

Dr. MO Omorinde

Urology Unit, Department of Surgery
Lagos State University Teaching Hospital, Ikeja.,
Lagos.

E-mail: sogzyomor@yahoo.com

community study by Ikuerowo and colleagues⁵ to determine the community burden of PCa in Lagos, the prevalence rate was 1046 per 100,000 in men of age ≥ 40 years. Most of the cases of PCa in Nigeria commonly present with advanced disease⁶ and this might be as a result of poor health-seeking behavior of patients, low literacy level, poor access to health facilities, and lack of screening services. Advanced disease might be in form of locally advanced disease or metastatic disease.

When patients present with advanced PCa, hormonal therapy in form of Androgen deprivation therapy (ADT) remains the cornerstone of primary treatment. ADT can be in two forms; medical castration most commonly luteinizing hormone releasing hormone analogue (LHRH) e.g goserelin acetate; or surgical castration (bilateral orchidectomy). Both methods aim at reducing serum testosterone concentrations to a castrate level which is currently defined as less than 50 ng/dl⁷. Suppression of testosterone production is effective in decreasing tumour burden and hence the serum PSA.⁸ Therefore, Serum PSA and testosterone are laboratory tools used in monitoring patients with PCa treated with ADT.⁹

This study was designed to compare the biochemical efficacy of the two modalities of ADT in advanced PCa in order to advice patients on which of the two options is more efficacious and appropriate. In view of absence of direct similar studies in our environment, this study's eventual outcome will go a long way in adding to current knowledge in the management of patients with advanced PCa in our locality.

Patients and Methods

Aim: To compare the biochemical efficacy of medical castration (goserelin) with bilateral orchidectomy in reducing serum testosterone and serum PSA in patients with advanced prostate cancer.

Design and setting of the study: The study was a prospective, hospital based, non-randomized clinical study. The study was for one year period from November 2016 - October 2017 while each patient was followed up for six months. Sample size of 50 patients was calculated. Patients that met the inclusion criteria were recruited consecutively into two groups; surgical and medical castration groups with 25 patients in each group after obtaining written

informed consent. Serum testosterone and PSA were measured before prostate biopsy was done using chemiluminescent immunoassay. Both groups of patients were started on bicalutamide 50mg daily for only two weeks starting from the day treatment was commenced. This is necessary to prevent the tumour flare associated with LHRH analogue. Serum testosterone and PSA were repeated at 1, 3 and 6 months following commencement of treatment in the two groups. The data were analyzed using the Statistical Package for Social Sciences (SPSS IBM) version 20.0.

Results

Fifty patients were studied, twenty-five patients in each group.

The ages of the patients were 60-80 years. The mean ages were 71.72 ± 7.3 and 68.3 ± 7.3 (years) for the bilateral orchidectomy and the goserelin groups respectively. There was no significant difference in the ages of the two groups, ($P=0.409$ Table 1).

Figures 1 & 2 show changes in the serum testosterone and the serum PSA respectively in both treatment groups. The percentage drop in median serum testosterone at 1,3 and 6 months for the orchidectomy group was 85.40%, 91.30%, 91.90% respectively while the percentage drop in median serum testosterone for the goserelin group at 1,3 and 6 months was 87.30%, 93.80%, 94.00% respectively (Table 1).

Variable	Bilateral orchidectomy	LHRH (Goserelin)	P-value
Frequency	25	25	
Age (Mean \pm SD)	71.72 ± 7.3	68.3 ± 7.3	0.409
Serum PSA			
Pre-treatment	104.40 (%drop)	98.00 (% drop)	0.371
1-month	32.00 69.40%	31.00 68.40%	0.712
3-months	2.60 97.50%	6.10 96.8%	0.165
6-months	0.80 99.20%	1.80 98.2%	0.364
P value	<0.001	<0.001	
Serum Testosterone			
Pre-treatment	322 (%drop)	401 (% drop)	0.124
1-month	47 85.40%	51 87.30%	0.892
3-months	28 91.30%	25 93.80%	0.541
6-months	24 91.90%	24 94.0 %	0.932
P value	<0.001	<0.001	

Table 2: Local and Systemic Side-Effects.

	Bilateral orchidectomy	LHRH (Goserelin)	p-value
Wound infection	7(28%)		
Scrotal hematoma	5(20%)		
Injection site reaction		2(8%)	
Hot flushes	25(100%)	25(100%)	NA
Loss of libido	25(100%)	25(100%)	NA
Weak erection	25(100%)	25(100%)	NA

The percentage drop in median serum PSA at 1,3 and 6 months for orchidectomy treatment group was 69.40%, 97.50% and 99.20% respectively while for goserelin group, the percentage drop in median serum PSA at 1,3 and 6 months was 68.40%, 96.80%, 98.20% respectively (Table 1).

Table 2 shows the local and systemic side-effects following the two treatment modalities. Twenty percent, 28% of the total number that had bilateral orchidectomy developed scrotal hematoma, and surgical site infection respectively while 8% of those that had medical castration developed injection site reaction. All patients in both groups had hot flushes, reduced libido, weak erection as systemic side-effects following ADT.

Discussion

The goal standard of management of advanced prostate cancer is androgen deprivation therapy. This can be achieved by medical or surgical approach. This study was set out to compare the biochemical efficacies of these two approaches.

The patients recruited into the study for both treatment groups; surgical castration and medical castration had mean age of 71.72±7.3 (years) and 68.3±7.3 (years) respectively. The age group most represented in the study is 60-69 years for both treatment groups. This finding confirmed the disease as of the aging and elderly patients. There is no significant difference in the age groups of patients that had both forms of treatment.

There was significant reduction in serum testosterone for orchidectomy and Goserelin groups within the first one month of treatment(85.4% and 87.30% respectively) and the levels remained progressively reduced below castrate levels in both groups by three and six months following treatment. The median serum levels of testosterone were reduced to 47ng/dl and 51ng/dl at week 4 in the orchidectomy and medical castration groups respectively and remained suppressed in castrate levels over the twenty-six weeks study period. This is similar to the results obtained by Parmar et al¹⁰, Soloway et al¹¹ and Vogelzang and colleagues¹² where median serum levels of testosterone were reduced to castrate levels(<50ng/dl) at week 4 in both orchidectomy and Goserelin groups. Serum testosterone remained suppressed for sixty weeks and four years in the studies carried out by Soloway et al¹¹ and Vogelzang et al¹² respectively. Fontana et al¹³ also obtained similar result where he observed that the mean testosterone concentrations were suppressed to the castration range (≤2 nmol/l) after 4 weeks of

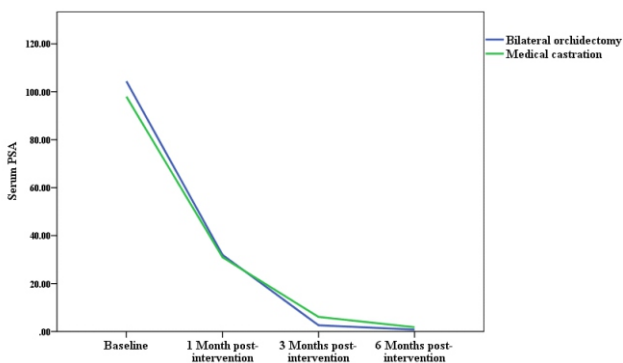
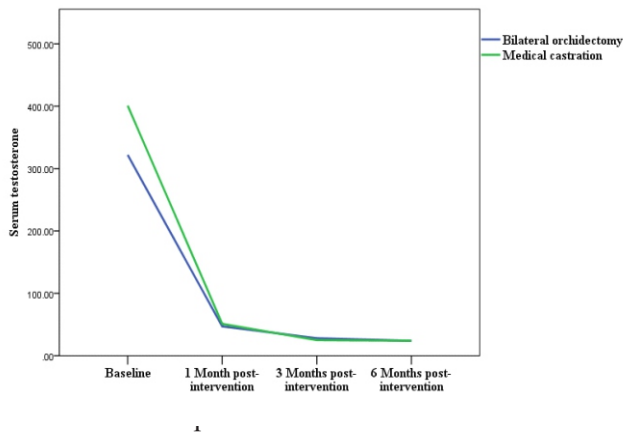


Figure 2: Decrease in Serum Psa in Both Treatment Groups.

treatment with 3-month formulation of Goserelin injection for treatment of advanced PCa and remained suppressed throughout the study period, 108 weeks. In this index study, all patients in both groups attained castrate levels in one month and serum testosterone was monitored over six months period.

Sustenance of castrate levels of testosterone during the study period may possibly be due to short term period of monitoring, patients may develop castrate resistance during long term monitoring period. A fraction of patients may also develop castrate resistance in a short term following ADT as been reported by Oefelin and colleagues¹⁴ where a small but potentially important subgroup of men on three-month depot of LH-RH agonist therapy (Zoladex[®] 10.8mg) for the treatment of advanced PCa failed to achieve a castrate level of testosterone after three months. Possible reason adduced to this was supposed inadequacy of the standard dose of LHRH agonist in these men considering their body-built.

From this study, the percentage rate of drop in serum testosterone was rapid within the first month of treatment and remained sustained till six months in both treatment groups. The rate of drop in serum testosterone is statistically significant in both treatment groups, P value < 0.001 (Table 1) which showed that advanced PCa were hormonal sensitive.

The suppression of gonadal testosterone is the mainstay of treatment of metastatic prostate cancer and is effective in decreasing tumour burden and the serum prostate specific antigen (PSA)¹⁵. This fact was confirmed in this study where the percentage drop in median serum PSA for orchidectomy and Goserelin groups at 1, 3 and 6 months were 69.4%, 97.5%, 99.2% and 68.4%, 96.8%, 98.2% respectively indicating significant drop in serum PSA. The rate of drop in serum PSA in both groups were statistically significant, P value < 0.001. (Table 1). The obtained result from this study is similar to the one reported by D. Fontana et al¹³, where goserelin acetate 10.8-mg depot was administered every 12 weeks and it provided reliable suppression of testosterone levels and produced a PSA response in the majority (86%) of patients. Mean PSA significantly reduced from 180ng/ml to about 60ng/ml (66% reduction) within 4 weeks and to about 20ng/ml in 3 months (88% reduction) then 10ng/ml in 6 months (94% reduction). Hot flushes, reduced libido and weak erection are the most well recognized systemic adverse effects from ADT and were recorded in all patients in both groups.

Scrotal hematoma (20%) and surgical site infection (28%) were recorded in surgical castration and injection site abscess (8%) in medical castration groups.

Kaisary et al¹⁶ reported similar findings: hot flushes, reduced libido and weak erection were 96%, 73%, 84% and 94%, 79%, 85% in medical and surgical castration groups respectively. The percentages of hot flushes reported by Karling et al¹⁷ and Debruyne et al¹⁸ were smaller, 68% and 70% respectively. Possible reason for higher percentages in the index study may be due to small sample size. Therefore, both forms of ADT are efficacious but are associated with systemic and local complication.¹⁹

Conclusion

Medical castration (Goserelin) and surgical castration (orchidectomy) are both efficacious in the short term, in the treatment of advanced Pca.

Primary therapy with LHRH analogues (Goserelin) or bilateral orchidectomy led to suppression of serum levels of testosterone to castrate levels within the first month of therapy and also caused significant reduction in serum PSA and this suppression was maintained throughout the six months period of study.

List of Abbreviations:

PSA Prostate Specific Antigen

Pca Prostate Cancer

ADT Androgen Deprivation Therapy

LHRH Luteinising Hormone Releasing Hormone

Acknowledgment: We thank the Health Research And Ethics Committee of Lagos State University Teaching Hospital (LASUTH) Lagos for the approval of the study.

References

1. Ogunbiyi JO, Shittu OB. Increased incidence of prostate cancer in Nigerians. *Journal of the National Medical Association*. 1999;91(3):159.
2. Chu LW, Ritchey J, Devesa SS, Quraishi SM, Zhang H, Hsing AW. Prostate cancer incidence rates in Africa. *Prostate Cancer*. 2011;2011:947870.
3. Badmus TA, Adesunkanmi A-RK, Yusuf BM, Oseni GO, Eziyi AK, Bakare TI, et al. Burden of prostate cancer in southwestern Nigeria. *Urology*. 2010;76(2):412-416.
4. Agalliu I, Adebisi AO, Lounsbury DW, Popoola O, Jinadu K, Amodu O, et al. The feasibility of epidemiological research on prostate cancer in African men in Ibadan, Nigeria. *BMC public*

-
- health. 2015;15:425.
5. Ikuerowo SO, Omisanjo OA, Bioku MJ, Ajala MO, Mordi VP, Esho JO. Prevalence and characteristics of prostate cancer among participants of a community-based screening in Nigeria using serum prostate specific antigen and digital rectal examination. *Pan Afr Med J.* 2013;15:129.
 6. Osegbe D. Prostate cancer in Nigerians: facts and nonfacts. *J Urol.* 1997;157(4):1340-1343.
 7. Siegel R, Naishadham D, Jemal A. Cancer statistics, 2013. *CA Cancer J Clin.* 2013;63(1):11-30.
 8. Zejnullahu K, Arevalo MG, Ryan CJ, Aggarwal R, editors. Approaches to minimize castration in the treatment of advanced prostate cancer. *Urologic Oncology: Seminars and Original Investigations*; 2016.
 9. Klotz L, Shayegan B, Guillemette C, Collins LL, Gotto G, Guérette D, et al. Testosterone suppression in the treatment of recurrent or metastatic prostate cancer—A Canadian consensus statement. *Canadian Urological Association Journal.* 2018;12(2):30.
 10. Parmar H, Lightman S, Allen L, Phillips R, Edwards L, Schally A, et al. Randomised controlled study of orchidectomy vs long-acting D-Trp-6-LHRH microcapsules in advanced prostatic carcinoma. *The Lancet.* 1985;326(8466):1201-1205.
 11. Soloway MS, Smith JA, Chodak G, Scott M, Vogelzang NJ, Kennealey G, et al. Zoladex versus orchidectomy in treatment of advanced prostate cancer: a randomized trial. *Urology.* 1991;37(1):46-51.
 12. Vogelzang NJ, Chodak GW, Soloway MS, Block NL, Schellhammer PF, Smith JA, et al. Goserelin versus orchidectomy in the treatment of advanced prostate cancer: final results of a randomized trial. *Urology.* 1995;46(2):220-226.
 13. Fontana D, Mari M, Martinelli A, Boccafoschi C, Magno C, Turriziani M, et al. 3-month formulation of goserelin acetate ('Zoladex'10.8-mg depot) in advanced prostate cancer: results from an Italian, open, multicenter trial. *Urologia internationalis.* 2003;70(4):316-320.
 14. Oefelein MG, Cornum R. Failure to achieve castrate levels of testosterone during luteinizing hormone releasing hormone agonist therapy: the case for monitoring serum testosterone and a treatment decision algorithm. *The Journal of urology.* 2000;164(3):726-729.
 15. Zejnullahu K, Arevalo MG, Ryan CJ, Aggarwal R, editors. Approaches to minimize castration in the treatment of advanced prostate cancer. *Urologic Oncology: Seminars and Original Investigations*; 2016.
 16. Kaisary A, Tyrrell C, Peeling W, Griffiths K. Comparison of LHRH analogue (Zoladex) with orchidectomy in patients with metastatic prostatic carcinoma. *British journal of urology.* 1991;67(5):502-508.
 17. Karling P, Hammar M, Varenhorst E. Prevalence and duration of hot flushes after surgical or medical castration in men with prostatic carcinoma. *The Journal of urology.* 1994;152(4):1170-1173.
 18. Debruyne F, Dijkman G, Lee D, Witjes W. A new long acting formulation of the luteinizing hormone-releasing hormone analogue, goserelin: results of studies in prostate cancer. *The Journal of urology.* 1996;155(4):1352-1354.
 19. Samdal F, Vada K, Lundmo PI, Mjølnerød OK. Orchidectomy or LHRH-analogue? Which do the patients prefer and what treatment would Norwegian urologists prefer if they had advanced cancer of the prostate? *Scandinavian journal of urology and nephrology.* 1991;25(3):197-199.

Prognostic Factors and Outcome of Treatment in Patients With Fournier's Gangrene in a Tertiary Institution in Nigeria.

EA Obiesie, AME Nwofor, CK Oranusi, TU Mbaeri, OO Mbonu

Department of Surgery, Nnamdi Azikiwe University Awka, Nnewi Campus Nigeria.

Abstract

Objective: Fournier's gangrene is an extreme life threatening Urological condition. The objective of this study was to identify the prognostic factors and outcome of treatment in patients with Fournier's gangrene in a tertiary institution in South East Nigeria. **Methodology:** This was a prospective study of 21 (twenty one) male patients diagnosed with Fournier's gangrene in our hospital, from June 2012 to June 2019. History and comprehensive physical examination as well as resuscitatory measures were commenced at the emergency units and continued through the wards. Laboratory investigations were conducted. Patients were assessed using Fournier's gangrene severity index scoring system FGSI. Extent of tissue involvement was assessed during debridement within 24 hours of presentation. Definitive treatment measures were commenced, and patients followed up till discharge. Performance status at discharge was assessed. Data generated were analysed using SPSS version 23 (IBM STATISTICS) **Results:** The mean age of the patients was 56years \pm 13.3 (range of 22 to 78years). The peak age incidence was in the 60th decade. The commonest systemic predisposing factor was diabetes mellitus (23.8%) as a single independent etiologic factor, and 71.4% in combination with other systemic predisposing factors. Two patients (9.5%) were obese, diabetic, and presented with anal abscess. No systemic predisposing factor was identified in 4 patients (19.1%). Four patients (19.1%) had bladder outlet obstruction secondary to urethral stricture disease, and has had attempts at urethral catheterization. Four patients (19.1%) had ischio-rectal abscess, while two patients (9.5%) had scrotal injuries from trauma. Fever, malodorous scrotal swelling, anaemia and shock were the common clinical features. Scrotal gangrene was seen in 10 patients (47.6%), scroto-perineal gangrene in 6 patients (28.5%), scroto-abdominal gangrene in 4 patients (19.1%), while only one patient (4.8%) had scroto-penile gangrene. The mean FGSI score at presentation was 7.0 \pm 4.0. The mean hospital stay was 52 days \pm 45 (range 3 - 210 days). Following debridement, the testes were exposed in 12 patients. Mean performance status at discharge was 1.4. Three mortalities were recorded, and all had diabetic ketoacidosis with mean FGSI score of 10 at presentation. **Conclusion:** Complicated diabetes mellitus and poor FGSI scores are major predictors of mortality in patients with Fournier's gangrene. Proper and aggressive management protocol gives good outcome.

Key Words: Fournier's gangrene, prognostic factors, treatment-outcome.

Introduction

Fournier's gangrene is a life threatening urological condition, characterised by rapidly spreading necrotising fasciitis of the perineum and external genitalia. It is a fulminant polymicrobial infection, with risk of death from organ failure¹.

Necrotizing fasciitis in the region of the perineum and genitalia clearly describes this disease². Majority of Fournier's gangrene patients suffer from a

Address for Correspondence:

Dr EA Obiesie

Department of Surgery,
Nnamdi Azikiwe University Awka,
Nnewi Campus Nigeria

E-mail: ea.obiesie@unizik.edu.ng

combination of predisposing factors¹. Diabetes mellitus, chronic alcoholism, malignancies / immunosuppressive states, bladder outlet obstruction with UTI, liver and kidney diseases are established predisposing factors^{3,4}. The pathological features of this disease, as well as portal of entry of causative organisms are well defined⁵. A mixed growth of gram negative rods, aerobic gram positive cocci and anaerobes, with *Escherichia coli* as the most common isolate have been implicated in the infective aetiology of this disease⁶. The incidence of Fournier's gangrene and mortality rate have been on the rise in some contemporary series^{7,8}.

This may be due to increasing mean age of populations, and rising number of immune-suppressed patients, or patients on immunosuppressive therapy^{9,10}. Diagnosis is often clinical, while investigations help to evaluate the patient's status and possible predisposing factors that will be useful in determining severity and planning patient's management. The Fournier's gangrene severity index scoring system (FGSI) has been considered as a good predictive tool in the prognosis of this disease^{11,12}. The FGSI is based on deviation from reference ranges of nine (9) parameters viz temperature, heart rate, respiratory rate, white blood cell count, hematocrit, serum sodium, serum potassium, serum creatinine and serum bicarbonate. Each parameter is assigned a score between 0 and 4. An FGSI score greater than 9 correlated with increased mortality¹². Proper and aggressive treatment protocol remain essential adjuncts for management of this condition. Our study aimed at identifying the prognostic factors, and outcome of treatment in patients diagnosed with Fournier's gangrene.

Methodology

This was a prospective study of all patients presenting at the Accident & Emergency Unit/ urology clinic of Nnamdi Azikiwe University Teaching Hospital Nnewi with symptoms and signs diagnosed as Fournier's gangrene during the study period from June 2012 to June 2019.

They were enrolled into the study at presentation, after obtaining consents. Data collected, included biodata, presenting symptoms, co-morbidities and predisposing factors.

A comprehensive physical examination with particular attention to the external genitalia and perineum were done, and resuscitatory

measures instituted for each patient depending on condition. The following investigations were carried out; urinalysis, urine microscopy, culture and sensitivity, full blood count, serum electrolyte, urea and creatinine, fasting blood sugar and radiological investigations.

They were repeated as necessary, and at the end of treatment. The assessment of extent of tissue involvement was done during debridement in theatre after stabilization, but within 24 hours of presentation. Patients were subsequently scored using FGSI. These patients were followed up from admission till discharge. We identified the Fournier's Gangrene Severity Index (FGSI) scores of the patients at presentation, the performance status at discharge, as well as the correlation between FGSI of survivors, and scores of patients that died from the disease.

Our treatment protocol involved resuscitation, triple antibiotics regimen, tetanus prophylaxis, prompt and aggressive /serial debridement. This is usually followed by serial and sustained wound dressing with dilute hydrogen peroxide/ H₂O₂ soaked gauze; normal saline/ soaked honey or 10% povidone iodine.

Data obtained, were analysed using SPSS Version 20 and subjected to linear regression. The results were expressed using tables and charts. Pearson's correlation was used to assess correlation.

Results

All the patients were males, with mean age of 56 years \pm 13.3 (range of 22 to 78 years). The youngest was a 22 year old boy with urethral stricture disease. The age range with the highest incidence was 50 to 59 years. The mean age of survivors was 48.7 years, and that for non survivors was 71 years.

The common clinical features were fever, malodorous scrotal swelling, anemia and shock.

The predisposing factors are shown in table 1.

The commonest predisposing factor was diabetes mellitus in 15 patients (71.4%). Six patients (28.6%) had anal conditions, while four (19.1%) had urethral stricture disease. Two patients (9.5%) were obese, while four (19.1%) had no predisposing factor.

The commonest cultured organism was *Escherichia coli* (52.4%), followed by *Staphylococcus aureus* (19.1%), while no organism was cultured in one patient. Details are shown in figure 2.

Table 1: Predisposing Factors in the pathogenesis of Fournier's gangrene

Actiology	Frequency	Percentage (%)
Diabetes Mellitus (DM)	5	23.8
DM + Anal Abscess	4	19.1
Idiopathic	4	19.1
DM + Obesity + Anal Abscess	2	9.5
DM + Scrotal Injury	2	9.5
DM + BOO + Urethral Stricture Disease	2	9.5
BOO secondary to Urethral Stricture Disease	2	9.5
Total	21	100

Table 2: Cultured Organisms

Cultured Organism	Frequency	Percentage (%)
Coliform	11	52.4
S. Aureus	4	19.0
Klebsiella	3	14.3
Pseudomonas	2	9.5
No culture	1	4.8

The mean duration of symptoms at presentation was 9 days (range 1 to 21 days). Scrotal gangrene was seen in all the patients in varying degrees and with extension to the perineum in 6 (28.5%) patients (fig 4), to the lower abdomen in 4 (19.1%) and one (4.8%) extended to the penis and left thigh (fig 3). It should be noted that primary sites for all was the scrotum. The overall mean FGSI score at presentation was 7.0 ± 4.0 (range 2 to 16).

The mean FGSI score for survivors was 6.8 ± 2.7 , while non-survivors had a mean of 10.0 ± 5.3 . Three mortalities were recorded. Two of them were obese, diabetic and died within 7 days of admission. Two had diabetic keto-acidosis DKA, and all three were admitted with a mean FGSI score of 10 at presentation. The mean hospital stay was $52 \text{ days} \pm 45$ (range 3-120 days) with performance status of 1.4 (ECOG) at discharge.

Table 3: Severity of scores (FGSI)

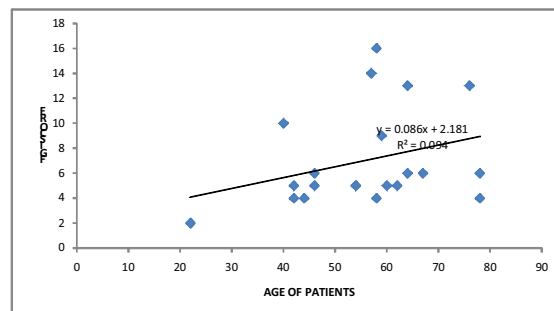
FGSI Score	Frequency	Percentage (%)
0-3	1	4.8
4-7	14	66.6
8-11	2	9.5
12-15	3	14.3
16-19	1	4.8

Majority of patients (66.6%) had FGSI scores

Table 4: Correlation Test

		FGSI (S)	FGSI (NS)
FGSI(S)	Pearson Correlation	1	0.997*
	Sig. (1-tailed)		0.024
	N	18	3
FGSI(D)	Pearson Correlation	0.997*	1
	Sig. (1-tailed)	0.024	
	N	3	3

*Correlation is significant at the 0.05 level (1-tailed).



$r = +0.306$ {moderate positive correlation}

Figure 1: Scatter Plot of FGSI vs Age of all Patients.

between 4-7. Few patients (28.6%) had FGSI scores between 8-19. Making use of the regression coefficient $y = a + bx$, where y is FGSI score, a is intercept, b is slope and x is age of patient, it can be seen that the average FGSI score becomes 2.18 when the age is 0. The impact on FGSI score per unit increase in age is 0.09. This observation is statistically significant.



Figure 2: Fournier's gangrene at presentation in A&E



Figure 3: Fournier's gangrene following debridement, antibiotics and serial wound dressing.



Figure 4: Fournier's gangrene with anal abscess.

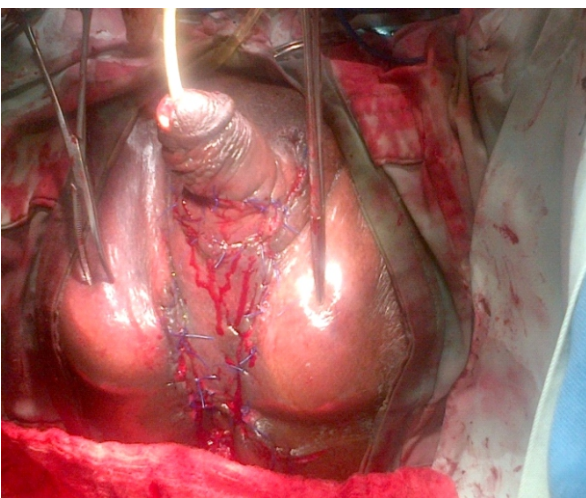


Figure 5: Closed Post Fournier's gangrene wound.

Discussion

Fournier's gangrene is a severe urological emergency that requires aggressive management to prevent mortality. Prediction of survivors has always been difficult especially in more severe cases

Previous studies on this topic have been retrospective, with incomplete data retrieved mostly from case notes making it difficult to prognosticate on the outcome^{5,7,9,10,13}. The mean age of our patients was 56 years \pm 13.3 (range 22-78 years). Previous studies done in Nigeria revealed younger mean age¹⁰. Aliyu et al¹³ in UMTN recorded this disease in a 2 week old baby. The pathology of Fournier's gangrene has been established to arise from reduced cellular immunity leading to suppurative bacterial infection. The subcutaneous vessels are thrombosed. The combination of these two processes cause gangrene of overlying skin¹⁴. *E. coli* as found in our study is the commonest isolated organism. However, this could be as a result of the commensal nature of these organisms in the perineal region¹⁵.

The mean age identified by Ugwumba et al¹⁰ in Enugu South East Nigeria was 48.3 years (range 28-66years), with a peak age incidence of 50-59 years. This was similar to our findings.

The age of survivors in our study, differed significantly from that of non-survivors (48.7 vs 71 years), $p=0.002$. In figure 1, making use of the regression coefficient $y=a+bx$, where y is FGSI score, a is intercept, b is slope and x is age of patient, it can be seen that the average FGSI score becomes 2.18 when the age is 0. The impact on FGSI score per unit increase in age is 0.09. This observation is statistically significant. In a regressing order, most deranged parameters in the scoring system were: serum urea, respiratory rate, bicarbonate, heart rate, temperature, white cell count, serum potassium, sodium, and creatinine. However, dehydration may have accounted for elevated urea, without corresponding elevation in creatinine

Diabetes mellitus, with or without local complications ranked as the major systemic predisposing factor, 71.4% of cases ($n=15$). None of our patients was sero-positive for HIV. This is contrary to the findings in other studies^{13,16}. There were no predisposing factors established in 19.1% of cases ($n=4$). This corroborates the fact that idiopathic aetiologic factors still exist, and in variance with some findings in literature that suggest that an aetiologic agent must be identified in all cases¹⁶.

Necrotizing fasciitis in diabetic patients is usually extensive and could result from trivial injuries to the scrotum as was identified in two patients following

shaving of pubic hairs. In our study, two patients with diabetes were admitted unconscious, and they never regained consciousness till death. The third mortality had a pelvic abscess and was incontinent of faeces. He subsequently had a diverting colostomy and suprapubic cystostomy. Despite multi-disciplinary management, he died from severe sepsis. Urinary and faecal diversions correlate with extent of necrosis which have an adverse effect on treatment outcome¹⁷. The mean FGSI score was greater than 10 for these non-survivors, with a mortality rate of 14.3%. Omer et al¹⁸ recorded a mortality rate of 20.5% in Ankara, while Aliyu¹³ and Ugwumba et al¹⁰ recorded rates of 15.8% and 3.6% respectively¹⁰⁻¹³. In the work by Laor et al¹⁹, when 9 points was taken as the cut-off score, patients with FGSI score >9 died with a likelihood of 75%, and they survived with a likelihood of 78% when score was ≤ 9. Most surviving patients in our study were younger, had an average FGSI of 6.8 and non was obese. Obesity and diabetes mellitus have been established to lower immunity²⁰. Among the cases of diabetes mellitus, complicated by a local predisposing factor, anal abscess (26%) was a major risk factor. Obesity with anal abscess, urethral stricture disease and scrotal injuries accounted for the rest. These findings suggest the different patho-physiologic mechanisms of the disease.

In our experience, despite the FGSI score on admission, prompt assessment & resuscitation, good choice of broad spectrum antibiotics, immediate debridement in theatre, follow up serial debridement and wound dressing were important adjuncts to wound healing and survival. The choice of wound closure is determined by the extent of tissue loss and resultant defect following debridement and dressing.

Conclusion

Complicated diabetes mellitus, obesity, old age and poor FGSI score are major predictors of mortality in patients with Fournier's gangrene. Proper and aggressive treatment protocol gives good outcome. Mortality is less than values of 25% recorded in most urology texts and literature.

Recommendation

All patients with Fournier's gangrene should have risk assessment on presentation at the accident and emergency units. Obese, patients with high FGSI score on presentation, elderly and diabetic patients are very high risk patients, and will benefit from prompt & coordinated multi-disciplinary management.

References

1. Unalp HR, Kamer E, Derici H, Atahan K, Balci U et al. Fournier's gangrene: Evaluation of 68 patients and analysis of prognostic variables. *Journal of postgraduate medicine* 2018; 54(2): 101-105.
2. Elliot DC, Kufera JA, Myers RAM. Necrotising soft tissue infections. Risk factors for mortality and strategies for management. *Ann Surg* 1996; 224:672-683.
3. Subrahmanyam M, Ugane SP. Honey dressing beneficial in treatment of Fournier's gangrene. *Indian Journal of surgery* 2004;66:75-77.
4. Villanueva-Saenz E, Hernandez-Magro PM, Ovalle VM, Vega JM, Alvarez-Tostado FJF. Experience in management of Fournier's gangrene. *Tech Coloproctol* 2002;6:5-10.
5. Hejase MJ, Simonin JE, Bihrl R, Coogan CL. Genital Fournier's gangrene: Experience in 38 patients. *Urology* 1996; 47:734-739.
6. Edino ST, Yakubu AA, Obidiaso A. Fournier's gangrene in a tertiary health facility in Nigeria. *African Journal of Urology* 2005;11:1-5.
7. Eke N. Fournier's gangrene: a review of 1726 cases. *British Journal of Surgery* 2000;87:718-728.
8. Morua AG, Lopez JAA, Garcia JDG, Montelongo RM, Guerra LSG. Fournier's gangrene: our experience in 5 years, bibliography review and assessment of the FGSI. *Arch Esp Urol* 2009;62:532-540.
9. Sorensen MD, Krieger JN, Rivara PP, Broghammer JA, Klein MB et al. Fournier's gangrene: management and mortality predictors in a population based study. *J Urol* 2009;182:2742-2747.
10. Ugwumba FO, Nnabugwu I, Ozoemena OF. Fournier's gangrene - analysis of management and outcome in South Eastern Nigeria. *South Africa Journal of Surgery* 2012; 50:16-19.
11. Roghmann F, Von Badman C, Loppenberg B, Hinkel A, Palisaar J et al. Is there a need for the Fournier's gangrene scoring index? Comparison of scoring systems for outcome prediction in patients with Fournier's gangrene. *British Journal of Urology Int* 2012;110:1359-1365
12. Verma S, Sayana A, Kala S, Rai S. Evaluation of the utility of Fournier's gangrene severity index in the management of Fournier's gangrene in North India: A multicentre retrospective study. *J Cutan Aesthet Surg* 2012;5:273-276.
13. Aliyu S, Ibrahim AG, Ali N, Waziri AM. Fournier's gangrene as seen in University of

-
- Maiduguri Teaching hospital. *ISRN Urology* 2013; 673121:1-3.
14. Johnin K, Nakatoh M, Kadowaki T, Kushima M. Fournier's gangrene caused by *Candida* species as the primary organism. *Urology* 2000;56:153.
 15. Thwaini A, Khan A, Malik A, Cherian J, Barua J et al. Fournier's gangrene and its emergency management. *Postgrad Med J* 2006;82:516-519.
 16. Irekpita E, Salami TAT, Dongo AE, Eze KC, Momoh M et al. Fournier's gangrene: Irrua teaching hospital, Nigeria, experience. *Sudan Journal of Dermatology* 2008; 6(1):34-42.
 17. Clayton MD, Fowler JE, Sharifi R, Pearl RK. Causes, presentation and survival of fifty-seven patients with necrotizing fasciitis of the male genitalia. *Surgery, Gynaecology and Obstetrics* 1990; 170(1):49-55.
 18. Omer GD, Mehmet AK, Muhammet FK, Karakan T, Cem Nedim Y et al. Overview of different scoring systems in Fournier's gangrene and assessment of prognostic factors. *Turkish Journal of Urology* 2016;42(3):190-196.
 19. Laor E, Palmer LS, Tolia BM, Reid RE, Winter HI. Outcome predictions in patients with Fournier's gangrene. *Journal of Urology* 1995; 154:89-92.
 20. Guarav G, Vishwajeet S, Rahul J, Ashish S, Pandey S. Outcomes of patients with Fournier's gangrene: 12 year experience from a tertiary care referral centre. *Turkish Journal of Urology* 2019; 45(Suppl 1): S111-S116

Efficacy of Urine Cytology in the Diagnosis of Bladder Cancer in Aminu Kano Teaching Hospital: Comparism of Cytology and Histological Findings.

S Auwal, SU Alhassan, AA Sani, A Abdulkadir, AM Sharfuddeenhi, A Muzzammil, Y Bashir

Department of Surgery, Aminu Kano Teaching Hospital, Kano, PMB 3452, Kano, Nigeria.

Abstract

Background: Bladder cancer is a common urologic malignancy worldwide and second most common genitourinary malignancy after prostate cancer. Diagnosis of bladder cancer in developing countries is challenging. Despite the varying results in detection rate of bladder cancer by using the urine cytology, the method can be used in developing countries such as Nigeria, where there are limited diagnostic facilities.

Objective: The general objective of the study was to determine the efficacy of urine cytology in the diagnosis of bladder cancer, in Aminu Kano Teaching Hospital. The specific objectives were; to determine the sensitivity, specificity and accuracy of urine cytology in the diagnosis of bladder cancer in Aminu Kano Teaching Hospital.

Methodology: It was a prospective descriptive study of 52 patients who consecutively presented with suspected bladder cancer and were recruited via the Urology outpatient unit and casualty unit of Aminu Kano teaching hospital over a period of one year. On presentation patients with emergencies were resuscitated and evaluated clinically to establish the diagnosis of bladder cancer. Patient who had met the inclusion criteria and consented to the study had urinalysis and urine microscopy culture and sensitivity, abdominopelvic ultrasound scan, electrolyte urea and creatinine and full blood count. All the patients subsequently had fresh voided or catheter urine sample taken immediately for cytological analysis. Cystoscopy was done in the urology theatre under local anaesthesia in most patients with exception of few who had general anaesthesia. The cystoscopic findings were noted and multiple biopsies were taken and sent for histological analysis. **Results:** Of the Fifty two patients reviewed, the mean age was 55.6 ± 16.3 with male to female ratio of M: F 4.2:1. The overall Sensitivity, Specificity and Accuracy of Urine cytology were 60.4%, 100% and 63.5% respectively. The False negative rate was 39%. Urine cytology was found to be effective in detecting bladder cancer, $p < 0.05$.

Conclusion: Based on the findings from this study, Urine cytology is an effective method for evaluation of patients presenting with features suggestive of bladder cancer. Routine use of urine cytology as the initial test for evaluating patient with suspected bladder cancer is recommended.

Key Words: Efficacy, Urine cytology, Bladder cancer, Diagnosis.

Introduction

Cancer of the urinary bladder is a common urologic malignancy worldwide. It is the 4th to 5th most common cancer in men, and the 8th in women.¹ It is the second most common genitourinary malignancy worldwide after prostate cancer with 260,000 new cases occurring each year in men and 76,000 in women. It affects about 1 in 2,500 people per year throughout the western world. Incidence of bladder cancer is increasing worldwide, estimated to be the 13th cause of cancer related death.² It accounts for 5% of all diagnosed cancer in human worldwide and between 5 to 10% in Europe.¹⁻³

Address for Correspondence:

Dr A Sani

Department of Surgery,
Aminu Kano Teaching Hospital,
Kano, PMB 3452, Kano, Nigeria.

E-mail: awwalsani2002@yahoo.co.uk

Bladder cancer is commonest in the 50 – 70 year age group with mean age of 54.6 ± 16 year.^{1,3,4} In the western world, transitional cell carcinoma (TCC) is the commonest, while in developing countries squamous cell carcinoma (SCC) is the most prevalent especially in Egypt where schistosomiasis is endemic.^{2,5} Malignant tumours of the bladder have been observed to be quite common in Nigeria, especially in the northern part where schistosomiasis is common.^{3,5,16} In Kano, it constituted about 6.4% of all cancers with squamous (53%) and transitional (35%) carcinomas being the most common histological types. Males outnumbered females more than five times (M: F = 5.2:1) presumably because of an increased contact with stagnant water and exposure to smoking and environmental toxins. Cancer of the bladder was most prevalent in the 5th and 6th decades (range of 20 – 82) with a mean age of 48.8 years.^{3,7} The prevalence is lower in Zaria with about 3.1%.⁶ However in Lagos University Teaching Hospital (LUTH), the south-western part of Nigeria

bladder cancer constitutes about 0.86% of all diagnosed cancers, which is much lower with transitional cell carcinoma being commonest (61.5%).⁷ In Enugu the south eastern Nigeria also the commonest type of bladder cancer is Transitional cell carcinoma with about 56.3% and 38.8% Squamous cell carcinoma.⁸

It has been shown that 80-90% of patients with bladder tumours, present with painless hematuria, particularly in people with TCC. Patients with SCC usually present with irritative lower urinary tract symptoms; hematuria comes at later stages of the illness.^{9,10}

Diagnosis of bladder cancer in developing countries is challenging, because of lack of modern diagnostic medical equipment in most hospitals. In an ideal setting the diagnosis of bladder cancer involves the use of urine cytology, abdominopelvic ultrasound and urethrocystoscopy and biopsy for histology. In urine cytology, malignant cells can be detected in patients commonly with urothelial cancer. This may be supplemented by the detection of tumour makers in the urine. Ultrasound scan is used as an initial test prior to urethrocystoscopy. Abdominopelvic ultrasound can predict the presence of the lesion, its site and number. It can also detect obstruction along the upper urinary tract and presence of metastatic deposits. Urethrocystoscopy is the cornerstone for the confirmation of the presence of tumour and for a biopsy to be taken for histology. Further radiological investigations such as computed tomography scanning (CT scan) and magnetic resonance imaging (MRI) can be done to evaluate the extent of the disease.

In developing countries however, all of these investigations are not readily available and where available they are expensive and many patients cannot afford them. The accuracy of urine cytology in the diagnosis of bladder cancer depends on the grade of the cancer; it has high sensitivity and specificity in high grade urothelial cancer and low in low grade lesions.^{11,12} Other factors that determine the accuracy of urine cytology in diagnosis of bladder cancer are the nature of the urine sample and collection method. Urine cytology is an essential modality for the detection of urothelial neoplasia. It has various indications that generally fall into 3 principal groups: in the evaluation of Patients with genitourinary symptoms, especially hematuria, screening of high risk patients and as a surveillance tool for patients with a history of bladder cancer.¹³ The accuracy of urine cytology in the diagnosis of high-grade urothelial carcinoma (HGUCA) with cytohistologic correlation has been reported to be as

high as 98%.^{14,15} In contrast, low-grade urothelial neoplastic lesions such as papillary neoplasm of low malignant potential (PUNLMP) and low-grade papillary urothelial carcinoma (LGUCA), has sensitivity and specificity values as low as 8.5% and 50%, respectively.¹⁶ Despite the varying results in detection rate of bladder cancer by using the urine cytology, it is clear that the method can be used in developing countries such as Nigeria, where there are limited diagnostic facilities. It is in this context that this study was carried out to assess the efficacy of urine cytology in diagnosis of bladder cancer at Aminu Kano Teaching Hospital in Kano.

Materials and Methods

It was a descriptive prospective study of fifty two patients conducted at Aminu Kano Teaching Hospital, which is a tertiary health institution situated in the ancient city of Kano, North-western Nigeria.

The inclusion criteria were all new patients with suspected bladder cancer (i.e. presenting with features suggestive of bladder cancer) who presented to the Urology outpatient Clinic and accident and emergency Department within the period of the study, and who consented. The exclusion criteria were all patients who presented with histologically confirmed bladder cancer that had surgery or are on chemotherapy/chemoradiation and all patients who did not consent. Ethical approval was obtained from the research ethics committee of Aminu Kano Teaching Hospital before commencing the study. All patients with suspected bladder cancer that meet the inclusion criteria at presentation to the Urology outpatient clinic were recruited into the study. On presentation, biodata including age, sex, tribe, address, and occupation were obtained. Also a detailed history including symptoms of bladder cancer such as hematuria, necroturia, lower urinary tracts symptoms were obtained. History of risk factors such as childhood terminal hematuria, exposure to chemicals and drugs (cyclophosphamide and phenacetin) and cigarette smoking were obtained. Others were general features of malignancy such as anorexia weight loss and complications of bladder cancer such as uraemia etc. All other aspects of the history were covered appropriately. All patients were also examined generally looking for features of malignancy and complications of bladder cancer such as wasting, pallor, facial puffiness, pedal oedema and scratch marks. The pulse rate, respiratory rate, body temperature and blood pressure were obtained. Abdomen was examined for suprapubic or loin

swelling, and masses. Other aspects of abdominal examination including rectal examination to look for mass at the region of the bladder were done. Other systems such as chest and central nervous systems were examined for extent of the malignancy. Patients who presented with emergency such as anemia, uraemia, clot retention, and urosepsis were admitted for resuscitation. Urgent pack cell volume, full blood count and serum electrolyte urea and creatinine were done. Patients were resuscitated with blood transfusion, haemodialysis, and urethral catheterization with irrigation, rehydration and antibiotics depending on patient's emergency condition. Following stabilization of patients, fresh urine sample was collected for cytology, and immediately taken to Histopathology department. Each of the patients had abdominopelvic ultrasound scan, CT urography, chest x-ray, and liver function test, depending on the patient's presentation. Then urinalysis and urine microscopy culture and sensitivity was done to rule out infection, and subsequently urethrocystoscopy and biopsy for histological diagnosis was done. The urethrocystoscopy was done under local anaesthesia in most of the patients with exception of few who had general anaesthesia due to low pain threshold. The cystoscopic findings were noted and any suspected bladder lesions were biopsied. Data collected was entered into the proforma and analysed.

Results

Sociodemographic Characteristics of the Patients

In the 52 patients reviewed, the age range was 25 to 90 years with mean age of 55.6 ± 16.3 . The commonest age group was 51 – 60 years accounting for about 30.8% (n=16). Male patients predominate with male to female ratio of M: F 4.2:1. Islam and Hausa were the predominant religion and tribe among the patients respectively. Most of the patients were from Kano state. Farming is the predominant occupation among the respondents, and most of them were irrigation farmers.

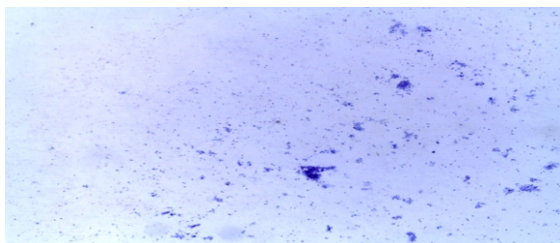


Figure 1: Cytological smear from one of the urine sample, (Diff quick stain, x4)

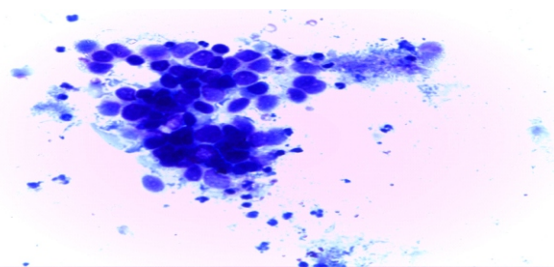


Figure 2: Cytological smear from one of the urine samples, (Diff quick stain, x40).

Pathological Characteristics of the Tumour

Out of the 52 patients studied 92.3% (n = 48) were confirmed to have malignancy by histology, the remaining 7.7% (n = 4) were non-malignant, and were found to be schistosomiasis on histology. Majority of the patients 27 (56%) had positive urine cytology while the rest were negative. The histological types of cancer recorded were transitional cell carcinoma in 23 (47.9%) Squamous cell carcinoma 22 (45.8%) and adenocarcinoma in 3 (6.3%).

The predominant grade was high grade tumours in 33 (69%) while the rest 15 (34%) were of low grade type.

Bivariate Analyses

Relationship between urine cytology and histology

The Sensitivity and specificity of Urine cytology in detecting malignant cells in patients with Bladder cancer were determined using a contingency table. The positive predictive value, negative predictive value, false negative rate and accuracy of urine cytology in detecting malignant cells in patients with bladder cancer were also determined. The correlation obtained ($r = 0.324$), using Pearson two tailed correlation analysis was linear. See table 6.3 below.

Sensitivity of Urine Cytology = 60.4%

Specificity of Urine Cytology = 100%

Positive predictive value of Urine Cytology = 100%

Negative predictive value of Urine Cytology = 17.4%

False Negative rate of Urine Cytology = 39.0%

Accuracy of Urine Cytology = 64%.

Relationship between urine cytology and high grade bladder cancer.

The Sensitivity and specificity of Urine cytology in detecting malignant cells in a high grade tumour were determined using a contingency table. The positive predictive value, negative predictive value, false negative rate and accuracy of urine cytology in detecting high grade bladder cancer were also obtained.

Sensitivity of Urine Cytology for high grade Cancer = 88%

Specificity of Urine Cytology for high grade Cancer = 100%

Positive predictive value of Urine Cytology for high grade Cancer = 100%

Negative predictive value of Urine Cytology for high grade Cancer = 79%

False Negative rate of Urine Cytology for high grade Cancer = 12%

Accuracy of Urine Cytology for high grade Cancer = 92%.

Discussion

Cytological examination of urine for malignant cells is a useful adjunct in the evaluation of bladder cancer. A positive urinary cytology is helpful in diagnosing bladder malignancies; however, a negative report does not exclude cancer, especially of a low-grade. This study was done to determine the efficacy of urine cytology in the diagnosis of bladder cancer. Fifty two patients with suspected bladder cancer had urine cytology and subsequently had cystoscopy and biopsy for histology. The age range of the patients in this study was 25-90 years with the mean age of 55.6±16.3 years. These findings were similar to that of Sule et al. In Kano with a mean of 51.2±11.74 years.¹⁷ Similarly Mahmoud et al. in Saudi Arabia found mean age of 54.6±16 years, in their study.⁴ In this study male patients accounted for 82% and a male to female ratio of M: F 4.2:1. It was similar to the findings of

Alhassan et al.¹⁸ in Kano, who also found a male preponderance with male to female ratio of M: F 5:1. Anunobi et al.⁷ In Lagos found the sex distribution of male to female ratio M: F 4.6:1. The most common presenting symptom in our patients was hematuria which occurs in all the 52 patients, then followed by necroturia and lower urinary tracts symptoms especially irritative. Masumbuko et al.⁹ and Desouza et al.¹⁰ also observed hematuria as the commonest presenting symptom in their various studies. Waihenya et al.¹⁹ found similar findings in their study with hematuria occurring in 51 out of 52 patients (98.1%). The predominant histological type of the bladder cancer was transitional cell carcinoma, which accounted for 47.9%, followed by squamous cell carcinoma with 45.8% and adenocarcinoma with 6.3%. This is similar to recent studies by Sule et al.²⁰ in Kano, Khalaf et al.²¹ in Egypt and Ngowi et al.²² in Tanzania, where gradual changing trend from Squamous to Transitional cell carcinoma were observed even in the schistosomiasis endemic area, unlike the earlier studies over a decade ago which revealed squamous cell carcinoma as the common histological type.^{3,5} The relative decline of squamous carcinoma in these series is probably associated with a reduction in the proportion of bladder cancers with schistosoma ova, and early diagnosis and treatment of bladder schistosomiasis.²⁰

In this study, the Sensitivity of urine cytology in detecting malignant cells in patients with Bladder cancer was 60.4% when compared to Histology, the Specificity was 100%. This is similar to a study by Bastacky et al.¹⁴ in a multicenter study from United State which reported overall sensitivity of 64% and specificity of 95%; and Helmy et al.²³ in Egypt who reported Sensitivity of 53.4% and Specificity of 94.7%. However, Garcia et al.¹⁵ revealed a higher

sensitivity of 97%, in their study which compared cytology with biopsy. This is probably because the study was purely on transitional cell carcinoma which has a higher sensitivity when compared with other histological types. Sanjay et al.²⁴ in United Kingdom had different findings, with lower sensitivity of 44% and specificity of 95%. The reason for the lower result was because their study was mainly on low grade and non-invasive cancers for which urine cytology has lower sensitivity. This study also revealed that urine cytology has high sensitivity in detecting high grade tumour, with sensitivity of 0 – 88% from the lowest to the highest grade. Hence the ability of urine cytology to detect bladder tumour increases with increasing grade of the tumour. Bolenz et al.²⁵ observed similar increasing sensitivity as the grade of the tumour increases; they found sensitivity of 16.7 – 62.2%.

In the same vein, Planz et al.²⁶ in their study to determine the role urinary cytology for detection of bladder cancer, observed overall sensitivity of 38.0% and specificity of 98.3% with positive predictive value and negative predictive value of 90.6% and 78.6% respectively. They also observed increasing sensitivity from 52.2 – 78.3% as the grade of the tumour increases. Karakiewics et al.²⁷ in a large multi-institutional cohort from four continents to assess the accuracy of urine cytology in predicting recurrence of transitional cell carcinoma of the bladder observed increasing sensitivity from 38 – 65% as the grade of the tumour increases. Niedworok et al.²⁸ in Germany conducted a three nationwide cytology survey and observed a very high sensitivity and specificity ranging from 81.34 – 87.08% and 83.5 – 89.15% respectively in high grade urothelial carcinoma.

Faysal et al.²⁹ and Tschirdewahn et al.³⁰ also observed a similar increasing sensitivity as the grade of the tumour increases, their findings are sensitivity of 48 –

84% and 85 – 95% respectively.

Conclusion

From this study, urine cytology was found to be effective in the diagnosis of bladder cancer among most patients presenting to Aminu Kano Teaching Hospital, with features suggestive of bladder cancer. Urine cytology was found to be more valuable in the diagnosis of TCC of the bladder and even more in those patients with high grade TCC of the bladder. Gradually changing pattern of bladder cancer histological variety was observed with TCC becoming more prevalent than SCC among our patients. However most patients with bladder cancer present with advance disease hence only palliative treatment could be offered.

References

1. Ferlay J, Bray F, Pisani P, Parkin DM. Cancer incidence, mortality and prevalence world wide. G L O B A C A N 2001;Lyon:IARC Press.
2. Taha MM, Al-zahrani IH. Bladder cancer: Analysis of 2004 WHO classification in conjunction with pathological and geographic variables. Afr J Urol 2012;18:118–123.
3. Ochicha O, Alhassan S, Mohammad AZ, Edino ST, Nwokedi EE. Bladder cancer in Kano – a histopathological review. West afr J Med 2003;22:202–204.
4. Mahmoud A, Anmar N. The influence of urine cytology in our practice. Urol Ann 2012;4: 80 83.
5. Mungadi IA, Malami SA. Urinary bladder cancer and schistosomiasis in North-western Nigeria. West afr J Med. 2007; 26: 226 – 229.

6. Rafindadi AH. A study of 1959 solid cancers seen in pathology Department ABUTH, Zaria over six year period 1990 – 1995. *Niger J Surg* 1998;5:45 – 48.
7. Anunobi CC, Banjo AA, Abdulkareem FB, Daramola AO, Akinde OR. Bladder cancer in Lagos: a 15 year histopathologic review. *Niger Postgrad Med J* 2010;17:40 – 44.
8. Aghaji AE, Mbonu OO. Bladder tumours in Enugu, Nigeria. *Br J Urol* 1989;64:399 – 402.
9. Masumbuko Y M, Sydney C Y. The effectiveness of ultrasound in the diagnosis of bladder tumour at Muhimbili National Hospital, Dar es salam, Tanzania. *Tanzan J Health Res* 2011;13:1 – 6.
10. Desouza K, Chowdhury S, Hughes S. Prompt diagnosis key in bladder cancer. *Practitioner*. 2014;258:23 – 27.
11. Chahal R, Golgoi NK, Sundaram SK. Is it necessary to perform urine cytology in screening patients with haematuria? *Eur Urol* 2001;39: 283 – 286.
12. Yafi FA, Brimo F, Auger M, Aprikian A, Tanquay S, Kassouf W. Is the performance of urinary cytology as high as reported historically? A contemporary analysis in the detection and surveillance of bladder cancer. *Urol Oncol* 2014;32:1 – 6.
13. Mansoor I. Analysis of urine cytology at community Hospital. *J Ayub Med Coll Abbottabad*. 2003;15:20 – 23.
14. Bastacky S, Ibrahim S, Sharon P. W, William MM. the accuracy of urine cytology in daily practice. *Cancer* 1999;87:118 – 128.
15. Garcia CM, Fernandez FE, Martin MC, Garcia MS, Alvarez-Arquelles CH. Usefulness of urine cytology for bladder carcinoma diagnosis: Comparative study with biopsy. *Actas Urol Esp* 2008; 32:904 – 907.
16. Raab SS, Dana MG, Colleen MV, Kim RG. Urine cytology discrepancies: Frequency, causes, and outcomes. *Am J Clin Pathol* 2007;127:946 – 953.
17. Sule AA, Ochicha O, Ibrahim Y, Adam S, Abubakar A, Haruna MS. Update on bladder cancer in Kano, Northern Nigeria. *Niger J Basic Clin Sci* 2017;14:26 – 9.
18. Hong SK, Ahn C, Kim HH. The value of cystoscopy as an initial diagnostic modality for asymptomatic microscopic Hematuria. *J Korean Med Sci* 2001;16:309 – 312.
19. Waihenya CG, Mungai PN. Management of transitional cell carcinoma of the urinary bladder at Kenyatta National Hospital Nairobi. *East Afr Med J* 2006;83:679 – 683.
20. Alhassan SU, Abdullahi A, Sheshe AA, Mohammed AZ, Edino ST, Aji S. Radical cystectomy for locally advance carcinoma of the bladder in Kano, Nigeria. *Afr J Urol* 2007;13:112 – 118.
21. Khalaf I, El-mallah E, Elstouhi I, Abu-zeid H, Emeligy A. Pathologic pattern of invasive bladder carcinoma: Impact of bilharziasis. *Afri J Urol* 2008;14:90 – 97.
22. Ngowi BN, Nyongole OV, Mbwambo JS, Mteta AK. Clinicopathological characteristics of urinary bladder cancer as seen in Kilimanjaro Christian medical centre, Moshi-Tanzania. *East Cent Afr J Surg* 2015;20:36 – 45.
23. Helmy MH, Mohammad OA, Elgammal MA, Ibrahim GH. Utility of urine cytology in evaluating haematuria with sonographically suspected bladder lesion in patient older than 50 years. *Urol Ann* 2014;6:212 – 217.
24. Sanjay R, Jalaluddin B, Jennifer AB, Steven GR, Petter CW, Michael LB et al. Comparism of screening methods in the detection of bladder cancer. *J Urol* 1999;161:388 – 394.
25. Bolenz C, West AM, Ortiz N, Kabbani W, Lotan Y. Urine cytology for the detection of urothelial carcinoma of the bladder – a flawed adjunct to cystoscopy? *Urol Oncol* 2013;31:366 – 371.
26. Planz B, Jochims E, Deix T, Caspers HP, Jakse G, Boecking A. The role urine cytology for detection of bladder cancer. *Eur J Surg Oncol* 2005;31:304 – 308.
27. Karakiewicz PI, Benayoun S, Zippe C, Ludecke G, Boman H, Sanchez-carbayo M et al. Institutional variability in the accuracy of urinary cytology for predicting recurrence of transitional cell carcinoma of the bladder. *BJU Int* 2006;97:997 – 1001.
28. Niedworok C, Rembrink V, Hakenberg OW, Borgermann C, Rossi R, Schneider T et al. (The value of urinary cytology in the diagnosis of high grade urothelial tumours). *Urologe A* 2009;48:1018 – 1024.

-
29. Faysal AY, Fadi B, Jordan S, Armen GA, Simon T, Wassim K. Prospective analysis of sensitivity and specificity of urinary cytology and other urinary biomarkers for bladder cancer. *J Uroonc* 2014;14:214–216.
30. Tschirdewahn S, Von Dorp F, Rubben H, Hakenberg OW. Exfoliative urine cytology in the treatment of bladder cancer. *Urologe A* 2011;50:292–296.

Urinary Microbiome

Temitope Gabriel Adedeji

Department of Physiology, School of Basic Medical Sciences, Federal University of Technology, Akure, Nigeria

Abstract

The use of high-throughput sequencing technologies has played a major role in debunking the myth of human urine sterility. With new technologies-16S rRNA amplicon sequencing, metagenomic sequencing- several genera, phyla and species of bacteria resident in the human urinary tract have been discovered and their role in health and disease have been reported. The focus of this review includes classification of microorganisms resident within the urinary tract, techniques used to sample, identify and classify these organisms, and the impact of resident microorganisms on normal and abnormal urinary tract function.

Keywords: Urobiome; Urinary bladder, microbiota

Introduction

Humans are considered holobionts as a result of the community of microorganisms colonizing the surface, organs and biofluids of the human body¹. While many of these microorganisms are often regarded as disease-causing microorganisms, research has shown that some resident microorganisms in humans contribute to the health and normal functioning of the body². To classify and investigate the roles these organisms play in the body, an extension of the human genome project called the Human Microbiome Project was created³. While the gut, vagina and skin were assessed for resident microorganisms, the urinary tract was excluded⁴. For several decades, urine from a healthy individual was thought to be devoid of microorganisms⁵ and therefore, traditional culture-dependent methods were only used in clinical settings to detect the presence of pathogenic bacteria implicated in the development of urinary tract infections⁶. This myth of sterile urine contributed to the exclusion of the urinary tract as a site of microbial colonization in the Human Microbiome Project⁷. With the aid of Next-Generation Sequencing technology however, the presence of micro-organisms resident in the urinary tract of a normal individual have been confirmed⁸.

Address of Correspondence:

Dr. Temitope Adedeji

Department of Physiology,
School of Basic Medical Sciences,
Federal University of Technology,
Akure, Nigeria

E-mail: tgadedeji@futa.edu.ng

The Microbiome

Although, Whipps et al., gave the first definition of the microbiome as a characteristic community of microorganisms within a well-defined habitat with specific physico-chemical properties⁸, several others have come up with definitions that capture the distinct characteristics of the microbiome and its relationship with its habitat. According to ecologists, a microbiome refers to a community of microbes and their relationship with the environment⁹. A genomic definition of the microbiome is the collective genomes of a community of microorganisms or the metagenome of the community microbiota¹⁰. The microbiome is made up of microbiota, which includes all bacteria, archaea, and other microorganisms of a particular site or organism¹¹. The microbiome could be found in plants¹², water-aquatic microbiome, land-terrestrial microbiome¹³, animals¹⁴ and humans¹⁵. The microbiome of a particular organism affects and is affected by its immediate environment¹. The plant microbiome, also known as phytomicrobiome, plays important roles in general plant health and growth¹⁶ and the microbiome of humans are involved in immune function, and general health and well-being of an individual¹⁷.

The Human Microbiome

About 500-1000 species of bacteria colonize the human body at any point in time¹⁸. Although a large number of bacterial species have been implicated in the development and transmission of several diseases¹⁹, some of these microorganisms have favorable effects on human health. The human microbiome refers to all the bacteria, archaea, protists and viruses that form an ecological environment in and on the human body²⁰. It could also be the total genomes of all the microorganisms residing in the human body¹⁰. The human microbiome consists of cells (cells of

microorganisms) that outnumber the human cells themselves¹⁸.

The Human Microbiome Project (HMP)

In order to estimate the number, types, diversity and function of the microorganisms in the human cells, the Human Microbiome Project (HMP), a continuation of the Human Genome Project, was conceived. This project was also to have the added advantage of providing insights on how the human body has evolved into a supra-organism¹⁸.

The initial attempts of scientists to understand and characterize the micro-organisms resident in human cells involved the use of (16S) small-subunit rRNA sequencing techniques to analyze cultured microbial residents on different sites of the body²¹. The HMP involved analyzing samples from normal healthy volunteers via 16S rRNA gene sequencing techniques²². As a result of limitations to 16S rRNA sequencing techniques, such as sequencing errors, short read lengths²³, the results from the sequencing were then compared with available data before being sequenced via metagenomic shotgun sequencing which gave deeper analysis of the microorganisms found in specific sites²⁴. A comparison of the microbiota among the different volunteers was also done to find out if humans had a core microbiome common to the vast majority of the human population¹². The Human Microbiome Project had two phases that spanned 2007 till 2016.

Impact of the Human Microbiome on Health and Physiology

The relationship between human microbiota and human cells is symbiotic and vary from being parasitic to being mutualistic. As hosts to the diverse members of the human microbiota, human cells provide habitat for microorganisms¹¹. And some of these, like the firmicutes, in turn, impact human health favorably²⁵. On the other hand, resident microorganisms in the human body can be harmful to health as a result of the metabolites they produce¹⁷. Resident microbiota in the human body also play roles in food digestion, energy generation, normal metabolism, maintenance of mucosal barriers and regulation of the immune system²⁶.

Anatomical sites of human microbiota

The microorganisms making up the human microbiome are localised in several sites in the human body. These sites include:

The Gut: The majority of the microorganisms making up the human microbiota are found in the gut where they contribute to maintaining normal host physiology²⁷. The community of microorganisms and

and the combined genetic material of these microorganisms found in the human gut are collectively referred to as the gut microbiome¹⁸. Bacteriome (e.g. *Bacterioides fragilis*, *Escherichia coli*), virome and mycobiome are the main members of the gut microbiota²⁷. An imbalance in the constituents of the gut microbiota, often referred to as dysbiosis, contributes to the dysfunction of host physiology and contributes to a plethora of diseases like: Inflammatory bowel disease, obesity, colorectal cancer among others²⁸. Antibiotics, age, diet could result in changes to the gut microbiota composition²⁹.

The Vagina and Uterus: The healthy vagina and uterus consist of mainly the bacteria *Lactobacillus* which produces antimicrobial substances³⁰. A decrease in *Lactobacillus* leads to bacterial vaginosis, an inflammation of the vagina³¹. *L. Iners*, *Corynebacterium*, *Anaerococcus*, *Peptoniphilus* among others are other members of the vagina microbiota¹⁶. Fluctuating changes in the vaginal microbiome could be as a result of hormonal changes caused by the menstrual cycle or pregnancy¹⁶.

The Skin: The diversity of the skin microbiome is dependent on different factors. For example, oily areas of the skin have resident species of bacteria like *Cutibacterium* which consume lipids³² while moist areas of the skin like the armpit have species like *Corynebacterium*³³. The dryer parts of the skin are rich in *Beta*proteobacteria and *Flavobacteriales*. The resident microbiota play major roles in immune function however an imbalance in the skin microbiome leads to skin infections.

The Oral cavity: The oral cavity, which is the second most diverse microbiome³⁴, is home to over 700 bacterial species alongside fungi, viruses and protozoa³⁵. The saliva in the mouth helps maintain a balanced microbiota³¹.

The Lungs and Nasal Cavity: Resident microorganisms in the respiratory tract are influenced by not only the distinct sites in the respiratory tract but also by their interaction with both internal and external factors³⁶. The nasal cavity contains mostly Actinobacteria, Bacterioidetes, proteobacteria and firmicutes³⁷.

The Biliary Tract: Firmicutes, Bacterioidetes, Actinobacteria were some of the resident bacteria in the healthy human gall bladder³⁸. As a result of the proximity of the liver, biliary tract and the intestines, the resident bacteria in the gut can be passed into the liver via the portal vein³⁹.

The Urethra and Bladder: Although microbiological culture techniques of screening for bacteria in urine often returns negative in people without urinary tract infections⁶, recent use of

sequencing methods have been used to confirm the presence of a urinary microbiome.

The Human Urinary Tract

Although urine microbiota often refers to microorganism content of bladder-obtained urine, but depending on the method urine samples are collected, the urinary microbiome may include microorganism species from other parts of the urinary tract like the ureters and urethra⁷.

The bladder, a major part of the genitourinary system, is responsible for continence and micturition (i.e storage and release of urine)⁴⁰. The bladder is made up of two major parts: The body and the base⁴¹. The body of the bladder is made up detrusor muscles which are responsible for bladder contraction and urine expulsion⁴². The base of the bladder is formed by the trigone and the beginning of the urethras and is responsible for controlling urine outflow via the autonomic nervous system⁴³. An increased number of adrenergic receptors in the neck of the male bladder (found at the base of the trigone) prevent retrograde ejaculation⁴⁴.

The Urinary Microbiome

Although several reasons contributed to the urinary microbiome not being a part of the Human Microbiome Project, the long-standing thought that urine is sterile was a major reason⁷. With more advanced methods of assessing human microbiome, this notion has been disproved and studies have proven the presence of resident microorganisms in urine^{8,45}. The urinary microbiome consists of the genome of all the resident microorganisms in the urinary tract⁴⁶.

Limitations to Study of the Urinary Microbiome and Solutions

The traditional methods of detecting microorganisms in urine and diagnosing UTIs (the standard clinical cultivation procedures) have proven to be an insufficient technique in classifying the different genera and species of microorganisms in urine⁴⁷.

The first step in analyzing urinary microbiome is collecting urine samples in such a way as to reduce contamination from other parts of the urogenital tract like the vagina⁴⁸. There are three main methods of urine sampling: Collection of mid-stream clean-catch urine, use of a trans urethral catheter and suprapubic aspiration^{49, 5}. As a step-up from the traditional culture-dependent methods which detects only about 33% of uropathogens in urine samples, the streamlined Enhanced quantitative urine culture (EQUC) method detects 84% of clinically relevant uropathogens⁵⁰. To detect even more elusive urinary microbial species undetected by EQUC and streamlined EQUC, metagenomic sequencing of

microbial genome via 16S rRNA amplicon sequencing⁵¹ and/or whole-genome metagenomic shotgun sequencing are applied⁵².

Taxonomic Profile of a Healthy Human Urinary Microbiome

A healthy individual without urinary tract infections has low urinary microbiome biomass⁵³. With the aid of 16S rRNA sequencing⁴¹ and culture techniques⁵⁴, taxonomic profiles that characterize human urinary microbiome have been formed.

A 2011 study discovered 22 different orders and 45 genera of bacteria resident in the female urinary tract. Bacteriodales, Lactobacillales, Clostridales and Bifidobacteriales were the most common order while Lactobacillus, Prevotella and Gardnerella which belong to phyla Firmicutes, Bacteroidetes and Actinobacteria were the most common genus⁴¹. Hrbacek et al. reported that the most common phyla in their 2021 study (which focused on human male urinary microbiota) were *Bacteroidetes*, *Firmicutes*, and *Proteobacteria* while the most common phyla were *Prevotella*, *Veillonella*, *Streptococcus*, *Porphyromonas*, *Campylobacter*, *Pseudomonas*, *Staphylococcus*, *Ezakiella*, *Escherichia* and *Dialister*⁵⁵. Nelson et al. reported that *Streptococcus*, *Gardnerella*, *Lactobacillus* and *Veillonella* were the most common genera in adolescent male urinary microbiota⁵⁶.

Factors Affecting the Urinary Microbiome

The human urinary microbiome is affected by factors in the urinary tract environment⁴⁸. Urinary oxygen tension is one of these factors. Research has suggested that urinary oxygen tension significantly affects urinary microbiome composition⁵⁷. Another factor affecting urinary microbiome is age. A study by Liu et al. compared urine samples from young and ageing women, they reported a decrease in *Lactobacillus*, *Bifidobacteria* and an increase *Peptococcus* in the elderly cohort compared to the younger participants⁵⁸.

Hormone therapy may also influence microbial composition in the urinary tract. Anglim et al., proved that local estrogen therapy decreased the presence of *Fingoldia Magna*², a bacteria species that induces inflammation³. Infections of the urinary tracts also have a relationship with urinary microbiome. Resident microorganisms increase the risk of urinary tract infections⁵⁹.

Evidence for the Relationship between Urinary Microbiome and Urinary Tract Infections

Urinary microbiome dysbiosis, an imbalance in the composition and diversity of urinary microbiota may be involved in the development of some urologic disorders⁶⁰. Urgency urinary incontinence,

overactive bladder, neuropathic bladder and recurrent urinary tract infections are thought to be affected by microorganisms in the urinary tract⁶¹

Although, urgency urinary incontinence is supposed to be as a result of a detrusor neuromuscular dysfunction or abnormal signalling³⁴, the complexity of the disease makes an imbalance in the urinary microbiome a major causative factor in the development of this disease⁶². In a study to characterise the bacteria responsible for UUI, *Lactobacillus*, *Gardnerella*, *Prevotella*, *Enteronacteriaceae*, *Staphylococcus*, *Aerococcus* and *Bifidobacterium* were found in sequence positive urine samples⁶³. In a cross-sectional study in Japan to confirm the relationship between the urobiome and overactive bladder, Okamoto et al., discovered that *Faecalibacterium* was more abundant while *Bifidobacterium* was lesser in people with overactive bladder⁶⁴. For people suffering from neuropathic bladder, their urobiome is more populated by uropathogens like *Klebsiella*, *Pseudomonas*, *Enterococcus* instead of *Lactobacillus*⁴⁵. Unfavourable external stimuli to the bladder and environmental stressors adversely affect urinary microbiome, favouring recurrent urinary tract infections⁶⁵. *Escherichia coli*, a uropathogen is implicated as a cause of recurrent urinary tract infections⁶⁶

Conclusion

The urinary microbiome is a new frontier for urology research with an interesting outlook on potential directions for understanding urinary tract function. With new technologies being developed daily, especially in Next Generation and other sequencing techniques, and the realization that urine is colonized by a community of microorganisms, research has been ongoing which reflects the importance and implications of the urinary microbiota on health.

References

1. Phillips ML. Gut reaction: environmental effects on the human microbiota. National Institute of Environmental Health Sciences; 2009.
2. Anglim B, Phillips C, Shynlova O, Alarab M. The effect of local estrogen therapy on the urinary microbiome composition of postmenopausal women with and without recurrent urinary tract infections. International Urogynecology Journal. 2021:1-11.
3. Neumann A, Björck L, Frick I-M. *Finegoldia magna*, an anaerobic Gram-positive bacterium of the normal human microbiota, induces inflammation by activating neutrophils. *Frontiers in Microbiology*. 2020:65.
4. Lewis DA, Brown R, Williams J, White P, Jacobson SK, Marchesi J, et al. The human urinary microbiome; bacterial DNA in voided urine of asymptomatic adults. *Frontiers in cellular and infection microbiology*. 2013;3:41.
5. Guri A, Hurvitz Florenthal M, Scheier E, Mahlab-Guri K, Balla U. Contamination rates of different methods of urine culture collection in children: A retrospective cohort study. *Journal of Paediatrics and Child Health*. 2021;57(8):1281-7.
6. Schmiemann G, Kniehl E, Gebhardt K, Matejczyk MM, Hummers-Pradier E. The diagnosis of urinary tract infection: a systematic review. *Deutsches Ärzteblatt International*. 2010;107(21):361.
7. Thomas-White K, Brady M, Wolfe AJ, Mueller ER. The bladder is not sterile: history and current discoveries on the urinary microbiome. *Current bladder dysfunction reports*. 2016;11(1):18-24.
8. Gasiorek M, Hsieh MH, Forster CS. Utility of DNA next-generation sequencing and expanded quantitative urine culture in diagnosis and management of chronic or persistent lower urinary tract symptoms. *Journal of Clinical Microbiology*. 2019;58(1):e00204-19.
9. Lederberg J, McCray AT. Ome SweetOmics--A genealogical treasury of words. *The scientist*. 2001;15(7):8-.
10. Berg G, Rybakova D, Fischer D, Cernava T, Vergès M-CC, Charles T, et al. Microbiome definition re-visited: old concepts and new challenges. *Microbiome*. 2020;8(1):1-22.
11. Ursell LK, Metcalf JL, Parfrey LW, Knight R. Defining the human microbiome. *Nutrition reviews*. 2012;70(suppl_1):S38-S44.
12. Thomas T, James E, Poole P. The plant microbiome. *Genome Biol*. 2013;14(6):209.
13. Whipps JM, Lewis K, Cooke R. Mycoparasitism and plant disease control. *Fungi in biological control systems*. 1988:161-87.
14. Bahrndorff S, Alemu T, Alemneh T, Lund Nielsen J. The microbiome of animals: implications for conservation biology. *International journal of genomics*. 2016;2016.
15. Belizário JE, Napolitano M. Human microbiomes and their roles in dysbiosis, common diseases, and novel therapeutic approaches. *Frontiers in microbiology*. 2015;6:1050.

16. Jack RW, Tagg JR, Ray B. Bacteriocins of gram Positive bacteria. *Microbiological Reviews*.1995;59(2):171-200.
17. Ogunrinola GA, Oyewale JO, Oshamika OO, Olasheinde GI. The Human microbiome and its impacts on health. *International Journal of Microbiology*, 2020;2020.
18. Gordon JL, Turnbaugh P, Ley R, Hamady M, Fraser-Liggett C, Knight R. The human microbiome project. *Nature*. 2007;449(7164):804-10.
19. Zachary JF. Mechanisms of microbial infections. *Pathologic basis of veterinary disease*. 2017:132.
20. Liu X. Focus: Microbiome: Microbiome. *The Yale Journal of Biology and Medicine*. 2016;89(3):275.
21. Clarridge III JE. Impact of 16S rRNA gene sequence analysis for identification of bacteria on clinical microbiology and infectious diseases. *Clinical microbiology reviews*. 2004;17(4):840-62.
22. Ames NJ, Ranucci A, Moriyama B, Wallen GR. The human microbiome and understanding the 16S rRNA gene in translational nursing science. *Nursing research*. 2017;66(2):184.
23. Peterson J, Garges S, Giovanni M, McInnes P, Wang L, Schloss JA, et al. The NIH human microbiome project. *Genome research*. 2009;19(12):2317-23.
24. Escobar-Zepeda A, Vera-Ponce de Leon A, Sanchez-Flores A. The road to metagenomics: from microbiology to DNA sequencing technologies and bioinformatics. *Frontiers in genetics*. 2015;6:348.
25. Magne F, Gotteland M, Gauthier L, Zazueta A, Pessoa S, Navarrete P, et al. The firmicutes/bacteroidetes ratio: a relevant marker of gut dysbiosis in obese patients? *Nutrients*. 2020;12(5):1474.
26. Blumberg R, Powrie F. Microbiota, disease, and back to health: a metastable journey. *Science translational medicine*. 2012;4(137):137rv7-rv7.
27. Chiu L, Bazin T, Truchetet M-E, Schaefferbeke T, Delhaes L, Pradeu T. Protective microbiota: from localized to long-reaching co-immunity. *Frontiers in immunology*. 2017;8:1678.
28. Clemente J, Ursell L, Parfrey, and LW, Knight R. The Impact of the Gut Microbiota on Human Health: an Integrative View *Cell*. 2012;148(6):1258-70.
29. Dudek-Wicher RK, Junka A, Bartoszewicz M. The influence of antibiotics and dietary components on gut microbiota. *Przegląd gastroenterologiczny*. 2018;13(2):85.
30. Chee WJY, Chew SY, Than LTL. Vaginal microbiota and the potential of Lactobacillus derivatives in maintaining vaginal health. *Microbial cell factories*. 2020;19(1):1-24.
31. Kilian M, Chapple I, Hannig M, Marsh P, Meuric V, Pedersen A, et al. The oral microbiome—an update for oral healthcare professionals. *British dental journal*. 2016;221(10):657-66.
32. Tsuru A, Hamazaki Y, Tomida S, Ali MS, Komura T, Nishikawa Y, et al. Nonpathogenic *Cutibacterium acnes* confers host resistance against *Staphylococcus aureus*. *Microbiology spectrum*. 2021;9(2):e00562-21.
33. Trocraz M, Gaia N, Beccucci S, Schrenzel J, Cayeux I, Starkenmann C, et al. Mapping axillary microbiota responsible for body odours using a culture-independent approach. *Microbiome*. 2015;3(1):1-15.
34. Caselli E, Fabbri C, D'Accolti M, Soffritti I, Bassi C, Mazzacane S, et al. Defining the oral microbiome by whole-genome sequencing and resistome analysis: the complexity of the healthy picture. *BMC microbiology*. 2020;20(1):1-19.
35. Deo PN, Deshmukh R. Oral microbiome: Unveiling the fundamentals. *Journal of oral and maxillofacial pathology: JOMFP*. 2019;23(1):122.
36. Kumpitsch C, Koskinen K, Schöpf V, Moissl-Eichinger C. The microbiome of the upper respiratory tract in health and disease. *BMC biology*. 2019;17(1):1-20.
37. de Steenhuijsen Pijters WA, Sanders EA, Bogaert D. The role of the local microbial ecosystem in respiratory health and disease. *Philosophical Transactions of the Royal Society B: Biological Sciences*. 2015;370(1675):20140294.
38. Molinero N, Ruiz L, Milani C, Gutiérrez-Díaz I, Sánchez B, Mangifesta M, et al. The human gallbladder microbiome is related to the physiological state and the biliary metabolic profile. *Microbiome*. 2019;7(1):1-17.
39. Szabo G. Gut–liver axis in alcoholic liver disease. *Gastroenterology*. 2015;148(1):30-6.
40. Cortes GA, Flores JL. *Physiology, Urination*. 2020.
41. Siddiqui H, Nederbragt AJ, Lagesen K, Jeansson SL, Jakobsen KS. Assessing diversity of the female urine microbiota by high throughput sequencing of 16S rDNA amplicons. *BMC microbiology*. 2011;11(1):1-12.
42. Sam P, Nasseruddin A, LaGrange CA. *Anatomy, abdomen and pelvis, bladder detrusor muscle*.

- StatPearls [Internet]: StatPearls Publishing; 2021.
43. Fowler CJ, Griffiths D, De Groat WC. The neural control of micturition. *Nature Reviews Neuroscience*. 2008;9(6):453-66.
 44. Kaplan SA. Side effects of α -blocker use: retrograde ejaculation. *Reviews in Urology*. 2009;11(Suppl 1):S14.
 45. Fouts DE, Pieper R, Szpakowski S, Pohl H, Knoblach S, Suh M-J, et al. Integrated next-generation sequencing of 16S rDNA and metaproteomics differentiate the healthy urine microbiome from asymptomatic bacteriuria in neuropathic bladder associated with spinal cord injury. *Journal of translational medicine*. 2012;10(1):1-17.
 46. Moustafa A, Li W, Singh H, Moncera KJ, Torralba MG, Yu Y, et al. Microbial metagenome of urinary tract infection. *Scientific reports*. 2018;8(1):1-12.
 47. Maskell R. The natural history of urinary tract infection in women. *Medical hypotheses*. 2010;74(5):802-6.
 48. Perez-Carrasco V, Soriano-Lerma A, Soriano M, Gutiérrez-Fernández J, García-Salcedo JA. Urinary microbiome: yin and yang of the urinary tract. *Frontiers in Cellular and Infection Microbiology*. 2021;11:421.
 49. Diviney J, Jaswon MS. Urine collection methods and dipstick testing in non-toilet-trained children. *Pediatric Nephrology*. 2021;36(7):1697-708.
 50. Price TK, Dune T, Hilt EE, Thomas-White KJ, Kliethermes S, Brincat C, et al. The clinical urine culture: enhanced techniques improve detection of clinically relevant microorganisms. *Journal of clinical microbiology*. 2016;54(5):1216-22.
 51. Hoffman C, Siddiqui NY, Fields I, Gregory WT, Simon HM, Mooney MA, et al. Species-Level Resolution of Female Bladder Microbiota from 16S rRNA Amplicon Sequencing. *Msystems*. 2021;6(5):e00518-21.
 52. Quince C, Walker AW, Simpson JT, Loman NJ, Segata N. Shotgun metagenomics, from sampling to analysis. *Nature biotechnology*. 2017;35(9):833-44.
 53. Neugent ML, Hulyalkar NV, Nguyen VH, Zimmern PE, De Nisco NJ. Advances in understanding the human urinary microbiome and its potential role in urinary tract infection. *MBio*. 2020;11(2):e00218-20.
 54. Hilt EE, McKinley K, Pearce MM, Rosenfeld AB, Zilliox MJ, Mueller ER, et al. Urine is not sterile: use of enhanced urine culture techniques to detect resident bacterial flora in the adult female bladder. *Journal of clinical microbiology*. 2014;52(3):871-6.
 55. Hrbacek J, Morais D, Cermak P, Hanacek V, Zacheval R. First-Catch, Mid-Stream and Catheterised urine: A Comparative Study of Male Urinary Microbiome by Expanded Quantitative Urine Culture and Next-Generation Sequencing. 2021.
 56. Nelson DE, Dong Q, Van Der Pol B, Toh E, Fan B, Katz BP, et al. Bacterial communities of the coronal sulcus and distal urethra of adolescent males. *PloS one*. 2012;7(5):e36298.
 57. Shermadou ES, Rahman S, Leslie SW. *Anatomy, abdomen and pelvis, bladder*. 2018.
 58. Liu F, Ling Z, Xiao Y, Yang Q, Zheng L, Jiang P, et al. Characterization of the urinary microbiota of elderly women and the effects of type 2 diabetes and urinary tract infections on the microbiota. *Oncotarget*. 2017;8(59):100678.
 59. Nienhouse V, Gao X, Dong Q, Nelson DE, Toh E, McKinley K, et al. Interplay between bladder microbiota and urinary antimicrobial peptides: mechanisms for human urinary tract infection risk and symptom severity. *PloS one*. 2014;9(12):e114185.
 60. Jiang S, Lu S, Chen X, Li F, Zhu C, Zheng Y, et al. Dysbiosis of urine microbiota in obstructive urinary retention patients revealed by next-generation sequencing. *Annals of Clinical Microbiology and Antimicrobials*. 2021;20(1):1-14.
 61. Ke Q-S, Lee C-L, Kuo H-C. Recurrent urinary tract infection in women and overactive bladder—Is there a relationship? *Tzu-Chi Medical Journal*. 2021;33(1):13.
 62. Pearce MM, Zilliox MJ, Rosenfeld AB, Thomas-White KJ, Richter HE, Nager CW, et al. The female urinary microbiome in urgency urinary incontinence. *American journal of obstetrics and gynecology*. 2015;213(3):347. e1-. e11.
 63. O'Callaghan JL, Willner D, Buttini M, Huygens F, Pelzer ES. Limitations of 16S rRNA gene sequencing to characterize *Lactobacillus* species in the upper genital tract. *Frontiers in cell and developmental biology*. 2021:928.
 64. Okamoto T, Hatakeyama S, Imai A, Yamamoto H, Yoneyama T, Mori K, et al. Altered gut microbiome associated with overactive bladder and daily urinary urgency. *World Journal of Urology*. 2021;39(3):847-53.
 65. Josephs-Spaulding J, Krogh TJ, Rettig HC, Lyng M, Chkonia M, Waschina S, et al. Recurrent Urinary Tract Infections: Unraveling the Complicated Environment of Uncomplicated rUTIs. *Frontiers in Cellular and Infection Microbiology*. 2021;11.
 66. Bao Y, Welk B, Reid G, Burton JP. Role of the microbiome in recurrent urinary tract infection. Matsumoto, T Author, *Novel Insights into Urinary Tract Infections and their Management*, London: Future Medicine Ltd. 2014:48-59.

Premature Ejaculation: Response to Increasing the Frequency of Ejaculation. Report of a Case.

LI Okeke, CU. Okeke, OM Farinre, I Eze, HO Ekwuazi, SO Ogunlayi, AO Takure, SA Adebayo

Urology Division, Department of Surgery, College of Medicine, University of Ibadan and University College Hospital, PMB 5116, Ibadan, Nigeria.

Abstract

Background: Premature ejaculation (PE) is currently the most common form of sexual dysfunction in men. A good clinical history remains the best diagnostic method. Increasing the frequency of sexual intercourse between couples who experience PE has not been previously known to increase their self-reported intravaginal ejaculation latency time. **Case presentation:** A case is reported of a couple who had been diagnosed with acquired premature ejaculation of 3 years duration with self-reported intravaginal ejaculatory latency time of 2 to 3 minutes. While participating in a study on the effect of increasing frequency of ejaculation on the serum prostate specific antigen level which required their having sexual intercourse 2 to 3 times a week, their self-reported intravaginal ejaculation latency time increased to 30 minutes. **Conclusions:** Increasing the frequency of sexual intercourse may be an additional armamentarium in the treatment of couples who have acquired premature ejaculation.

Key Words: Acquired premature ejaculation, Intravaginal ejaculatory latency time, Frequent ejaculation.

Introduction

Premature ejaculation (PE) is the most prevalent sexual dysfunction in men.¹ The definition of PE has remained controversial but it is now widely accepted that three features must be included, namely: short interval between vaginal penetration and ejaculation, lack of control over ejaculation and distress felt by one or both partners.² Based on the presumed etiologic factors in PE which have included penile hypersensitivity, rapid serotonin reabsorption at synaptic junctions, hormonal factors, urologic comorbidities, behavioural and psychogenic factors³, a number of investigative tools came into use in the evaluation of patients with PE. These have included the use of patient reported outcome (PRO) questionnaire (Rowland et al)⁴, Index of penile erection (IPE) (Althof et al)⁵, Premature ejaculation detection tool (PEDT) (Symonds et al)⁶, Premature ejaculation profile (PEP) (Patrick et al)⁷, Intravaginal ejaculation latency time (IELT) (Waldinger et al)⁸, and Penile biotensiometry² among others.

However, because of the pre-existing and lingering inconsistencies in the definition of PE, none of these gives a result that is absolutely diagnostic of the condition.

The available methods of treatment have included behavioural modifications, psychotherapy, pharmacotherapy with topical application of agents to reduce penile hypersensitivity, Selective serotonin reuptake inhibitors and surgical ablation of the dorsal penile nerves². However, all current treatment methods available for PE have their limitations and complications and other novel drugs and procedures require further studies to determine their efficacy and safety profile.² We report a case of PE which became corrected by increasing the frequency of sexual intercourse.

Case Presentation

Mr A.A. is a 60-year old who presented with a 3-year history of premature ejaculation associated with mild storage lower tract urinary symptoms. He had had occasional sexual intercourse in the preceding 3 years each of which ended in frustration of the couple due to ejaculation which occurred within 2 to 3 minutes of intromission. He had tried the stop and start method of treating the PE and had used tricyclic antidepressants without must success. He could not afford Dapoxetine. He had no comorbidities. The findings on general physical examination were normal. Digital rectal examination revealed a moderately enlarged benign prostate gland. His international prostate symptom score was 5. His

Address for Correspondence:

Dr. L.I Okeke

Department of Surgery,
University College Hospital,
PMB 5116, Ibadan, Oyo State, Nigeria.

E-mail: llokeke@yahoo.com

serum prostate specific antigen (PSA) was 13.4ng/ml. Following a 3 week course of a quinolone, his PSA dropped by over 75%. Based on this, he was considered for recruitment into an ongoing study into the effect of increasing frequency of ejaculation on the serum PSA levels of patients whose serum PSA decreased significantly following a course of antibiotics.

As part of obtaining an informed consent from his wife before enrolling the couple into the study, she was called on the phone as was detailed in the ethically approved study protocol and was duly informed about the study and the need to secure her cooperation to participate. She was initially reluctant. Her reason was that her husband had PE and she had not engaged him much in sexual intercourse in the preceding 3 years because of the frustration she experienced each time she did. However, after some persuasion that increasing the frequency of ejaculation was expected to keep her husband's serum PSA below the grey zone that would raise the suspicion of possible carcinoma of the prostate gland, she consented. Her role in the study was to surreptitiously engage her husband in sexual intercourse 2 to 3 times a week without telling him why she was doing it since he was blinded in the study as in the approved study protocol.

His initial serum PSA level was 13.4ng/ml. This dropped to 2.9ng/ml following a 3 week course of a quinolone. At the end of the first month of participating in the study, his serum PSA dropped to 1.3ng/ml and further to 1.13ng/ml at the end of the second month. However, it rose slightly to 1.17ng/ml at the end of the third month. His wife was contacted on the phone to find out why the serum PSA rose in the 3rd month. She complained that her husband now takes sometimes up to 30 minutes after intromission to ejaculate and she often gets tired before he does. Therefore, for the past month, she had not had sexual intercourse with him. She then agreed to reduce the frequency of sexual intercourse to once or twice a week from the 2 to 3 time a week hitherto, instead of stopping completely. Her husband's serum PSA subsequently dropped to 1.1ng/ml at his last visit 2 months later.

Although PE is currently the most common sexual dysfunction, it is underdiagnosed and could actually be more common than thought, especially in locations where fast ejaculation is seen as a sign of masculinity¹⁰. A good clinical history remains the best diagnostic method. All current methods of treatment have their limitations and complications and their beneficial effects are not sustained.

Our patient's initial problem was acquired PE with a

self-reported IELT of less than 3 minutes, causing a distress for both him and his wife. Because of the accompanying frustration, they only engaged in sexual activity occasionally. They had tried some of the available methods of treating this without much success and were unable to afford Dapoxetine which cost the equivalent of a month's minimum wage per dose in this country.

When they started participating in a study which required them to be having sexual intercourse 2 to 3 times a week, the patient developed delayed ejaculation by the 2nd month with self-reported ejaculation latency time (IELT) of up to 30minutes. When they reduced their frequency of sexual intercourse to 1 to 2 times a week, they were able to achieve a mutually convenient balance in their self-reported intravaginal ejaculatory latency time.

Conclusion

It would appear from this case reported, that increasing the frequency of sexual intercourse between couples who experience PE could be a way of treating it. A formal case controlled study will be required to confirm this finding.

List of abbreviations:

PE: Premature ejaculation.
IELT: Intravaginal ejaculatory latency time.
PRO: Patient reported outcome questionnaire.
IPE: Index of penile erection.
PEDT: Premature ejaculation detection tool.
PEP: Premature ejaculation profile.
PSA: Prostate specific antigen.

References

1. Pereira-Lourenco M, Vieira e Brito D, Pereira BJ. Premature ejaculation: From physiology to treatment. *J. Fam. Reprod. Health.* 2019; 13(3): 120-31
2. Hu QB, Zhang D, Ma L, Ng DM, Haleem M, Ma Q. Progress in pharmaceutical and surgical management of premature ejaculation. *Chin Med J.* 2019; 132: 2362-2372. Doi: 10.1097/CM9.0000000000000433.
3. McMahan CG, Jannini EA, Serefoglu EC, Hellstrom WJ. The pathophysiology of acquired premature ejaculation. *TranslAndrolUrol* 2016; 5(4): 434-449. doi: 10.21037/tau.2016.07.06
4. Rowland D, Perelman M, Althof S, et al. Self-reported premature ejaculation and aspects of

-
- sexual functioning and satisfaction. *J sex Med* 2004; 1: 225-32
5. Althof S, Rosen R, Symonds T, et al. Development and validation of new questionnaire to assess sexual satisfaction, control, and distress associated with premature ejaculation. *J Sex Med* 2006; 3: 465-75.
 6. Symonds T, Perelman MA, Althof S, et al. Development and validation of a premature ejaculation diagnostic tool. *EurUrol* 2007; 52: 565-73.
 7. Patrick DL, Guiliano F, Ho KF, et al. The premature ejaculation profile: validation of self-reported outcome measure for research and practice. *BJU Int* 2009; 103:358-64.
 8. Waldinger MD, Hengeveld MW, Zwinderman AH. Paroxetine treatment of premature ejaculation: a double blind, randomized, placebo-controlled study. *Am J Psychiatry* 1994; 151: 1377-9.
 9. Wei S, Wu C, Yu B, Ma M, Qin F, Yuan J. Advantages and limitations of current premature ejaculation assessment and diagnostic methods: a review. *TranslAndrolUrol* 2020; 9(2); 743-757. doi: 10.21037/tau.2019.12.08
 10. Waldinger MD, Quinn P, Dilleen M, Mundayat R, Schweitzer DH, Boolell M. A multinational population survey of intravaginal ejaculation latency time. *J Sex Med* 2005; 2: 492-7.

ABSTRACTS

Abstracts of Papers Presented at the 22nd Scientific Conference & AGM of the Nigerian Association of Urological Surgeons (NAUS), Benin City 2017.

IS INTRAVESICAL PROSTATIC PROTRUSION ASSOCIATED WITH MORE COMPLICATIONS IN BPH PATIENTS? - A PRELIMINARY REPORT.

Eze BUN¹, Ani COC²

¹Department of Surgery, ²Department of Radiology, Enugu State University of Science and Technology Teaching Hospital, Parklane-Enugu, Enugu state.

Introduction: Benign prostatic hyperplasia (BPH) is a common cause of bladder outlet obstruction (BOO) in ageing men and can, with progression of the disease, lead to complications. Intravesical Prostatic Protrusion (IPP) has been shown to correlate with severity of symptoms in BPH patients. **Aim:** Determine relationship between IPP and complications in BPH. **Methods:** A cross-sectional prospective study of new symptomatic BPH patients who presented for urology services at ESUTH, Parklane-Enugu. Ethical approval and informed consent were obtained. Participants were assessed for acute urinary retention (AUR), chronic urinary retention (CUR), hernia, epididymoorchitis, fever, urinary tract infection (UTI), haematuria and serum creatinine (SCr). They had abdominal ultrasonography measurement of IPP from midline sagittal image of the prostate (at bladder volume \geq 200mls); measurement of prostate volume (PV), anterior bladder wall thickness (BWT) and post-void urine residue (PVR); and assessment for hydronephrosis, bladder diverticulum and urolithiasis using Sonoscape S11 (Sonoscape Co Ltd, Shenzhen, China) with abdominal probe frequency of 3.5 MHz. IPP was divided into two groups (non-significant $<$ 10mm and significant \geq 10mm). Data was analyzed using SPSS version 21 (IBM, SPSS, Chicago, USA). The data was subjected to ANOVA and Chi square. Pearson's correlation was used to assess correlation where necessary. P-Value $<$ 0.05 was considered significant. **Results:** Ninety-one men with a mean age, PV, IPP, PVR, BWT and SCr of 63.81 years, 115.92mls, 14.14 mm, 184.93mls, 4.81mm

and 104.74 μ mol/L respectively were included in the study. There was positive correlation between IPP and PVR (p= 0.000); BWT (p= 0.000); SCr (p=0.160); PV (p=0.197). There is more AUR (p=0.003), CUR (p=0.015), hydronephrosis (p=0.003) and haematuria (p= 0.032) in the group with significant IPP but no significant difference in UTI (p= 0.254), Fever (p=0.216), epididymoorchitis (p=0.313), hernia (p=0.179) and urolithiasis (p= 0.154). **Conclusion:** Significant IPP increases the risk of developing some complications in BPH patients.

PATTERN OF BLADDER TUMOURS AT THE LAGOS STATE UNIVERSITY TEACHING HOSPITAL IKEJA

Omisano OA, Adebayo OO, Akinola O, Abolarinwa AA, Ikuerowo SO.
Lagos State University Teaching Hospital, Ikeja, Lagos.

Introduction: Bladder cancer is the second most common cancer of the genitourinary tract and the ninth most common cancer worldwide. It accounts for 7% of new cancer cases in men and 2% of new cancer cases in women. There are varied reports locally regarding the most common histological type of bladder cancer in Nigeria. **Aim:** The aim of the study was to review the pattern of presentation and histological types of bladder tumours at the Lagos State University Teaching Hospital Ikeja. **Methods:** This was a retrospective study in which the clinical records of all patients who presented with bladder tumour to the Lagos state University Teaching Hospital Ikeja over a 5 year period (January 2013 to December 2017) were retrieved and analyzed. **Results:** The records of 32 patients were available for review. There were 19 (59.4%) males and 13 (40.6%) females, reflecting a male predominance. The mean age was 56.75 \pm 3.16 years and the median age was 59.50 years (range 14 – 84 years). The commonest presenting symptom was haematuria in 29 patients

(90.6%). Other presenting symptoms were irritative LUTS in 27 patients (84.4%), necroturia in 7 patients (21.9%), back pain in 8 patients (25%) and weight loss in 13 patients (40.6%) at initial presentation. Most of the patients (n=25, 78.1%) had ultrasound done, out of which 20 patients (80%) had a demonstrable mass. A CT Scan was also done in 23 patients (71.9%). Possible risk factors identified were wading in streams in 4 patients (12.5%), smoking in 3 patients (9.4%) and exposure to petrochemicals in 1 patient (3.1%). Associated comorbidities documented were hypertension in 12 patients (37.5%) and diabetes mellitus in 3 patients (9.4%). The most common histological type of bladder tumour was papillary urothelial carcinoma in 15 patients (46.9%), with about half of these (n=8, 53.3%) being high grade tumours. **Conclusion:** Papillary urothelial carcinoma is the most common histological type of bladder tumours presenting in our institution with more males being diagnosed than females.

INITIAL EXPERIENCE WITH HOLMIUM LASER ENUCLEATION OF THE PROSTATE (HoLEP) IN NIGERIA.

Undie CU, Nnana E.
Kelina Hospital, Abuja.

Introduction: Holmium Laser Enucleation of the Prostate (HoLEP) was introduced to address some of the limitations of TURP. HoLEP is not common in Africa, despite its advantages. The objective of this study is to analyse the Nigerian experience with HoLEP in comparison with those of other centres in order to stimulate interest in a shift to this procedure in our environment. **Methods:** Twenty nine patients have had HoLEP in Kelina Hospital, Abuja since October 2018. Indications for surgery ranged from failed medical treatment, urinary retention to hematuria. Preoperative assessment of IPSS, QoL, Prostate size, Residual volume and Qmax was done. Six patients had been catheterized prior to presentation and did not have Qmax or Residual volumes computed. Two had urethral injuries elsewhere prior to surgery. HoLEP was done with the Lumenis 120W laser, Moses Technology™. All except one patient had bladder irrigation post-surgery. The duration of irrigation, catheterization and hospital stay was computed.

Results: The average age of patients was 68.30±8.95 years. Prostatic volume was 107.37g±64.4g. PSA was 12.51±20.51ng/ml. Irrigation time was 20.46±16.19hrs. Mean catheterization time was 1.3days. Hospital stay was 1.96±1.09 days. Two patients were discharged home on catheter on account of pre-operative urethral injuries. Four patients were transfused pre and intra-op on account of low hematocrit. **Conclusion:** The results are comparable to those of other centers who have done HoLEP for years and are reproducible even in resource poor, manpower-deficient settings like ours.

ANTI-RETROPULSION DEVICE USE FOR PREVENTION OF PROXIMAL STONE MIGRATION DURING LASER LITHOTRIPSY-CASE REPORT

Raphael JE, Abhulimen V, Danagogo O, Anuale N
Urology Division, University of Port Harcourt Teaching Hospital, Nigeria

Introduction: Retropulsion and stone fragment migration is a problem with lithotripsy for proximal and mid ureteric calculi during ureteroscopy, leading to increased operative time, costs and number of additional procedures. To overcome this drawback, many strategies have been developed, one of which is the use of anti-retropulsion devices. **Objective:** To describe the use of an anti-retropulsion device during holmium laser lithotripsy in a patient with mid ureteric stone. **Case History:** A 48-year old male patient, with recurrent history of recurrent colicky left flank pain. Abdominal CT scan with CT urography showed a 1.5 cm x 9.7mm impacted calculus in the left upper ureter with proximal pre-stenotic dilation associated with hydronephrosis and hydroureter. He had ureteroscopy with combined spinal and epidural anesthesia. Considering the high risk of retropulsion, the Boston Scientific Stone Cone Nitinol Retrieval Coil was passed beyond the stone and deployed under fluoroscopy to prevent proximal stone and fragment migration. Holmium laser lithotripsy was then carried out using combine hard stone and dusting modes with complete stone clearance. A double J stent was passed. The total operating time was 55minutes. **Conclusion:** Anti-

retropulsion devices are safe and cost-effective tools during ureteroscopy and lithotripsy for ureteric stones with high risk for retropulsion.

EVALUATION OF NIGERIAN ASSOCIATION OF UROLOGICAL SURGEONS (NAUS) ENDOUROLOGY WORKSHOPS.

Samuel Osaghae.

Department of Surgery, Urology Unit, University of Benin and University of Benin Teaching Hospital.

Introduction: Quarterly endourology workshops have been held by NAUS for several years. However, information from participants and hosts on organization, experiences and educational outcomes are lacking. The objective is to obtain feedback from participants in order to determine areas where the Workshops can be strengthened and participants' experiences improved. **Methods:** Participants attending Quarterly Endourology workshop were asked to complete structured survey questionnaire on last day of the event. Areas evaluated were biodata, course content, tutoring ability of resource persons and issues around venue and organization of the workshop. A retrospective evaluation of the feedbacks received was assessed. **Results:** There was a total of 75 respondents comprising of 26 consultants, 16 residents, 25 nurses and other stakeholders including technicians and equipment suppliers who attended first and second Workshops held in 2019. Using a 4-point Likert scale, the course content had a mean rating of 3.02 and 3.23 respectively with an overall rating of 3.16. Tutor assessment was 3.35 and 3.43 (Overall=3.40). Service quality was 3.05 and 3.29 (Overall=3.23). Sixteen (51.6%) vs. 40 (90%) of respondents in first and second Workshops said they had developed a desired skill. There was statistically significant differences among the categories of professionals in their responses to course content, time management, overall service delivery and quality ($p=0.047$ & 0.009). PCNL, ureteroscopic laser Lithotripsy, endoscopy instrumentation, cystoscopy, TURP, TURBT, role of urology theatre nurse, management of bladder spasm during TUR, urethroplasty using buccal mucosa graft, radical prostatectomy and theatre management were among the topics attendees

would like to see included in future workshops. Overall, participant assessment of the workshop was Very Good. **Conclusion:** Workshops are useful tools for teaching and learning new skills and institutional service development. The results of this survey will help to strengthen and improve future workshops.

PATTERN AND MANAGEMENT OF CASTRATION RESISTANT PROSTATE CANCER IN TERTIARY HOSPITAL OF NORTHWESTERN NIGERIA: CASE SERIES

Muhammad AS, Agwu NP, Abdulwahab-Ahmed A, Khalid A, Onwuasoanya U, Oyibo E, Ahmed UM, Adamu S, Isiyaku A, Obadele S, Kamba HU, Mungadi IA.

Urology Unit, Department of Surgery, Usmanu Danfodiyo University Teaching Hospital Sokoto, Nigeria.

Background: Prostate cancer is the commonest urological malignancy and a commonest cause of mortality in Nigeria. The presentation is usually late due to absence of screening protocol in the country. The mortality is due to progression of the disease to castration resistance and metastasis. **Objective:** To present 20 case series of castration resistant prostate cancer. **Case series:** We present 20 case series of castration resistant prostatic cancer managed by our unit. The patients had initial medical or surgical castration with initial suppression of the prostatic specific antigen before subsequent relapse and progression. The range of duration for the castration resistance was highly variable from 3 month to 3 years. There was response to surgical castration to those on medical castration. There was initial response to maximal androgen blockade and medical adrenalectomy for those who had surgical castration before relapse. All resistances are sensitive to abiraterone but these was limited by the cost, some cannot start it and some abandoned it after its commencement. One patient on abiraterone had mortality as compared to more than 50% of those on the other treatments. **Conclusion:** Castrate resistant prostate cancer is the ultimate destination of advanced prostate cancer on castration. The duration of its development is variable. Various hormonal

manipulations hold promises but the most durable is the use of abiraterone in the most resistant cases. This was limited by the cost.

COMPARISON OF BIOCHEMICAL EFFICACY OF BILATERAL ORCHIDECTOMY AND MEDICAL CASTRATION (LHRH ANALOGUE, ZOLADEX®) IN PATIENTS WITH ADVANCED PROSTATE CANCER AT LAGOS STATE UNIVERSITY TEACHING HOSPITAL, LAGOS.

Omorinde MO, Ikuerowo SO, Jeje EA, Omisano OA
Department of Surgery, Lagos University Teaching Hospital.

Introduction: Prostate cancer (PCa) is a leading cause of cancer-related deaths among men and it is the most commonly diagnosed cancer among Nigerian men. Most of the patients with PCa cases in Nigerian hospitals usually present with advanced disease and this requires androgen deprivation therapy (ADT) which can be in form of surgical or medical castration. This study was designed to determine which of the two options is more efficacious. **Objectives:** The study compared the biochemical efficacy of medical castration (Zoladex®) with bilateral orchidectomy in reducing serum testosterone and serum PSA in patients with advanced PCa. **Methods:** A prospective, hospital based, non-randomized clinical study was conducted over one-year period from November 2016 - October 2017. Each patient was followed up for six months. Patients that met the inclusion criteria were recruited consecutively into two groups; surgical and medical castration groups. Serum testosterone and PSA were measured before prostate biopsy was done using chemiluminescent immunoassay. Serum testosterone and PSA were repeated at 1, 3- and 6-months following commencement of treatment in the two groups. Data were analyzed using the Statistical Package for Social Sciences (SPSS IBM) version 20.0. **Results:** Fifty patients were studied, twenty-five patients in each group. The percentage drop in median serum testosterone at 1,3 and 6 months for the orchidectomy group was 85.40%, 91.30%, 91.90%

respectively while the percentage drop in median serum testosterone for the medical castration group at 1,3 and 6 months was 87.30%, 93.80%, 94.00% respectively. The percentage drop in median serum PSA at 1,3 and 6 months for orchidectomy treatment group was 69.40%, 97.50% and 99.20% respectively while for medical castration group, the percentage drop in median serum PSA at 1,3 and 6 months was 68.40%, 96.80%, 98.20% respectively. Local complications associated with orchidectomy were scrotal hematoma (20%) and surgical site infection (28%). Injection site reaction (8%) was recorded in medical castration group. All patients in both groups had hot flushes, reduced libido and weak erection as systemic complications. **Conclusion:** ADT still remains the mainstay of management of advanced PCa. Medical castration (Zoladex®) and surgical castration(Orchidectomy) are both equally efficacious in the short term. Early response to PSA control is found to be slightly better with surgical than medical castration.

EVALUATION OF HISTOPATHOLOGY REQUEST FORMS FROM MAJOR INSTITUTIONS IN NIGERIA AND PROPOSAL OF A PROSTATE DISEASE SPECIFIC HISTOPATHOLOGY REQUEST FORM

Popoola AA¹, Adeniji KA²

¹Division of Urology, Department of Surgery, University of Ilorin Teaching Hospital/University of Ilorin, ²Pathology Department, University of Ilorin Teaching Hospital / University of Ilorin.

Introduction: There have been dissatisfactions among urologist with reports of prostate histopathology while pathologists have also complained about inadequate clinical information and unsatisfactory tissue procurement by surgeons. An improved prostate disease specific histopathology request card is likely to improve the clinical information provided and improved reportage. **Aim:** To evaluate the histopathology request forms from many institutions in Nigeria with urological services and to propose an improved prostate disease specific histopathology request form to improve histopathological reportage of prostate diseases. **Methods:** Request for histopathological

request forms from major institutions were for sent out and received forms were analyzed for adequacy of requested based on standardized histological reportage and a prostate disease specific histopathological form was developed and to be proposed for adaptation. **Results:** Requests forms were received from only 15 institutions. All the request forms have requests for biodata. None of the forms were organ or disease specific. Most of the forms were lacking in adequate clinical information and details about contacts of surgeons and the patients. A prostate disease specific histological request form is being proposed. **Conclusion:** Adequate clinical information is needed for early and complete reportage of histopathological report of prostate diseases

SURVIVAL OUTCOMES OF NIGERIAN MEN WITH CASTRATION-RESISTANT PROSTATE CANCER: A RETROSPECTIVE COHORT STUDY OF MEN MANAGED AT UITH, ILORIN.

Bello JO, Mohammed TO, Kuranga SA.
Division of Urology, Department of Surgery,
University of Ilorin Teaching Hospital

Introduction: Sub-Saharan African men are disproportionately impacted by higher stage and incurable forms of prostate cancer and they often progress to castration-resistant prostate cancer (CRPC). Despite this, very little is currently known about the disease's clinical course and survival in these men. This study interrogates mature survival data of a cohort of sub-Saharan African men with CRPC and describes the clinical course and survival. **Methods:** Using a strict selection algorithm, records of patients with CRPC as defined by the Prostate Cancer Working Group 2 managed in our institution from January 2013 to June 2018 were retrieved. Demographic, clinical and survival outcomes data were collected. The principal endpoint was the overall survival from the development of CRPC. The probability of survival was calculated using the Kaplan Meier method. **Results:** A total of 64 patients were identified. Median (IQR) age, PSA at CRPC diagnosis were 69 (64 -75.5) years and 42 (8.6-146.6) ng/mL respectively. About one-half (49.3%) of the

patients had Gleason grade groups 4 and 5. Twenty-six patients (41.0%) received docetaxel (median cycles: 3, range: 1-6), only six patients (9.4%) received abiraterone, and none received enzalutamide, sipuleucel T, cabazitaxel or radiopharmaceutical therapy. A total of 33 (51.6%) patients died during a median follow-up of 7 (IQR: 6-14) months and the median overall survival was 11 (95%CI: 4-17) months. **Conclusions:** This study of African men with CRPC revealed only a small proportion receiving active treatments and poor survival in the cohort at only 11 months.

ANALYSIS OF THE PATTERN, ASSOCIATIONS AND IMPACT OF RENAL FUNCTION STATUS IN PATIENTS WITH BENIGN PROSTATIC OBSTRUCTION

MusliuAdetola Tolani, Muhammed Ahmed, Ahmad Tijjani Lawal, Oyelowo Nasir, Mudi Awaisu, Abdullahi Sudi, Ahmad Bello, Hussaini Yusuf Maitama

Division of Urology, Department of Surgery,
Ahmadu Bello University / Ahmadu Bello
University Teaching Hospital, P.M.B. 06, Shika-
Zaria, Kaduna State, Nigeria.

Introduction: The burden of Benign Prostatic Hyperplasia (BPH) is high in older age groups. These patients could have normal renal function or present with obstructive uropathy, obstructive nephropathy or intrinsic renal damage. The aim of this study was to evaluate the prevalence, severity and associations of renal function status in different spectrum of patients with Lower Urinary Tract Symptoms due to BPH and assess its impact on the management of these patients. **Methods:** Information on medical history, laboratory data and imaging tests were extracted from medical records of patients presenting to our Urology Clinic with BPH between January 2016 and January 2019. Glomerular Filtration Rate (GFR) was calculated using Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula and the severity of renal disease was computed. Patients were classified based on the presence of obstruction and renal impairment. Data analysis was done using SPSS version 20.0 with p-value < 0.05

considered significant. **Results:** Ninety-three patients were analyzed. Obstructive nephropathy and intrinsic renal damage occurred in 4.3% and 12.9% of them respectively. However, the severity of renal impairment was higher in the former (22.8 ml/min/1.73m² versus 39.3 ml/min/1.73m² respectively). Those with obstructive uropathy had Stage 2 GFR (72.5 ml/min/1.73m²) on the average. There was a significant relationship between GFR and age of presentation ($p = 0.001$). Diabetes mellitus was observed in 10.4% of patients without nephropathy. The GFR was lower in diabetic nephropathy patients (33.7 ml/min/1.73m²) than in others who also had intrinsic renal damage (43.3 ml/min/1.73m²). Initial urinary drainage was used for the stabilization of renal function before definitive surgery in all patients with obstructive nephropathy. **Conclusions:** The burden of nephropathy in BPH patients is quite considerable with the occurrence of intrinsic renal damage almost thrice that of obstructive nephropathy. A sizeable proportion of those without renal insufficiency harbour diabetes mellitus, thus, a superimposed obstructive uropathy from BPH could rapidly tilt such patients into end-stage renal disease. There is therefore the need to institute early management and other preventive measures in those with uropathy to prevent their progression to renal impairment.

EXPERIENCE AND EARLY OUTCOMES OF KIDNEY TRANSPLANTATION IN A NIGERIAN TRANSPLANT INSTITUTION.

Igbokwe MC, Aremu AA, Olatise OO, Thelma AO, Yahaya HB, Anosike IH, Ekeng OB, Ayoola VO
Urology/ Kidney transplant Division, Zenith Medical and Kidney Centre, Gudu, Abuja, Nigeria.

Introduction: With the rise in population of patients with End-stage Renal Disease (ESRD) in Nigeria, there is an increased demand for Renal Replacement Therapy (RRT) including kidney transplantation (KT). We present our surgical experience with KT in Zenith Medical and Kidney Center Abuja, Nigeria. **Methods:** A 9-month retrospective review of patients who underwent KT between January and September 2019 in our center. Data of both kidney donors and recipients were recorded in designed proforma.

Extracted information includes demographic characteristics, side of open donor nephrectomy (ODN), recipient anatomy, surgical techniques and post-operative outcomes. Data was analyzed using SPSS version 21. **Results:** A total of 68 patients had KT during the period under review. Donors had an age range of 19 to 53 years with mean of 30.83±8.43 years while recipients aged between 10 and 73 years with mean of 45.97±13.71 years. There were 61 (89.7%) male and 7 (10.3%) female donors. Forty-nine of the recipients were males (72.1%) and 19 (27.9%) were females. Left ODN was performed in 75% of cases and the commonest indication for right ODN was multiple left renal arteries. The allograft was placed in the right iliac fossa in all the patients with the external iliac vessels preferred for anastomosis in end-to-side fashion. Ureteroneocystostomy using the Lich-Gregoir technique over a double-J stent was performed in all patients. Significant peri-operative haemorrhage necessitating blood transfusion were experienced in 3 (4.4%) patients. Renal allograft artery thrombosis leading to allograft nephrectomy was encountered (1, 1.4%). There was no peri-operative mortality. **Conclusion:** Kidney transplantation can be safely and routinely carried out in Nigeria. There is need for more Nigerian urologists and institutions interested in KT in order to cater for the teeming population of ESRD patients in the country.

HISTOLOGY OF PROSTATE CHIPS FROM TURP PERFORMED IN MEN WITH NEEDLE BIOPSY DIAGNOSED PROSTATE CANCER: A PRELIMINARY REPORT.

Mbadiwe OM¹, Nnakenyi E², Amu OC¹, Ayogu BO¹, Ozoemena OFN¹, Ugwumba FO¹, Okoh AD¹, Nnabugwu II¹, Echetabu KSN¹

¹Department of Surgery, University of Nigeria Teaching Hospital Enugu

²Department of Morbid Anatomy, University of Nigeria Teaching Hospital Enugu

Introduction: Prostate cancer remains the leading cause of cancer related deaths in Nigerian men. Early detection and quick appropriate interventions remain key to possible cure. Transurethral resection of the

prostate (TURP) for the treatment of men with prostate enlargement is gaining grounds in Nigeria due to increase in the number of Urologists with skills in the conduct of the procedure. The aim of this study was to evaluate the effectiveness of diagnosing prostate cancer through the histology of prostate chips from TURP. **Methods:** TURP chips of 23 men with needle biopsy diagnosed prostate cancer who had TURP due to worsening lower urinary tract symptoms (LUTS) despite earlier initiation of complete androgen ablation were sent for histology and the report analyzed. **Result:** Twenty three (23) men were included in the study. Mean age was 63.5 yrs. Mean PSA value was 23.68ng/ml. All of them had bilateral total orchidectomy plus 50mg daily bicalutamide. Mean duration from time of commencement of complete androgen ablation to time of TURP was 6 months. 14 samples (60.86%) showed adenocarcinoma with mean Gleason score of 7.6. Eight (8) samples (34.78%) showed nodular hyperplasia. 1 sample (4.35%) showed high grade PIN. **Conclusion:** Histology of TURP chips does not show high sensitivity in diagnosing prostate cancer. Thus men with high risk of having prostate cancer, for example, those with high serum PSA but with repeated negative needle biopsies who had TURP should be counseled to understand that negative histology of TURP chips is not a guarantee of freedom from possible prostate cancer.

UROLOGISTS AND PATHOLOGISTS INPUTS TO THE DEVELOPMENTS OF STANDARD OPERATING PROTOCOL

Adeniji KA^{1,2}, Popoola AA^{1,3}

¹Transatlantic Prostate Cancer Consortium (CaPTC)

²Department of Pathology, ³Division of Urology, Department of Surgery, University of Ilorin Teaching Hospital / University of Ilorin.

Introduction: There are often disaffection between the urologists and pathologists on the reportage of prostate cancer histology with attendant impact on patient management. A joint meeting of Urologists and pathologists sponsored by the **Transatlantic Prostate Cancer Consortium (CaPTC)** were organized to harmonize the positions of the two groups. These workshops were well attended by

pathologists and Urologists across Nigeria. **Aim:** To improve prostate tissue procurement, handling and reportage of potential prostate cancer specimen. **Methodology:** This was the presentation of outcomes of two joint meetings of Pathologists and Urologists at two urology - pathology meetings which took place in Lagos University Teaching Hospital (LASUTH) and University of Ilorin Teaching Hospital (UIITH) in November 2017 and 2018 respectively. **Result:** The standard operating protocol (SOP) has been developed to improve prostate tissue procurement, documentation and reportage. **Conclusion:** Adaption and deployment of the SOP across the country will help to improve relationship between Pathologists and Urologists leading to improvement in documentation and management of patients with prostate cancer.

HISTOMORPHOLOGICAL SPECTRUM OF PROSTATIC LESIONS IN YOBE STATE: A PRELIMINARY REPORT

Tela UM¹, Adamu AI², Lawan AI³, Abubakar BM⁴, Abubakar A⁵

¹Department of Surgery, University of Maiduguri Teaching Hospital. Borno state, ²Department of Histopathology, Federal Medical Centre, Nguru, Yobe State, ³Department of Histopathology, Federal Teaching Hospital. Gombe State, ⁴Department of Surgery, Federal Medical Center, Nguru, Yobe State, ⁵Department of Surgery, Aminu Kano Teaching Hospital/Bayero University Kano,

Introduction: Lesions of the prostate including prostate cancer are globally recognized as common causes of morbidity and mortality in the male population. The incidences are increasing, hence; their implication on the men's quality of life cannot be over emphasized. **Objectives:** To evaluate the histologic reports of prostatic specimens in some tertiary health institution in Yobe State, **Methods:** The reports of prostatic specimens that were examined between October 2016 and October 2019 in the two departments of Histopathology of Yobe state University Teaching Hospital (YSUTH) and Federal Medical Centre Nguru were retrospectively evaluated, analyzed using SPSS version 21. **Result:** A total of 287 specimens were examined, and predominated by the 161 (56.1%) specimens in

YSUTH. Nodular hyperplasia with or without associated prostatitis was the common benign lesion in 237 (82.6%) of the specimens. Adenocarcinoma was the only malignant type in 49 (17.1%), commonly in the age group of 70-79yrs. More than half (53.1%) of the malignancies were poorly differentiated. Prostatic Intra-epithelial Neoplasia (PIN) was seen in 0.35% only. **Conclusion:** Although more benign lesions were observed than malignant, but most of the malignancies were diagnosed late. Hence, there is need to strengthen awareness campaign to allow for early detection of these lesions.

COMPARISON OF THE PRE- AND POST-VARICOCELECTOMY SERUM REPRODUCTIVE HORMONE PROFILES AND SEMEN CHARACTERISTICS IN INFERTILE MEN WITH CLINICAL VARICOCELES.

Ogunremi OO¹, Ikuerowo SO², Jeje EA³, OA Omisanjo², Abolarinwa AA², Ojewuyi OO⁴, Omorinde OO¹

¹Urology Unit, Department of Surgery, Federal Medical Centre, Owo, ²Urology Division, Department of Surgery, Lagos State University Teaching Hospital, Ikeja, ³Urology Unit, Department of Surgery, Lagos University Teaching Hospital, Idi-araba, ⁵Urology Unit, Department of Surgery, Ladoké Akintola University of Technology Teaching Hospital, Osogbo.

Background: To evaluate the early outcome of varicocelectomy on the levels of serum reproductive hormonal and semen parameters in infertile men with clinical varicocele. **Patients and methods:** Forty-five (45) men with infertility and clinical varicocele had serum levels of Follicle stimulating hormone (FSH), Luteinizing hormone (LH), Prolactin and total Testosterone and seminal fluid parameters measured preoperatively at recruitment time and 3 and 6 months post-varicocelectomy. **Results:** The patients' mean age was 34.6 ± 3.1 years (range 29-40 years). Most of the patients, 37 (82.2%) had primary infertility. 33 (73.3%) men had bilateral varicocele. Although the reproductive hormone parameters were

all within normal limits, the testosterone levels increased from mean of 4.85 ± 1.6 ng/mL to 5.66 ± 1.8 ng/mL ($P < 0.001$). A significant increase in the testosterone level was found in males with low normal testosterone level (< 4 ng/ml), from 3.34 ± 0.5 ng/mL to 4.55 ± 1.4 ng/mL ($P < 0.001$). There was a significant decrease in serum FSH post-varicocelectomy ($p < 0.001$). The sperm concentration, total sperm count and progressive motility all showed significant increases at 6 months ($p < 0.001$ respectively). The pre-operative varicocele laterality or grade did not affect changes in serum reproductive hormone parameters and changes in semen characteristics. **Conclusion:** Open varicocelectomy significantly increases the serum testosterone. There is a favorable response on testosterone production in those with low normal testosterone with a mean total testicular volume of 26.6ml. It also improves the semen characteristics and these improvements are not influenced by the preoperative varicocele grade or laterality.

VASECTOMY: A SURVEY OF KNOWLEDGE, PERCEPTION AND ACCEPTANCE AMONG RESIDENT DOCTORS IN NIGERIA

Ojewuyi OO¹, Ogunremi OO², Akinola OO³, Adebayo O², Omisanjo OO⁴

¹Urology Division, Department of Surgery, LAUTECH Teaching Hospital, Osogbo, ²Urology division, Department of Surgery, Federal Medical Centre, Owo, ³Urology division, Department of Surgery, Federal Medical Centre, Bida, ⁴Urology division, Department of Surgery, Lagos State University Teaching Hospital (LASUTH) and College of Medicine.

Introduction: Vasectomy is one of the few fertility control methods which enable men to take personal responsibility for contraception. It is regarded as a form of permanent sterilization. Discuss around the subject of family planning has hitherto focused more on female contraception, could this be due to poor knowledge and perception or bias amongst the health practitioners who are in a position to advise clients? **Methods:** A cross-sectional study. **Results:** There were 218 respondents; 169 males (77.5%) and 49 females (22.5%). Majority, 204 (93.6%) knows vasectomy is a form of permanent contraception. Ninety three (42.7%) said it is 100% effective, 85

(39.0%) said no, while 40 (18.3%) are not sure. Concerning absolute guarantee of achieving pregnancy post reversal; Yes-14(6.4%), No-74(33.9%), 130(59.6%) - Not sure. Perception-wise, 34 (15.6%) and 18 (8.3%) respondents believe it decreases sexual drive and erection respectively, 32 (14.7%) says it can reduce testicular size. Majority, 139 (63.8%) agree it is safer, easier, cost effective and convenient than BTL. However, only 87 (39.9%) would recommend it to patients, 42 (19.3%) would consider it done for themselves or recommend for a spouse. There was significant association between knowledge and acceptance rate ($p < 0.001$). **Conclusion:** There is some level of knowledge on vasectomy among doctors, however there are still misconceptions. Also, the acceptance and willingness to recommend to clients is poor. There is need for strategies to correct the misconceptions so as to increase the utilization of vasectomy.

TESTICULAR CANCER: A 10 YEAR EXPERIENCE AT UNIVERSITY OF PORT HARCOURT TEACHING HOSPITAL

Professor Eke N, Ekeke ON, Raphael JE, Abhulimen V, Okpani CP, Danagogo O, Chisor-Wabali E

Introduction: Testicular cancer is a rare malignancy. They make up one of the most common solid malignancy in men aged 15 to 40 years. Reports of increasing incidence of testicular cancer in Western world have been noted. Despite the increasing incidence, mortality has remained low in the developed world. There are few publications on testicular cancer in South-South, Nigeria. **Objectives:** To highlight our experience in the management of testicular cancer. **Materials and Methods:** This is a 10 year retrospective study on patients diagnosed with histologically confirmed testicular cancer from January 2009 to December 2018. The case records were retrieved, and patient data, obtained was analyzed using SPSS version. **Results:** Eleven patients with testicular cancer were managed during the study period. The prevalence of testicular cancer observed in the present study was 0.01%. Peak age was 20-29 years (54.55%), with a mean age of 29.27 yrs. The most common presentation was scrotal swelling observed in nine (81.8%)

patients ($X^2 = 4.69$; $p = 0.03$).). Nine (81.8%) patients presented after 6 months of symptoms with advanced disease. Distant metastasis was seen in two (18.2%) patients. Right sided disease was found in seven (63.6%) and left sided disease in four (36.4%). All had radical inguinal orchidectomy. The most common histological diagnosis was seminoma. All the subjects were offered chemotherapy with bleomycin, etoposide and cisplatin. However, only four (36.4%) completed chemotherapy. None had radiotherapy. **Conclusion:** This study highlights the low prevalence of testicular cancer in Port Harcourt, Nigeria. Late presentation and advanced stage are important factors leading to poor survival. Adequate chemotherapy improves survival. Mortality is unacceptably high in Port Harcourt.

DOES A FOURNIER'S GANGRENE SEVERITY INDEX SCORE OF >9 PREDICT MORTALITY? A REVIEW OF 41 PATIENTS IN JUTH

Shuaibu SI^{1,2}, Jila BJ^{1*}, Ramyil VM^{1,2}, Dakum NK^{1,2}, Akpayak I^{1,2}, Ofoha C^{1,2}, Swem U¹, Osunaiye OI¹, Umana IP¹

Jos University Teaching Hospital (JUTH) & College of Medicine, University of Jos.

Introduction: Fournier's gangrene (FG) is necrotizing fasciitis of the perineum and genital and is potentially fatal. **Aim:** To determine the usefulness of the Fournier's gangrene severity index score (>9) in predicting mortality in patients with Fournier's gangrene. **Methods:** It was a prospective study in which all patients aged eighteen (18) years and above diagnosed with Fournier's gangrene were enrolled into the study between March 2014 and April 2019. Fournier's gangrene severity index scores were assessed. Primary outcome variables were assessed with mortality. **Results:** A total of 41 patients (100% male, mean age 54.32 ± 12.98 years) diagnosed with Fournier's gangrene were recruited into the study. The mortality was 17.1 % (7 patients). The mean Fournier's gangrene severity index score was 5.6 ± 12.98 (Median 5.5, IQR 3-7). Mean score for

survivors was 4.58 ± 2.39 (Median 5, IQR 2-6.75). Mean score for non-survivors was 11.8 ± 2.72 (Median 12.1, IQR 9-14). Fournier's gangrene severity index score (>9) is a predictor of mortality (p -value-0.001). **Conclusion:** A Fournier's gangrene severity index threshold value of >9 was useful for predicting mortality in this study.

CORRELATION BETWEEN ANTERIOR BLADDER WALL THICKNESS AND POST-VOID URINE RESIDUE AS INDICATORS OF BLADDER DYSFUNCTION IN NIGERIAN MEN WITH BENIGN PROSTATIC HYPERPLASIA.

Eze BUN, Mbaeri TU, Orakwe JC
Department of Surgery, Enugu State University of Science and Technology Teaching Hospital, Parklane-Enugu, Enugu State.

Introduction: BPH is associated with voiding dysfunctions; urodynamic study is the gold standard for diagnosis of voiding dysfunction but is invasive. Bladder wall thickness (BWT) and post-void urine residue (PVR) are non-invasive predictors of voiding dysfunction. **Objective:** To study the correlation between BWT and PVR in BPH. **Methods:** A hospital based cross-sectional prospective study of new BPH patients who presented to the urology clinics of Nnamdi Azikiwe University Teaching Hospital, Nnewi. After initial clinical and laboratory evaluation, participants had abdominal ultrasonography measurement of anterior BWT (at bladder volume ≥ 200 mls), prostate volume (PV) and PVR using Prosound SSD3500 (Aloka Co Ltd, Tokyo, Japan) with abdominal probe frequency of 3.5 MHz. Bladder emptying efficiency (BEE) was calculated. Anterior BWT was divided into two groups: < 5 mm and ≥ 5 mm. Data was analyzed using SPSS version 20. Pearson's correlation was used to assess correlation and the differences between the means of the two groups of BWT were compared by Mann-Whitney test. P - Value < 0.05 was considered significant. **Results:** Seventy seven men with a mean age of 66.66 ± 10.74 years were included in the study. Sixty one percent had symptoms lasting > 12 months. The average anterior BWT, PVB, PVR, BEE, PV and PSA were 4.55 ± 1.02 mm, 260.98 ± 57.44 mls,

58.36 ± 52.94 mls, $77.98 \pm 17.37\%$, 66.31 ± 46.38 mls and 8.04 ± 5.97 ng/ml respectively. There was a significant positive correlation between BWT and duration of symptoms ($p = 0.044$) and a significant negative correlation between BWT and BEE ($p = 0.005$). A positive but not significant correlation was found between BWT and PVR ($p = 0.255$). Fifty four (70.1%) had BWT < 5 mm and 29.9% had BWT ≥ 5 mm. The mean IPSS ($p = 0.000$), PV ($P = 0.032$) and PVR ($p = 0.020$) were significantly higher in the ≥ 5 mm group. The ≥ 5 mm group also had significantly lower BEE ($p = 0.002$). **Conclusion:** Voiding dysfunction was more severe in patients with BWT of 5mm or more. There was a positive correlation between anterior BWT and PVR and a significant negative correlation between BWT and BBE.

EFFICACY OF URINE CYTOLOGY IN THE DIAGNOSIS OF BLADDER CANCER IN AMINU KANO TEACHING HOSPITAL: COMPARISM OF CYTOLOGY AND HISTOLOGICAL FINDINGS.

Auwal Sani, Alhassan SU, Sani A. Aji, Abdulkadir Abubakar, Sharfuddeen A. Mashi, Muzzammil Abdullahi, Bashir Yunusa
Department of Surgery, Aminu Kano Teaching Hospital, Kano, Nigeria.

Introduction: Bladder cancer is a common urologic malignancy worldwide and second most common genitourinary malignancy after prostate cancer. Diagnosis of bladder cancer in developing countries is challenging. Despite the varying results in detection rate of bladder cancer by using the urine cytology, the method can be used in developing countries such as Nigeria, where there are limited diagnostic facilities. **Objective:** The general objective of the study was to determine the efficacy of urine cytology in the diagnosis of bladder cancer, in Aminu Kano Teaching Hospital. **Methods:** It was a prospective descriptive study of 52 patients who consecutively presented with suspected bladder cancer and were recruited via the Urology outpatient unit and casualty unit over a period of one year. Fresh voided or catheter urine sample were taken for cytological analysis. Cystoscopy was done and the findings were noted, multiple biopsies were taken and

sent for histological analysis. **Results:** In the 52 patients reviewed, the mean age was 55.6± 16.3. Male to female ratio of M: F 4.2:1. The overall Sensitivity, Specificity and Accuracy of Urine cytology were 60.4%, 100% and 63.5% respectively. The False negative rate was 39%. Urine cytology was found to be effective in detecting bladder cancer, $p < 0.05$). **Conclusion:** Based on the findings from this study, Urine cytology is an effective method for evaluation of patients presenting with features suggestive of bladder cancer. Routine use of urine cytology as the initial test for evaluating patient with suspected bladder cancer is recommended.

EARLY AND LONG-TERM OUTCOMES OF THE USE OF MITROFANOFF PRINCIPLE IN MANAGEMENT OF URINARY INCONTINENCE IN A SINGLE CENTER

Nasir O, Ahmed M, Ahmad B, Maitama HY, Lawal AT, Sudi A, Awaisu M, Tolani MA, Muhammad SM, Abdulsalam K, Hamza BK, Fidelis L. Department of Surgery, Ahmadu Bello University Zaria, Kaduna State.

Introduction: The management of urinary incontinence can be a challenge to the urologist. Since its description in 1980, the Mitrofanoff principle and its modifications has provided a means of achieving a catheterized continent urinary diversion in well selected patients. The indications for the use of an appendicovesicostomy for urinary diversion varies from congenital to acquired anatomical and functional urinary tract dysfunctions. When utilized, it provides a continent low-pressure reservoir with minimal risk of recurrent urinary tract infections or calculus formation and an improved quality of life. Stomal stenosis, false passages, reoccurrence of the incontinence are some of the reason why the appendicovesicostomy may be revised. We hereby present the early and late outcomes of our patients managed with a Mitrofanoff for urinary incontinence. **Methods:** We retrospectively reviewed the medical records of all patients managed for urinary incontinence by the unit from January 2009-December 2019. Only patients managed with a Mitrofanoff were included in this study.

Data on the age at presentation, previous attempt at surgery, etiology, bladder capacity at diagnosis, ancillary procedures such as bladder augmentation, Site of stoma, complications and duration of follow up were collected. Data was analyzed using SPSS version 20. **Results:** A total of 5 Mitrofanoff was done during the study period. Male: female ratio of 4:1. The age range at presentation was 9-29 years with a median of 19 years old. Neurogenic bladder from Spinal dysraphism and bladder exstrophy as the etiology in two patients respectively and a patient had the procedure due to spinal cord injury. The two patients with exstrophy had additional procedure which were augmentation cystoplasty and cystolithotomy respectively. All had a stoma located at the umbilicus except one of the exstrophy patient who had a stoma in right iliac fossa. Stomal stenosis was the commonest complication seen in 4 of the patients leading to revision of the stoma. Other complications noted was urosepsis and stomal prolapse noted in one fifth of the patient respectively. The quality of life in these patients has been satisfactory with pregnancy and delivery recorded in one of the female patients. Follow up range from 1 - 13 years with a median of 8 years. **Conclusion:** Mitrofanoff is a reasonable modality for the management of neurogenic bladder in well selected patients with good quality of life noted. Stomal stenosis is the commonest complication usually leading to revision of the procedure.

COMPARING OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS AND TRADITIONAL CLINICAL EXAMINATIONS IN THE SUMMATIVE EVALUATION OF FINAL YEAR MEDICAL STUDENTS.

Edeh JA, Eze BUN, Ugochukwu AI. Department of Surgery, Enugu State University of Science and Technology, Enugu, Enugu State Nigeria.

Introduction: Medical schools have traditionally assessed medical students using long and short cases. Objective structured clinical examination (OSCE) has been found to be more reliable. **Aim:** To compare OSCE and traditional method of assessment in the

summative assessment of final year medical students. **Methods:** This was a descriptive cross-sectional retrospective study of summative assessment of final year medical students at Enugu State University of Science and Technology (ESUT) College of Medicine. Ethical clearance was obtained. Department of Internal Medicine organized clinical examinations consisting of long case and short case. Department of Surgery organized an OSCE consisting of two parts. The A part (Picture OSCE, replacing traditional short case) and the B part (Clinical OSCE, replacing traditional long case). Students' scores in the traditional examination, OSCE and final total score in both Internal Medicine and Surgery were collated and subjected to analysis with SPSS version 23 (IBM; SPSS, Chicago, IL, USA). Pearson correlation was used to assess correlations, paired T test was used to compare mean scores and Cronbach's Alpha used to assess reliability. $P < 0.05$ was considered significant. **Results:** Out of the 73 candidates sat for both Internal Medicine and Surgery, 41 were female and 32 were males giving a female: male ratio of 1.3:1. There was a positive correlation between students' score in clinical OSCE and long case, $r = 0.525$ ($p = 0.000$); students' score in short case and picture OSCE, $r = 0.450$ ($p = 0.003$); and between scores in Internal Medicine clinical (Long case + Short case) and scores in Surgery clinical (picture OSCE + Clinical OSCE), $r = 0.593$ ($p = 0.000$). Using paired sample T test, there was a significant differences between the mean scores in long case (mean = 52.86, SD = 4.315) and scores in clinical OSCE (mean = 58.356, SD = 7.906), $t(72) = -7.181$, $p = 0.000$; mean scores in short case (mean = 52.86, SD = 4.097) and picture OSCE (mean = 48.580, SD = 8.992), $t(72) = 4.558$, $p = 0.000$; no significant difference between the mean total scores in Internal Medicine clinical (mean = 105.712, SD = 6.680) and Surgery clinical (mean = 106.915, SD = 15.846), $t(72) = -0.788$, $p = 0.433$. The Cronbach's Alpha for traditional examination and OSCE were 0.437 and 0.863 respectively. **Conclusion:** OSCE gives a similar mean score to traditional method when used as a summative assessment tool but OSCE is more reliable.

UROLOGICAL SURGERY IN A REFERRAL HOSPITAL: HOW LONG DO WE WAIT?

Okeke John Chike^{1,2}, Odoemene Charles Azuwike¹, Obi Anselm Okwudili¹, Okorie Chukwudi Ogbonnaya¹

¹Department of Surgery, Alex-Ekwueme Federal University Teaching Hospital, Abakaliki, Ebonyi State, Nigeria ²Department of Surgery, Lagos University Teaching Hospital, Idi-Araba, Lagos, Nigeria.

Introduction: Peri-operative delay is a sign of theatre inefficiency. When surgeries are delayed, it leads to subsequent delay in starting other cases with attendant risk of cancellation of cases caudal on the list. Effective and efficient function of the operating theatre depends on co-operation of the surgeons, anaesthetists, and other support staff. **Methods:** We prospectively studied all elective urological cases that were done over a fifteen-month period from January 2016 through March 2017 in Alex-Ekwueme Federal University Teaching Hospital, Abakaliki, Ebonyi State, Nigeria. **Results:** During the study period, 130 elective urological surgeries were done. Forty six percent (46%) of the cases were first cases. 98.35% of the cases were delayed. First cases on the list were more delayed than other cases on the list; 160 minutes versus 97 minutes ($P = 0.000$). Waiting time at the in room was more for the first cases than others on the list 127 minutes versus 111 minutes ($P = 0.2168$). Mean delay for transporting patient from the ward to the theatre was 69 minutes. **Conclusion:** A huge amount of time is spent to get patients to the operating table. Appropriate measures should be taken to reduce this time wastage.

CANCELLATION OF ELECTIVE SURGICAL CASES IN A NIGERIAN TEACHING HOSPITAL: FREQUENCY, REASONS AND POSSIBLE SOLUTIONS.

Okeke John Chike^{1,2}, Obi Anselm Okwudili¹, Tijanni Habeeb Kehinde², Eni Uche Emmanuel¹, Okorie Chukwudi Ogbonnaya¹

¹Department of Surgery, Alex Ekwueme Federal University Teaching Hospital Abakaliki Ebonyi State. ²Department of Surgery Lagos University Teaching Hospital, Idi-Araba Lagos.

Introduction: Dwindling economic resources and

reduced manpower in the health sector requires efficient utilization of the available resources. Day of surgery cancellation has far reaching consequences on the patients and the theatre staff involved. Full utilization of the theatre space should be pursued. **Methods:** We prospectively studied all elective cases that were booked from January 2016 through March 2017 in Alex Ekwueme Federal University Teaching Hospital Abakaliki. Cancellation is said to have occurred when the planned surgery did not take place on the proposed day of surgery. **Results:** During the 15-month period, a total of 1296 elective surgeries were booked. Out of this, 118 (9.1%) cases were cancelled. Patient-related factor was the most common reason (47.4%) followed in descending order by surgeon-related factor (31.4%), hospital-related factor (16.1%), and anaesthesia-related factor (5.1%). Lack of funds was the most common patient related reason for cancellation. Majority of the cancelled cases were general surgical cases (33.9%) followed by orthopaedics (27.1%), urology (10.2%), Paediatric surgery (10.2%), ENT (5.9%), Plastic surgery (5.1%), maxillofacial (4.2%) Cardiothoracic (3.4 %). **Conclusion:** The cancellation rate in this study is high. The reasons for these cancellations are preventable. To ensure effective utilization of the theatre, efforts should be made to tackle these reasons.

CLINICAL PRESENTATION, TREATMENT AND OUTCOME OF PATIENTS WITH MALIGNANT URETERIC OBSTRUCTION IN JUTH

Shuaibu SI^{1,2}, Osunaiye OI¹, Ramyil VM^{1,2}, Dakum NK^{1,2}, Akpayak IC^{1,2}, Ofoha CG^{1,2}, Jila BJ¹, Umana IP¹

¹Urology Division, Department of Surgery, Jos University Teaching Hospital ²Department of Surgery, College of Medical Sciences, University of Jos

Introduction: Malignant ureteric obstruction is usually associated with end stage cancer arising from the cervix, bladder, prostate and other pelvic organs. This study aims to assess the clinical presentation,

treatment and outcome of patients with malignant ureteric obstruction in Jos University Teaching Hospital (JUTH). **Methods:** This is a retrospective cross-sectional study carried out in JUTH over a 10 year period (2010-2019). All patients managed or co-managed by the urology division of JUTH for ureteric obstruction of malignant cause were recruited for the study. Interventions carried out included open nephrostomy, ureteric stenting and dialysis. 40 patients were managed within this period but only 24 patients had complete record. **Result:** Cervical cancer is the most prevalent cause of malignant ureteric obstruction. About 60% of the patients had open nephrostomy which also offered the most significant improvement in biochemical outcome. None of the treatment options conferred survival advantage over the others. **Conclusion:** Open nephrostomy is the most common treatment option and achieves the most significant biochemical improvement. No treatment option confers superior survival outcome.

URETHRAL STEINSTRASSE MIMICKING PANURETHRAL STRICTURE: A CASE SERIES.

Muhammad AS, Agwu NP, Abdulwahab-Ahmed A, Isyaku A, Obadele S, Dahiru A, Khalid A Onwuasonya U, Ahmed UM, Mungadi IA
Urology Unit, Department of Surgery, Usmanu Danfodiyo University Teaching Hospital Sokoto, Nigeria.

Introduction: Urethral stricture is a common cause of bladder outlet obstruction and secondary urethral stones. Rarely these stones may pile up in the urethra and exaggerate the existing stricture. Careful examination of the urethrogram and urethroscopy will accurately identify these stones. **Case series:** We present 2 cases of urethral strictures which were preoperatively diagnosed as pan-urethral stricture due to impaction of long column of urethral stones. The first one was identified intra-operatively while the second one was detected preoperatively on meticulous examination of the urethrogram. The first patient had extraction of the stones via ventral urethrotomy and dorsal inlay buccal mucosa

urethroplasty was done as described by Asopa. The second patient had ventral urethrotomy and extraction of stones, excision of a urethral diverticulum and dorsal inlay buccal mucosa urethroplasty. They had uneventful recovery and voiding normally at present. **Conclusion:** Urethral Steinstrasse may exaggerate length of urethral stricture, thus mimicking pan-urethral stricture. High index of suspicion, meticulous examination of the urethrogram and urethroscopy will help accurate diagnosis. This will guide choice of appropriate form of urethroplasty preoperatively. Routine urethroscopy in doubtful cases is helpful and advocated.

STAUFFER'S SYNDROME AS INITIAL MANIFESTATION OF RENAL CELL CARCINOMA: A CASE REPORT.

Mohammed TO, Adepoju O, Kuranga SA, Popoola AA, Ajape AA, Bello JO, Egbuninwe A, Olanipekun HB, Odeyemi P, Ogunfowora TT.

Division of Urology, Department of Surgery, University of Ilorin Teaching Hospital, Ilorin.

Introduction: Renal cell carcinoma is frequently associated with a retinue of Paraneoplastic syndromes, including Stauffer's syndrome, which is defined as non-metastatic hepatic dysfunction. We present a case of 42yr old, female, who presented with Stauffer's syndrome as initial manifestation of renal cell Carcinoma. **Case report:** 42-year old, female, being evaluated and managed by the Gastroenterologist as a case of suspected Primary Liver Carcinoma. She presented with 5month history of Rt. Upper abdominal pain and 1-month history of transient Jaundice which resolved spontaneously. No fever nor features of cholestasis. Examination showed a chronically ill-looking woman, lethargic with poor performance status, and an enlarged, tender liver. Viral Markers were normal while Liver function test showed elevated ALP with normal transaminases. Imaging showed normal liver with a Right renal mass. No evidence of metastasis. **Conclusion:** Stauffer's syndrome may be the initial manifestation of renal cell carcinoma. A high index of suspicion, and a low threshold for imaging study to exclude renal cell carcinoma should be maintained in patient with

unexplained systemic symptoms and hepatic dysfunction.

PATTERN AND MANAGEMENT OF TESTICULAR TUMOURS IN A TERTIARY HOSPITAL OF NORTHWESTERN NIGERIA

Muhammad AS¹, Sahabi S², Agwu NP¹, Abdulwahab-Ahmed A¹, Adamu D¹, Abubakar I¹, Obadele S¹, Kamba H^U, Onwuasoanya U¹, Khalid A¹, Mungadi Ia¹.

Urology Unit, Departments of Surger¹ and Histopathology², Usmanu Danfodiyo University Teaching Hospital Sokoto, Nigeria.

Introduction: Testicular tumour is the most curable urologic malignancy even when is metastatic. Some patients may have prior scrotal intervention in the peripheral Hospital which upstage the tumour and compromise the hope for cure. **Objective:** to document pattern and management of testicular tumour at our institution. **Methods:** This is a retrospective study of patients managed for testicular tumours at UsmanuDanfodiyo University Teaching Hospital Sokoto from 2006 to 2019. Data were collected from the case notes, theatre and histopathological register which was analyzed using SPSS 25.0. The results were reported in mean±S.D and percentages. **Results:** There were 20 patients managed for testicular cancer within the study period with mean age of 31.85 ± 24.35 S.D, with a range of 3- 77 years. All the patients presented with painless scrotal swelling, which was punctured in 4 patients by herbalist. There was groin and testicular ulcerations in 3 patients (15%). Radical orchidectomy was done in 19 patients (95%). The commonest histologic type was Seminoma, which was found in 7 patients (35%). Other histological types were Rhabdo myosarcoma (20%), Metastatic (15%), Yolk sack (15%), Embryonal (5%), Burkitt's tumour (5%) and Teratoma (5%). There was symptomatic improvement in the symptoms and shrinking of retroperitoneal mass after the radical inguinal orchidectomy and chemotherapy. There was mortality in 2 patients (10%) with Rhabdom myosarcoma and 1 patient (5%) with seminoma.

Conclusion: Testicular cancer is the most curable urological malignancy. There is increase morbidity and mortality in late presentations, sarcomas, groin and scrotal ulceration or interventions by herbalists.

CHALLENGES OF MANAGEMENT OF SYMPTOMATIC CONGENITAL PELVI-URETERIC JUNCTION OBSTRUCTION IN CHILDREN: CASE SERIES

Muhammad AS, Agwu NP, Abdulwahab-Ahmed A, Uzodimma O, Emmanuel O, Obadele S, Mungadi IA. Urology Unit, Department of Surgery, UsmanuDanfodiyo University Teaching Hospital Sokoto, Nigeria.

Introduction: Congenital pelvi-ureteric junction obstruction usually presents later in adulthood. It may present early with severe symptoms such as pyonephrosis or renal impairment which may require intervention. There may be challenges in getting clear diagnosis from imaging, urinary diversion, definitive treatment and post-operative management. **Objective:** To present six cases of symptomatic congenital pelvi-ureteric junction obstruction in children. **Case series:** We present six cases of symptomatic pelvi-ureteric junction obstruction (PUJO) which was bilateral in two of the cases. Abdominopelvic ultrasound scan revealed hydronephrosis ± pyonephrosis. Abdominal ultrasound revealed complex cystic renal mass in a patient with ectopic kidney which was confirmed to be PUJO on CT uropathy. Nephrostomy and subsequent antegrade pyelogram were done in two patients after drainage of pyonephrosis. There was difficulty in performing percutaneous nephrostomy in one patient with pyonephrosis and partial PUJO. Intravenous urogram showed non-functioning kidney in patients with severe hydronephrosis. The patients had Anderson-Hynes pyeloplasty ± Boari flap uretero-neocystostomy, pyelo-vesicostomy in 3 patients with ectopic kidneys and short/atretic ureter. Uretero-neocystostomy using Boari flap was done after re-exploration for an atretic ureter with non-functioning kidney following Anderson-Hynes pyeloplasty despite patent ureter as confirmed by ureteroscopy. A patient developed persistent

retroperitoneal urinary drainage which spontaneously stopped. The ureteric stents were removed at the appropriate time and the patients were asymptomatic presently. **Conclusion:** The challenges of Pelvi-ureteric junction management may be diagnostic and/or therapeutic. The imaging studies may not be definite or unremarkable. Urinary diversion and definitive surgery could be challenging due to anatomic factors.

ACUTE APPENDICITIS POST URETERONEOCYSTOSTOMY FOR URETERO-VAGINAL FISTULA: A RARE DIAGNOSTIC DILEMMA

Muhammad AS,¹ Adoke A², Agwu NP¹, Abdulwahab-Ahmed A¹, Obadele S¹, Mungadi Ia¹. Urology¹ and Urogynaecology² Units of Departments of Surgery and Obstetrics and Gynaecology, UsmanuDanfodiyo University Sokoto, Nigeria.

Introduction: Ureterovaginal fistula is a common complication of hysterectomy which is treated by uretero-neocystostomy after appropriate investigation. This is rarely complicated by acute appendicitis post-operatively. **Case report:** We report 39-year-old woman who developed intermittent colicky right flank pain third day post-ureteroneocystostomy for ureterovaginal fistula. There was tenderness in the lower abdominal quadrants and guarding. She had abdominal re-exploration, appendectomy and drainage of pelvic abscess. The post-operative period was uneventful and she was discharge home 10 days post operatively. **Conclusion:** Acute appendicitis may mimic post-operative urological complication. High index of suspicion and judicious use of clinical features are required to make prompt decision for re-exploration and appendectomy. Routine exploration of appendix in pelvic surgeries may mitigate against missing these cases. This may prevent the diagnostic dilemma, morbidity and mortality.

RENAL MALIGNANCY IN ADOLESCENTS AND YOUNG ADULTS IN ILORIN

Egbuniwe A.M, Kuranga S.A, Popoola A.A, Ajape A.A, Bello J.O
Division of Urological Surgery, Department of Surgery, University of Ilorin Teaching Hospital, Ilorin, Kwara State.

Introduction: Renal malignancy has been known to be mostly a disease of the middle-aged and elderly. In the last two decades, a rising incidence of these life-threatening diseases in the younger and more active population has been noted. There have been conflicting reports regarding whether these group of patients present with more advanced or poorly differentiated forms of renal cell carcinoma (RCC) as compared to what is found with the older population. We report our experience with young patients managed for renal cell carcinoma at the University of Ilorin Teaching Hospital, their clinical presentation, challenges in management and outcome. **Methods:** We reviewed the records of all patients managed in the Urological Surgery unit for renal tumours between January, 2008 and August 2019; out of which relevant demographic and clinical data were obtained with the focus on patients between the ages of 14-40 years. Data obtained was analyzed. **Results:** A total of 12 patients were managed which constituted 30% of the renal tumour patients seen. Male to female ratio was 1:2.1. Right-sided lesions were predominant; a single case of bilateral RCC was managed. Stage IV disease was the commonest presentation such that treatment was mainly Open Radical Nephrectomy or Cyto-reductive surgery. Histologic types noted were papillary RCC, clear cell RCC and a single case of Squamous Cell carcinoma. **Conclusion:** Malignant renal tumours are more frequently diagnosed in the young population, with locally advanced or metastatic disease at time of presentation. Papillary RCC was most common in our review and prognosis was generally poor. There is need for a high index of suspicion for the diagnosis of renal tumours when reviewing this age group of patients.

CHALLENGES OF MANAGEMENT OF POSTERIOR URETHRAL VALVES: CASE SERIES

Muhammad AS, Abdulwahab-Ahmed A, Agwu NP,

Kamba HU, Adamu D, Isyaku A, Obadele O, Mungadi IA.
Urology Unit, Department of Surgery, Usmanu Danfodiyo University Teaching Hospital Sokoto, Nigeria.

Introduction: Posterior urethral valve (PUV) is the commonest cause of bladder outlet obstruction in children. Neonate may present with obstructive nephropathy. Some children may present with subtle symptoms or bladder stones. The presentation, voiding cystogram and endoscopic findings may be atypical. There may be challenges in performing micturating cystogram in infants. Atypical findings, choice urinary diversion, appropriate pediatric endoscope and approach for stone removal may pose management challenge. **Objective:** to present case series of posterior urethral valves with management challenges. **Case series:** We present case series of 15 posterior urethral valves with various management challenges ranging from diagnostic to therapeutic. Infants with obstructive nephropathy had initial vesicostomy before confirmation using voiding cystogram and endoscopy. Endoscopic valve ablation or incision were done when the children became older. Older symptomatic children or those with initial presentation with bladder stone had voiding cystogram for detection of PUV which if the findings were not typical, the appropriate diagnosis was made endoscopically. Patients with large burden of stone had cystolithotomy after the valve ablation or incision. **Conclusion:** The challenges of the management of PUV can be diagnostic or therapeutic. Children with obstructive nephropathy had vesicostomy and then cystogram before endoscopic management. The accurate diagnosis may be done only after the endoscopy. Patients with large burden of stone can be tackled easily using open cystolithotomy.

A 5-YEAR REVIEW OF SURGICAL MANAGEMENT OF PELVI-URETERIC JUNCTION OBSTRUCTION AT FEDERAL MEDICAL CENTRE BIDA, NIGER STATE.

Adekanye A.O, Akinola O.O, Uzoigwe L.A, Muhammad M. S

Urology unit, Federal Medical Centre, Bida, Niger State.

Urology Division, University of Port Harcourt Teaching Hospital, Nigeria

Introduction: Pelvi-ureteric Junction obstruction (PUJO) is a common cause of upper urinary tract obstruction which may result in renal impairment or loss if not diagnosed early and treated promptly. Open surgery remains a mainstay modality of treatment in our centre. We reviewed the patterns of presentation, options of surgical management and outcome in patients with PUJO. **Methods:** A retrospective study of patients who had surgical intervention for PUJO from May 2014- June 2019. Demographic characteristics, clinical presentation, investigations, treatment modalities and outcome were collated from clinical notes. Data analyzed on SPSS version 20. **Results:** A total of 26 patients had surgical intervention for PUJO with mean age of 30.9± 10 years (3-70years), modal age group 31-40, male to female ratio 1.4: 1. Commonest clinical presentation was flank pain in 24 patients (92.3%). The PUJO was on the right side in 17 patients (68%), left in 7 patients (28%) and bilateral in 2 patients (7.7%). Abdominal Ultrasound was done for all patients. Open pyeloplasty 17 (64%) (Dismembered in 14 patients (56%), Y-V Plasty in 2 patients (8%), Spiral flap in 1 patient (3.84%), Percutaneous Nephrostomy tube drainage in 1 patient (3.84) and Simple Nephrectomy in 9 patients (36%). Stenosed pelvi-ureteric junction, impacted calculus, crossing aberrant vessel, pyonephrosis and thinned-out renal cortex were some of the intra-operative findings. Pyonephrosis and eventual nephrectomy was a morbidity recorded in one patient who had pyeloplasty without stenting. There was no mortality. **Conclusion:** The goal of surgical management of PUJO is preservation / improvement of renal function hence the need for early diagnosis. Internal stenting in pyeloplasty played a key role in ensuring good surgical outcome.

SURGICAL MANAGEMENT OF POSTERIOR URETHRAL DISTRACTION INJURIES IN UNIVERSITY OF PORT HARCOURT TEACHING HOSPITAL

Raphael JE, Abhulimen V, Okpani CP, Danagogo O, Chisor-Wabali E

Introduction: Posterior urethral distraction injuries repair remains a daunting surgery for the urologist. Surgical repair options include early endoscopic realignment and initial cystostomy with delayed anastomotic urethroplasty. Complications of urine incontinence, erectile dysfunction and stricture are also concerns. **Objectives:** To review our experience in urethroplasty for posterior urethral distraction injuries, the outcomes and complications. **Methods:** This was a retrospective study of Five (5) patients with posterior urethral distraction injuries managed from January 2017 to January 2019. They were all evaluated with retrograde urethrogram and voiding cystourethrogram. Pre-operative erectile function was assessed. The median time from injury to surgery was 14 months. In all cases, the area of fibrosis was aggressively excised and the urethra and corpus spongiosum were mobilized with tension free end to end spatulated anastomosis. Crural separation was done in 80% of cases and an additional inferior pubectomy was done in 60% of cases. Patients were followed up with assessment of erectile function and urine stream. **Results:** The age range of the patients was 23-40 years with a median age of 31.5 years. The mechanism of injury was vehicular accident (60%) and gunshot (40%). All patients had pelvic fracture. The median distraction defect length was 5 centimeters. None were incontinent. Two patients had erectile dysfunction post operatively which is gradually improving. One patient had a stricture for which he had an optical urethrotomy. **Conclusion:** Delayed anastomotic urethroplasty for posterior urethral distraction injuries has an acceptable morbidity rate and is useful treatment option for this group of patients.

EYE LINER IN THE URINARY BLADDER: A CASE OF AUTOEROTISM

F. Ejembi, T. Atim, S. Eniola, F. Magnus, S. Suleiman, M. Anyabolu, H. Ajibola, S Abu, A. Buba, OS. Aisuodionoe
Department of Surgery, University of Abuja Teaching Hospital, Gwagwalada, Abuja.

Introduction: Foreign bodies in the lower urinary tract are uncommon, but several cases have been reported, Self-insertion for sexual gratification is a major contributor to its incidence. We hereby report a case of self-inserted unusual foreign body in the lower urinary tract. **Case Report:** A 48 years old woman present to our hospital for retrieval of foreign body in her bladder. There was associated pain on micturition, intermittent haematuria and reduced urinary stream. Examination reveals an anxious woman, with supra pubic tenderness. Plain X-ray shows abnormal radio-opaque rod-like density about 10cm in length in the pelvic cavity and pelvic ultrasound scan showed an abnormal hyper dense rod-like object in the urinary bladder. Cystoscopy showed eyeliner with a sharp end, long and highly mobile in the irrigation fluid and couldn't be remove transurethral. She then had an open cystostomy for the removal of the foreign body. **Conclusion:** Foreign bodies in the urinary bladder represent a urological challenge that requires prompt management. The suspected history and presenting symptoms are crucial and lead to further investigations. Endoscopic management is the main treatment. However, the method of retrieving foreign bodies should be selected to avoid bladder wall perforation.

VESICAL CALCULUS WITH MIGRATED IUCD AS AN IDUS

Odusanya BO, Saliu AN, Ogunleye OA
Department of Surgery, General Hospital Marina,
Lagos state, Nigeria.

Introduction: Intrauterine contraceptive devices are a popular form of contraceptive due to lack of systemic side effects. However, there may be significant local adverse effect including migration. We describe a case of bladder calculi with an IUCD as a nidus. **Case presentation:** A 37 year old woman presented with storage lower urinary tract symptoms for 2 years with associated lower abdominal pain. She had an IUCD inserted 6 years earlier and presented to her primary care provider for removal once symptoms started and was reassured it had been removed. Symptoms persisted and she had several treatment for

recurrent urinary tract infections. Ultrasound revealed bladder stone and she had open vesicolithotomy done which revealed an IUCD attached to a bladder stone. Patient has since been asymptomatic. **Conclusion:** Female patients with bladder stone and a history of IUCD insertion should have cystoscopy to exclude migration of IUCD into the bladder.

BLADDER LEIOMYOMA IN AN ADULT FEMALE: A CASE REPORT.

Bioku MJ¹, Obiatuegwu KO¹, Atim T².
¹Division of Urology, Federal Medical Center Jabi, Abuja. ²Division of Urology, University of Abuja Teaching Hospital Gwagwalada, Abuja

Introduction: Benign mesenchymal tumors are rare and comprises 1-5% of all bladder neoplasm. Leiomyoma remains the commonest benign neoplasm accounting for 0.43% of bladder tumors. Clinical manifestations includes lower urinary symptoms, hematuria, suprapubic pain and dysuria. We report a case of bladder leiomyoma in a female with predominantly storage lower urinary tract symptoms. **Case report:** She is a 42 year old female presenting with predominantly storage lower urinary tract symptoms and recurrent suprapubic pain of a year duration. There is no hematuria, back pain or weight loss. Physical examination revealed mild suprapubic tenderness with no palpable mass. Urologic scan revealed a well circumscribed intermediate echogenic mass involving the anterior-lateral segment of the urinary bladder with a volume of 22.35ml. The kidneys and ureter were normal. Computed tomography urogram revealed a fairly circumscribed mixed density mass arising from the anterior wall of the urinary bladder and extending into the bladder lumen. It measures 4.4x4.3cm in dimension. Urethrocystoscopy revealed a right anterolateral bladder wall sessile tumor. There was no involvement of ureteric orifice. Histological analysis of biopsy specimen showed a bundle of spindle cells with slender, wavy nuclei and eosinophilic cytoplasm. There was no atypia or mitotic changes suggestive of benign stromal tumor. She subsequently had partial cystectomy. Histological analysis of the excised tumor revealed

bundles of smooth muscle cell infiltrated by mixed inflammatory cells predominantly eosinophil (>20 per 40x field). There was focal fibrosis with necrotic underlying mucosa but no atypia suggestive of leiomyoma. She has being on yearly follow-up for 5 years with no recurrence of symptoms. **Conclusion:** Complete surgical resection of bladder leiomyoma is very effective with a favourable outcome and almost no recurrence confirming the benign nature.

PENILE CANCERS IN GOMBE: A REPORT OF THREE CASES IN 10 YEARS

Mustapha K¹, Ajape AA², Khalifa IA³, Lawal A⁴, Arogundade A³.

¹Department of Surgery, Gombe State University and Federal Teaching Hospital, Gombe.

²Department of Surgery, University of Ilorin and University of Ilorin Teaching Hospital, Ilorin.

³Department of Surgery, ⁴Department of Pathology Federal Teaching Hospital, Gombe.

Introduction: Penile cancer is a rare malignancy worldwide. Its incidence has been found to be much lower in societies where circumcision is widely practiced. This article aimed to report 3 cases seen and managed in Federal Teaching Hospital Gombe, in the last 10 years. **Case summaries: Case 1:** A 67yr old man was referred in 2011 for a glanular ulcer discovered following an attempt at circumcision having been earlier diagnosed with phimosis. Examination revealed a pale elderly man with a circumferential malignant ulcer involving the glans penis. Histological diagnosis of invasive squamous cell carcinoma was made following which he subsequently had partial penectomy done. **Case 2:** A 66yr old man presented with a 6months history of an ulcer on his penis. There was associated history of foul smelling urethral discharge and haematuria. Physical examination revealed a fungating mass involving the distal penile shaft including the glans penis with a mobile bilateral inguinal lymph node and bilateral hydrocele. Histological diagnosis of well differentiated squamous cell carcinoma of the penis was made. He then had partial penectomy, bilateral inguinal lymphadenectomy and bilateral hydrocelectomy done. **Case 3:** A 75yr old man presented to our facility with 2 years history of recurrent penile ulcer and 6months history of LUTS, haematuria and weight loss. Physical examination revealed an extensive ulcer involving the whole of the dorsal aspect of the penile shaft. The glans was spared

Incisional biopsy done was reported as verrucous carcinoma. He subsequently had excision and full thickness skin grafting done. **Conclusion:** Penile cancer is rare in Gombe where circumcision remains widely practiced.

ISCHAEMIC PRIAPISM IN A SICKLE CELL DISEASE PATIENT TRIGGERED BY LEVITERACETAM

Osunaiye OI¹, Jila BJ¹, Umana IP¹Ofoha CG^{1,2}, Ramyil VM^{1,2}, Dakum NK^{1,2}, Shuaibu SI^{1,2}, Akpayak IC^{1,2}

¹Urology Division, Department of Surgery, Jos University Teaching Hospital, ²Department of Surgery, College of Medical Sciences, University of Jos

Introduction: Priapism is defined as penile erection that continues more than 4 hours beyond sexual satisfaction and orgasm or is unrelated to sexual stimulation. It describes a persistent penile erection arising from dysfunction of the mechanisms regulating penile tumescence, rigidity and flaccidity. **Patient:** A 30 year old sickle cell disease male patient with multiple episodes of ischaemic priapism. He also presented with seizure disorder which developed post cerebro-vascular accident (CVA) and for which he was placed on an anticonvulsant – leviteracetam. Onset of priapism coincided with the commencement of the anticonvulsant. **Intervention:** Withdrawal of the anticonvulsant resulted in cessation of episodes of priapism. **Conclusion:** Sickle cell disease is a common cause of priapism in our environment. However, there are more subtle causes which could be masked by the more common ones, requiring thorough scrutiny to decipher.

RETAINED PENILE RING: A CASE REPORT.

Odusanya BO, Salami OO, Saliu AN.
Department of Surgery, General Hospital Marina, Lagos state, Nigeria

Introduction: Penile constriction rings have been used to prolong erection with vacuum devices in the treatment of erectile dysfunction. Some have also employed it for recreational purposes with the attendant risks of penile edema, strangulation and necrosis. We present a case of an entrapped phallus

by a penile ring. **Case report :** A 16year old with pain and swelling of the phallus of 12 hours duration. This started after placement of a phallic ring to purportedly prolong erection. He was later unable to remove the ring despite several attempts and developed progressive swelling and pain in the phallus. He was also unable to pass urine. Examination revealed a circumcised phallus that was detumescent but grossly edematous, tender with shiny skin. The phallus appears viable with a tight ring at the base of the phallus. Initial simple manoeuvres in the casualty proved abortive and ring had to be cut with the aid of an orthopaedic instrument. He was subsequently able to void without difficulty or any haematuria. He was advised on use of cold compress on the phallus. He was also given silver sulphadiazine cream for some minor abrasions on the phallus. The patient however promptly discharged himself from the casualty and was not seen at follow up in clinic. **Conclusion:** Successful management of retained penile ring depends on early presentation by the patient to avoid adverse outcomes. It may require instruments not normally found in the urologist armamentarium.

DOG BITE INJURY TO THE SCROTUM OF A 9 YEAR OLD: A CASE REPORT

Suleiman Salisu¹, Eniola S. Bolarinwa¹, Ajibola O. Hafees¹, Atim Terkaa^{1,2} Aisuodionoe-Shadrach Oseremen^{1,2},

¹Department of Surgery, University of Abuja Teaching Hospital, Gwagwalada, Abuja, FCT

²Department of Surgery, Faculty of Health Sciences, University of Abuja, Gwagwalada, Abuja, FCT.

Introduction: Dog bite injuries to the scrotum are rare but may be associated with life threatening complications if not properly managed. **Objective:** To highlight a case of dog bite injury to the scrotum of a young boy who had primary wound closure with satisfactory wound outcome. **Case Report:** AA is a 9year old boy who was brought into the Accident & Emergency unit of our hospital by his parents and the owner of a dog on account of injury to his scrotum from bite from a Rottweiler dog. He was said to have been attacked by the vaccinated dog unprovoked while feeding it. He sustained injury to the scrotum

with loss of scrotal skin and bleeding from the ensuing wound. He had never had tetanus immunization. Scrotal examination revealed a complete avulsion of part of the scrotal skin with a 5cm defect and exposure of normal viable testes with their tunical coverings. He had initial copious lavage of the wound with saline before dressing with sterile gauze. He then had exploration of the scrotal wound under GA, wound debridement and closure in two layers. His postoperative recovery was uneventful and the wound healed fine. He has since completed his tetanus vaccination. The culpable dog remained okay even beyond 10 days of observation and monitoring for signs of rabies. **Conclusion:** Dog bite injuries can be prevented by ensuring close observation of dogs for change in behavior and limiting contact as much as possible. Copious lavage, wound debridement and closure should be done. Tetanus immunization and monitoring for rabies should be instituted.

METASTATIC EXTRA-TESTICULAR EMBRYONAL RHABDOMYOSARCOMA IN A 19YEAR OLD BOY- 6 YEARS AFTER; A CASE REPORT.

Makama BJ¹, Stephen Y¹, Adogu I².

¹Department of Surgery, ²Department of Histopathology, Abubakar Tafawa Balewa University Teaching Hospital, Bauchi,

Introduction: Embryonal Rhabdomyosarcoma is a rare and aggressive form of malignancy arising from connective tissues histologically resembling the developing skeletal muscles of an embryo. It is commoner in children less than 18years and embryonal Rhabdomyosarcoma primarily from the testes are rare. Adult embryonal Rhabdomyosarcoma are not thoroughly studied with no particular prognostic indices or proper guideline of management as oppose those in children, our study shows a 19year old with metastatic embryonal Rhabdomyosarcoma of the testes, intergroup Rhabdomyosarcoma study group (IRS) grouping system group IV who had radical inguinal orchiectomy and adjuvant chemotherapy with complete remission 6years post-operative. **Case**

report: A 19year old boy who presents with 6month history of slowly progressively growing, painless right scrotal mass. Ultrasound scan shows a right lone liver deposit, chest x-ray shows no evidence of metastatic deposit. The alpha fetoprotein was markedly elevated 230ng/ml but free beta human chorionic gonadotrophin (HCG) was within normal range at 1.6Miu/L. Patient had radical inguinal orchiectomy (histology shows para-testicular tumor with haphazardly arranged primitive cells, strap cells and bizarre 'tadpole' cells, some with intensely eosinophilic cytoplasm dispersed in myxoid stroma, the cells display angiocentrism) and adjuvant chemotherapy with complete disappearance of the liver deposit; he has been on follow up for 6years now on yearly alpha fetoprotein level check, doing well with no any evidence of reoccurrence of disease. **Conclusion:** Radical inguinal orchiectomy and adjuvant chemotherapy is a hopeful terrain to explore in the management of, even, metastatic embryonal Rhabdomyosarcoma of the testes.

INCIDENTAL LOCALLY ADVANCED PROSTATIC ADENOCARCINOMA MIMICKING BLADDER TUMOR: A CASE REPORT.

Bioku M J , Obiatuegwu K O
Division of Urology, Federal Medical Center Jabi, Abuja.

Introduction: Prostate malignancy originating from the base of the prostate can invade the urinary bladder and frequently misdiagnosed clinically as urinary bladder tumor. We report a case of incidental locally advanced adenocarcinoma of the prostate mimicking bladder tumor. The aim is to emphasize on the atypical presentation of the prostatic adenocarcinoma with unusual normal serum prostate specific antigen. **Case report:** He is a 53 year old man who presented with predominantly bothersome storage lower urinary tract symptoms. Rectal examination revealed a mildly enlarged prostate with benign features. Urologic scan revealed a 5 x 5mm mass around the bladder neck. The prostate size was normal (23.04g). Prostate specific antigen was 1.5ng/ml. Urethrocystoscopy revealed a mildly enlarged prostate with a 5 x 10mm tumor at the area of the bladder trigone. He had transurethral resection of bladder tumor metastatic

tumor from the prostate. Based on the histological diagnosis, he was further evaluated. Twelve-core trans-rectal ultrasound (TRUS) guided biopsy of the prostate confirmed adenocarcinoma of the prostate with a Gleason's score of 4+4=8. Pelvic magnetic resonance imaging showed features of both visceral and bony metastatic deposits. Whole body bone scan showed no evidence of osteoblastic skeletal metastasis. He is currently awaiting immunohistochemistry. **Conclusion:** A combination of high index of suspicion, cystoscopy, and histological analysis of biopsy specimen as well as immunohistochemistry is valuable in disease confirmation in patients with normal serum prostate specific antigen.

LEIOMYOMA OF THE URETHRA IN A FEMALE: A CASE REPORT.

Bioku M.J, Obiatuegwu K.O.
Division of Urology, Federal Medical Center Jabi, Abuja.

Introduction: Urethral leiomyoma is a rare benign mesenchymal tumor originating from urethral smooth muscles. The prognosis is good and there is no risk of malignant transformation. Local recurrence is also rare. We report a rare case of urethral leiomyoma in a young female. The aim is to emphasize that urethral leiomyoma can pose a diagnostic dilemma and most times mistaken as urethral prolapse, caruncle, papilloma, wart, urethrocele, urethral diverticulum and urethral malignancy. **Case report:** She is a 28 year old nulliparous female who presented with painful urethral mass, dysuria, dyspareunia, feeling of heaviness in her vaginal and bothersome storage lower urinary tract symptoms. Examination revealed a 4 x 4cm firm and tender mass at 3 O'Clock position with a short connecting stalk attached to the distal urethral wall. There was an area of necrosis inferiorly which did not bleed on contact. She had en-bloc excisional biopsy. Histological examination of the excised specimen revealed well circumscribed tumor with focal areas of urothelial lining. There are spindle-shaped smooth muscle fibers arranged in sheets with nuclei. There was no atypical, mitosis and pleomorphism suggestive of urethral leiomyoma. **Conclusion:** Urethral leiomyoma is a rare benign

tumor of the urethral affecting females in their reproductive age. Surgical extirpation remains the main stay of treatment and recurrence is rare.

BILATERAL EMPHYSEMATOUS PYELONEPHRITIS IN A RETROVIRAL DISEASE PATIENT

Umana, IP¹, Osunaiye, OI¹, Jila, BJ¹, Shuaibu SI^{1,2}, Ramyil VM^{1,2}, Dakum NK^{1,2}, Akpayak IC^{1,2}, Ofoha CG^{1,2},

¹Urology Division, Department of Surgery, Jos University Teaching Hospital, ²Department of Surgery, College of Medical Sciences, University of Jos.

Introduction: Emphysematous pyelonephritis is a rare infection characterized by presence of gas in the renal parenchyma and surrounding tissues.

It is commonly found in diabetics and rarely in HIV patients. **Case report:** A 41 year old retroviral positive female patient on HAART with a four year history of recurrent bilateral flank pains. There was also a history of haematuria, pneumaturia, low grade fever and vomiting. Physical examination was not remarkable. Urinalysis showed blood +++ and protein +, urine m/c/s yielded a growth of *Klebsiella* spp., biochemical profile revealed elevated urea and creatinine, Abdomino-pelvic contrast enhanced CT showed multiple air collections in the renal parenchyma and collecting systems of both kidneys with bilateral hydronephrosis as well as hyperdense filling defect within the gallbladder. She was managed on oral Levofloxacin on outpatient basis.

Conclusion: Emphysematous pyelonephritis though rare in HIV patients without other risk factors can however occur. The treatment of choice for bilateral emphysematous pyelonephritis is percutaneous catheter drainage of air/abscess, however, in select cases as in our patient, they can be managed on outpatient basis with oral antibiotics.