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"TRUS guided prostate biopsy- complications" -An initial two years experience at our centre SVIMS, Triupati

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ABSTRACT

Introduction and objectives: Prostatic carcinoma is one of the most common cancer in elderly males.Transrectal ultrasound guided systematic prostate biopsy is gold standard procedure for diagnosis of prostatic cancer at present.It is a safe procedure but an invasive procedure that is not free from complications.In our study, we evaluated the complications of TRUS guided 12-core prostate biopsy.

Material and Methods: The study included 86 male patients aged between 50 and 75 years. All patients were subjected to TRUS guided 12-core prostate biopsy.The indications for prostate biopsy were abnormal digital rectal examination findings or elevated serum prostate specific antigen level >4ng/ml or both.All patients were received prophylactic oral ciprofloxacin 500mg on the morning of biopsy procedure followed by 500mg orally twice
prevent development of voiding problems.Betadine enema was given on the morning of the procedure for rectal cleansing.The complications were assessed at Day1 and again at Day10 after the biopsy.

Results:The mean age of patients in our study was 64.5+-9.2years.Mean serum total PSA level and prostate volume of patients in our study were 15.6+-18.2ng/ml,45.4+-20.5cc respectively. Out of those 86 biopsies ,24 biopsies(27.9%) were histopathologically diagnosed as prostatic adenocarcinomas. Minor complications like hematuria (46.5%), hematospermia(21.7%), rectal bleeding (30.2%) and urinary tract infection (2.3%) were noted.No major complications were occurred in our study during one month follow up period**.**

Conclusion: TRUS guided prostate biopsy is a safe procedure for diagnosing prostate cancer and is associated with frequent minor complications and rare major complications.Hence all patients should be informed and followed up after biopsy procedure for these possible complications.

I. INTRODUCTION

- Prostate cancer - one of the most frequent cancer.
- TRUS guided systematic prostate biopsy is the standard procedure to establish the histopathological diagnosis of prostate cancer.
- Currently, 12-core TRUS guided prostate biopsy is the gold standard procedure for diagnosis of prostatic carcinoma.

Indications for TRUS biopsy

1. Abnormal DRE findings
Hard prostate
Nodularity of the prostate
Irregularity of the prostate

2. Elevated PSA level >4ng/ml or both

Although it is a safe method, it is an invasive procedure that is not free from complication and is associated with frequent minor complications and rare major complications.In this study, we aimed to evaluate complications seen in 12-core TRUS guided PB in our department in the light of current literature.

II. AIMS AND OBJECTIVES

AIM: To evaluate the recent trend in complications of TRUS guided 12 core prostate biopsy

OBJECTIVES:

To assess the minor complications like Hematuria,Hematospermia,Rectal bleeding,UTI,Acute urinary retension,Dysuria,Vasovagal episodes

To assess the major complications like,Urosepsis,Hematuria/rectal bleeding requiring intervention

III. MATERIALS AND METHODS

Study design : Prospective observational study
Duration : JAN 2018- JAN2020
Setting : DEPARTMENT OF UROLOGY,SVIMS

The clinical study was conducted in 86 patients who underwent TRUS guided 12 core prostate biopsy at SVIMS.

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Inclusion criteria

1.Patient who need TRUS guided prostate biopsy for suspected prostate cancer either by digital rectal examination or elevated PSA level.

2.Patient who volunteer to give consent for the study and agree to come for follow up.

Exclusion criteria

1.Coagulopathies
2.Acute prostatitis
3.Painful anal/ perianal conditions like anal fissure
4.Anal stenosis etc

METHODS OF STUDY

Male patients aged between 50 and 75 years attending our outpatient department with history of lower urinary tract symptoms were evaluated.Patient with suspected DRE findings or elevated PSA were advised to undergo TRUS guided prostate biopsy.Patients were informed about the possible complications before discharge and were assessed for complications at Day 1 and Day 10 after the biopsy.During these visits patients were questioned for hematuria, hematospermia, hematochezia, fever, urinary retention, UTI, dysuria experienced after the biopsy.

PATIENT PREPARATION

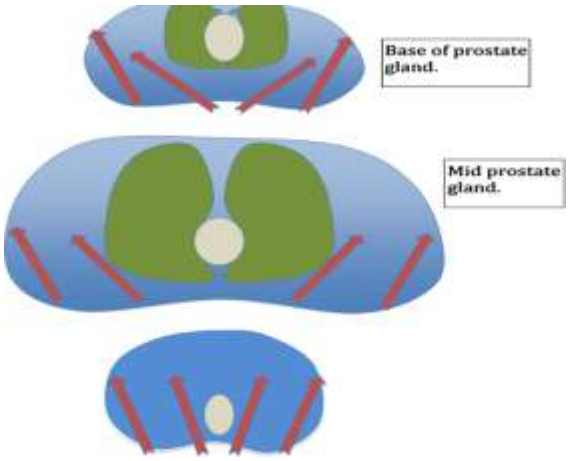
Routine Blood Investigations
Complete urine examination
Antibiotic prophylaxis : ciprofloxacin 500mg on the morning before the biopsy and continued twice daily for 2 days after procedure
Alpha –blocker therapy: initiated one day prior to the procedure and continued for 30days after the biopsy.
Betadine enema on the morning before biopsy procedure

BIOPSY TECHNIQUE

Left lateral decubitus position.
DRE done before inserting the TRUS probe.

A bolus of 10 ml of 2% lignocaine gel is applied intrarectally 10 minutes before the procedure**.** With TRUS probe(7.5 MHz) prostate was scanned longitudinally and sagitally for morphological evaluation and volume determination. Biopsies were taken with automatic spring loaded 18G biopsy needle with biopsy gun.

12-CORE PB



IV. STATISTICAL ANALYSIS

Statistical analysis was performed using SPSS package (version window 22 package). The data was entered into an Excel^{TM} (Microsoft,Redmond,WA) database and analysis was performed with SPSS software. As descriptive statistics for continuous variables mean+_standard deviation, and for categorical variables rates and percentages were used. After compiling all the data, statistical analysis was performed to evaluate complications of TRUS guided prostate biopsy in postoperative period

V. RESULTS

In our study

Mean age of the cases - 63.5+-9.6 years(50-75)
Mean serum total PSA level - 15.6+-21.4ng/ml
Mean prostate volume - 45.4+-22.5cc

Out of these 86 cases, 24 cases (27.9%)were histopathologically diagnosed as prostatic adenocarcinomas

Complications and their frequencies detected in our study

In 33 (76.7%) cases minor complications as macroscopic hematuria, hematospermia, rectal bleeding, urinary tract infection, vasovagal symptoms were detected. There were no major

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complications like urosepsis, hematuria/rectal bleeding requiring intervention in our study.

Minor	n/N	%
Macroscopic hematuria	20/43	46.5
Hematospermia	5/23	21.5
Rectal Bleeding	13/43	30.2
Genitourinary tract infection	1/43	2.3
Vasovagal symptoms	1/43	2.3

Macroscopic hematuria was observed in 20(46.5%) cases and lasted an average of 3(1-7) days.No case required blood transfusion for hematuria. Hematospermia noted in 5 out of 23(21.7%) sexually active cases. Rectal bleeding was observed in 13(30.2%) cases and lasted an average of 2(1-5) days and no case required an intervention for it. Features of UTI occurred in 1 (2.3%) case and treated with culture based antibiotic therapy. Vasovagal symptoms such as sweating, nausea, paleness , dizziness occurred in 1 case and regressed when the patient laid in the trendelenburg position.

VI. DISCUSSION

Despite superiorities of TRUS-guided prostate biopsy, its invasive characteristics, and rectal application result in the development of some potential complications. Due to advancements related to biopsy technique, antibiotic prophylaxis, use of automatic biopsy gun, and pre-biopsy preparation ,incidence of serious and complex complication rates are decreased but minor complication rates are still at a considerable level. Efesoy et al. performed 12-core TRUS-guided prostate biopsy on 2049 men, and reported minor, and serious complication rates as 79.2, and 1.3%, respectively. In our series, minor complication rate was 76.7%.. Bleeding episodes are most common following TRUS biopsy and hematuria is the most common complication. Majority of the complications are minor and self limiting. Major complications like urosepsis,hematuria/rectal bleeding requiring intervention are rare(0.4-3%). In our study hematuria is the most common complication and all the complications are minor and self limiting

Comparison of Complications in the literature data with our study

Author	Cases	Cores	Hematuria	Hemato-spermia	Rectal Bleeding	UTI	AUR	Hospitalization
Djavan et al	1051	8	62	9.8	2.1	2.9	0.9	2.9
Naughton et al	160	12	60	89	24			
Avci et al	1270	12	21	29	18		0.7	
Ghani et al	128	12	39	12	27			
Efesoy et al	2049	12	66.3	38.8	28.4	6.1	0.3	0.95
OUR Study	43	12	46.5	21.5	30.2	2.3		

VII. CONCLUSIONS

TRUS guided PB is a safe and tolerable procedure. Antibiotic prophylaxis andAlpha

blocker prophylaxis should be given. Informing the patient about the procedure to relieve their anxiety and keeping the patient in supine procedure for 15-20 minutes can reduce the vasovagal symptoms after the procedure.

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