

ORIGINAL ARTICLE

Complications of Prostate Biopsy in Two Centres in Anambra State

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Received: June 27th, 2017

Accepted: July 28th, 2017

DISCLOSURE

The authors declare no
conflict of interest.

No sponsorship was
received for the study

ABSTRACT

Background: Prostate cancer is the most common malignant neoplasia in men and second cause of cancer related death after lung cancer. Prostate biopsy is the commonest procedure done by urologists and it is not without complications. We looked at the pattern of complications in our environment.

Objective: To assess the incidence of complications and associated risk factors amongst our prostate biopsy patients.

Methodology: A prospective study of the complications of prostate biopsy in 2 centers in Anambra South-Eastern Nigeria

Result: A total of 208 patients qualified for the study. The commonest complication was haematuria which occurred in 22(10.6%) of the patients. No patient had haematospermia and no death was recorded. Other complications recorded were rectal bleeding (2.4%), Acute Urinary Retention (5%), fever (3.8%) and pain (4.3%). Other recorded complications were syncopal attack and caudal parasthaesia in one patient each.

Conclusion: Prostate biopsy though considered safe, has attendant complications. This calls for caution in doing the procedure.

Key words: Transrectal biopsy, Haematuria, Rectal bleeding, Saddle paraesthesia

INTRODUCTION

Prostate cancer is the most common malignant neoplasm in men and the second cause of cancer-related mortality in men after lung cancer.¹ The incidence appears to be rising and this has been attributed to the increased availability and use of Prostate Specific Antigen (PSA) for screening.² Even in Nigeria where there is no screening policy there appears to be increased knowledge and awareness of PSA and prostate cancer.³ With the increase in awareness and knowledge of PSA and prostate cancer, there is the tendency of an increase in prostate biopsy. It is currently the most common urological procedure performed by the urologist.⁴

Prostate biopsy however is not without complications, which sometimes may be severe. The complication rate could be as high as 64 to 78% in some series.⁵ These range from haematuria, haemospermia, rectal bleeding, acute urinary retention (AUR), pain, fever, urinary tract infection (UTI), septicaemia, syncopal attack, Fournier's gangrene and recently erectile dysfunction.^{6,7} Erectile dysfunction though transient, is gaining prominence in recent literatures and has been linked more to clinicians who use transrectal ultrasound guided periprostatic block for anaesthesia.^{6,8} There has also been a rising rate of admissions following prostate biopsy.⁹

Various interventions have been introduced in an attempt to reduce the complications of prostate cancer. These interventions include antibiotic use, rectal washout, avoidance of anticoagulants, use of smaller needle size, transperineal/transrectal approach etc, but there is no consensus on the effect of these interventions.

The aim of this study is to assess the incidence of these complications amongst our prostate biopsy patients and look at some associated risk factors for these complications. This will help in the counseling and

management of our patients for the procedure.

METHODOLOGY

This is a 2year prospective study of prostate biopsy patients in two centres (Nnamdi Azikiwe University Teaching Hospital and Royal Care Specialist Hospital/Urology Center) in Nnewi and Awka respectively. Inclusion criteria were all patients who had PSA above 4ng/ml and/or suspicious digital rectal examination who consented to prostate biopsy. Those with bleeding dyscrasias were excluded. Ethical clearance approval was obtained from ethical committee of our institution.

The patients received oral antibiotics (ciprofloxacin and metronidazole), one hour before the procedure and then continued for 5 days after the biopsy. We routinely withdraw low dose vasoprin or clopidogrel for a minimum of 10days before elective surgical procedures. We also did a rectal washout in the morning of the procedure for all our patients.

Then patients were placed in left lateral position with their hip and knees flexed to 90 degree. The lower back and buttocks were then cleaned with antiseptic solutions. Using 20ml of 1% lignocaine, we did a caudal block for the procedure. Then with a plaster taped to the tip of our index finger (the finger that guides the biopsy needle to avoid injury to the operator) we did a digitally guided prostate biopsy with size 18G semi-automated Tru-cut® biopsy needle. We routinely do a Sextant biopsy with added biopsy of any palpable nodule or hardness. After the biopsy, patients were encouraged to lie down for 1hour and subsequently discharged on post operative antibiotics for 5days.

We collected information on their bio-data, PSA values, size of the prostates (ultrasound

measurement), digital rectal examination findings and histology results.

Record of complications from immediate post operative period and then at the 1st 24hrs, 72hrs and 1 week were obtained; phone communication was used after discharge. Patients were also counseled to come to hospital should they develop fever, chills and/or rigor. We finally inquire about all this again at the 2nd week when they come with their histology result. The following complications were sought from the patients; rectal bleeding, haematuria (gross), pain, fever/UTI, AUR and haemospermia. Of those who had haematuria and required intervention like admission for their haematuria, catheterization, bladder washout, bladder irrigation and/or those who required blood transfusion were further classified as Significant haematuria. Similarly, of those who also had rectal bleeding, who required admission, any intervention and/or transfusion for their rectal bleeding were further classified as significant rectal bleeding.

Analysis was done using statistical package for social sciences version 20(IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp)

RESULT

A total of 208 patients were qualified for the study. The mean age, prostate volume and PSA were 70.99± 9.1years, 97.6± 88.1ml and 70.13 ± 73.2ng/ml respectively (See table 1).

In all 41(19.7%) patient had one form of complication or the other. The commonest complication was haematuria 22(10.6%). Other recorded complications were rectal bleeding, AUR, fever/UTI and pain. No patient had haemospermia. Four patients had two complications each while two patients had 3 different complications. One of those with three different complications had haematuria, fever/UTI and pain, while the other had haematuria, rectal bleeding and AUR (See table 2). Of the 22 patients who had haematuria, five (5) had significant haematuria. However, none required transfusion. Only one patient had significant rectal bleeding that required readmission but this abated with rectal gauze packing and bed rest. Some complications were noticed incidentally and included one saddle paraesthesia that lasted for about 2 months in a patient and another with syncopal attack.

Spearman correlation coefficient of complication and possible risk factors for the complications like age, prostate volume, prior catheterization and histology of the biopsies showed no significant correlation (See table 3). The histology results are as in table 4.

Table 1. Descriptive Statistics of Age, Prostate Volume and Total PSA value

Variable	N	Range	Minimum	Maximum	Mean	Std. Deviation
Age	208	54.00	46.00	100.00	70.9856	9.10618
Prostate Volume	208	889.77	10.23	900.00	97.5937	88.06822
Total PSA	208	775.10	2.00	777.10	70.1255	73.22910

PSA= Prostate Specific Antigen

Table 2. Complications

Complication	Frequency	(%)
Haematuria	22	10.6
Rectal Bleeding	5	2.4
Haemospermia	0	0.0
Acute Urinary Retention*	5	2.4**
Fever/UTI	8	3.8
Pain	9	4.3
None	167	80.3
Total	216*	100

*6 patients had more than one complication,

** Only 100 patients were not on catheter.

So 5% AUR in those without catheter

Table 3. Histology result

Histology	Frequency	Percent
BPH	71	34.1
CAP	115	55.3
Prostatitis+BPH	18	8.7
PIN	4	1.9
Total	2	100.0

BPH= Benign Prostate Hyperplasia

CaP= Cancer of the Prostate

BPH= Benign Prostate Hyperplasia

PIN= Prostatic Intraepithelial Neoplasia

Table 3. Spearman Correlation Coefficient for Complications and Possible Risk Factors

Factors	Spearman Correlation (Haematuria)	P-Values	Spearman Correlation (Fever)	P-Values	Spearman Correlation (AUR)	P Values
Age	-0.053	0.448	-0.038	0.585	0.015	0.873
Prior catheterization	-0.033	0.637	-0.033	0.638		
Volume of prostate	-0.115	0.135	0.127	0.097	-0.074	0.476
Histology						0.422
Ca Prostate	0.033	0.637	0.033	0.638	-0.076	0.422
BPH	-0.016	0.817	0.091	0.190	0.055	0.565
Prostatitis with BPH	-0.005	0.939	-0.116	0.094	0.036	0.706
PIN	0.048	0.490	-0.154	0.026	-0.057	0.547
Total PSA	-0.095	0.172	-	-	-0.095	0.317

Ca= Cancer BPH= Benign Prostate Hyperplasia PIN= Prostatic Intraepithelial Neoplasia PSA= Prostate Specific Antigen

DISCUSSION

The mean age in our study was 70.99 ± 9.1years which is similar to the mean ages reported by other studies which ranged from 64.01± 10.1 to 68.6(52-94)years.^{7,10,11} Our mean PSA of 70.13 ± 73.22ng/ml can be said to be quite high when compared with similar works that showed PSA ranges around 11.23± 6.8ng/ml to 18.6±22.4ng/ml.^{7,9,12} This high PSA may mean our patients present late like has been variously reported in previous

studies in our environment where there is no screening policy.^{13,14}

The commonest complication of prostate biopsy reported by various studies is bleeding, with haematuria leading the pack.^{6,7,12} We also found haematuria to be the commonest complication in our study. But while we had haematuria in only 10.6% of our patient, these other studies showed haematuria to range from 10-84% of their

patients. This is a very wide range and has been said to have arisen as a result of different definitions of haematuria (visible blood, need for catheterization or hospital admission), duration, and method of data collection.⁷ But this will not explain the reason for the low incidence in our study because our definition of haematuria was clearly gross haematuria which is expected to have a higher incidence. The other explanation is the fact that we still do a sextant biopsy and it is expected that the higher the number of cores the more the bleeding.¹⁵ Ghani, *et al.* however showed in their work that the number of cores does not affect/worsen haematuric episodes.¹¹ They posited that rectal washout may worsen haematuria and rectal bleeding. We however, did not observe this in our study.

We also noted that the haematuria was not related to the age of the patient, prostate size, actual histology and whether or not patients were on catheter. This also is consistent with the finding by Ghani, *et al.*¹¹

Our findings were also similar to those by Loeb, *et al.* (rectal bleeding 1.3-45%, haemospermia 1.1-93%, and infection 0-6.3%) however we did not have any case of haemospermia.⁶

The maximum time we sought for complications was 2 weeks after the procedure. At this time, most patients reported lack of interest in sexual activities, thus it is difficult to objectively assess the occurrence of haemotospermia at this time. Possibly anxiety concerning the outcome of the result and old age may account for this reduced libido.

Of the 100 patients that were not on catheter, 5 (5%) had urinary retention following prostate biopsy. This is higher than that reported by Loeb, *et al.* (0.2-1.7%) but still remains within the limits of AUR reported by Borghesi, *et al.* (0.4-6%).^{6,16} Most of them

however had good voiding after removing the catheter one week after catheterization. This AUR may be from the oedema that follows trauma (biopsy) to the prostate with an already compromised voiding pressure. Earlier reports on relationship between prostate biopsy and AUR showed that patients with big prostate volumes and those with high International Prostate Symptom Score (IPSS) are at increased risk of AUR.^{17,18}

In our study however, there was no statistically significant correlation between AUR and prostate volume, age or final histology outcome. This may have been affected by our small sample size of 100 patients who were not on catheter, since 108 patients were on catheter before prostate biopsy. But as we know, severity of voiding symptom is not directly proportional to prostate volume.

Generally, voiding symptoms and risk of acute urinary retention after prostate biopsy might be mitigated using alpha blockers, although results are conflicting.^{19,20}

The predisposing factor for the complications recorded in previous studies showed big prostate and use of catheter to be predisposing factors to UTI and acute urinary retention. We however found no relationship between these factors in our study. Though we used trans-abdominal ultrasound and used antibiotics routinely, we still need to study the contribution of these factors to the complications after biopsy, with a bigger sample size. We noticed other incidental non reported complications like saddle paraesthesia which may have arisen from our method of anaesthesia which is caudal block.

Documented causes of neurogenic deficit following caudal anaesthesia include space occupying lesions like epidural abscess, epidural haematoma and trapped air bubbles along the nerve roots.^{21,22,23} Deficit from epidural abscess starts at about 5 days post

procedure, that for air bubble last only for 24 to 48hours while that following haematoma starts from the day of the procedure and can remain permanent.^{21,22,23}

Our patient had some paraesthesia, some degree of urinary incontinence that improved steadily until it finally disappeared at about 2 months. We think this was caused by epidural haematoma that resolved. Though these were incidental findings, one should bear this in mind when doing caudal block for prostate biopsy.

We also had a patient who had syncopal attack; this type of complication has not been widely reported. Syncope occurs from vasovagal stimulation syncope due to the pain of biopsy and presents with nausea, vomiting and hypotension.⁷ Placing the patients in a Trendelenburg position will often suffice.⁷ Our patient was just placed in supine position and he did very well. To reduce this too, we routinely tell our patient to lie down for 1 hour after the procedure. No patient developed septicaemia or died from prostate biopsy in this study.

CONCLUSION

Prostate biopsy, though it has some attendant complications, is a relatively safe procedure. Our complication rates are fairly similar with other works. There is great variability on what is perceived as bleeding in various studies and we think this should be standardized.

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