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Efficacy of FNAC in Diagnosis of Prostatic Carcinoma and Correlation with TRU-Cut Biopsy

Dr. Rajkumar Meena*, Dr Krishan Suyal*, & Dr Anil Meena**
**Senior Resident, Dept. of General Surgery, SMS Medical College, Jaipur*
*** Senior Resident, Dept. of General Surgery, GMC, Kota*

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I. Introduction

Prostatic disease is one of the common problems of old age group and third most common cause of cancer death in males[1, 2]. The incidence of prostatic disease both carcinoma and nodular hyperplasia are increasing with the demographic shift to longevity in our country.

Till 25 years ago, digital rectal Examination (DRE) was the primary mode of evaluation of prostate carcinoma. this method of clinical examination is however subjective, and therefore difficult to standardize. Moreover over 70% of patients detected to have malignancy by this examination are already at advanced stage wherein curative treatment is not possible.

Prostate cancer is a hormone dependent cancer and the clinical course of prostate cancer varies with individual and again it varies within the individual in relationshipto serum testosterone levels. The present study is to find out the Efficacy of FNAC in Diagnosis of prostate cancer. Initial diagnosis of prostate cancer can be done by digital rectal examination (DRE) and estimation of serum prostate specific antigen (PSA) level. Although prostatic cancer can be detected by DRE, the specificity of the examination is only 50 percent, which means that a biopsy is always necessar[3].

Carcinoma of prostate can be diagnosed definitively by biopsy either- open biopsy,punch biopsy, core needle biopsy, Tru-Cut Biosy OR fine needle aspiration biopsy (FNAC). The transrectal FNAC has been utilized extensively in Europe with excellent results [1, 4,5]. FNAC can be utilized for early detection of recurrences of prostatic carcinoma. Transrectal FNA of prostate is an effective procedure and studies have shown that transrectal FNAC of prostate has a higher sensitivity than fine core needle biopsy [6,7].

II. Material & Methods :

This study was conducted at the RNT Medical college, Udaipur, between march 2018 and November 2019. After obtaining approval from the institutional ethics committee, written informed consent was taken from all the patients who were included in the study.
The participants in the study were male patients who were presented with lower urinary tract symptoms (LUTS) and were over fifty-five years of age &below eighty years.
A pre-designed and pre-tested pro forma was used for this study.

III. Procedure:

The patient will be explained the whole procedure and its importance regarding management of patients' problems and advised to take a light evening meal and a mild laxative. A single dose of Antibiotic was given one hour prior to the procedure.They were then subjected to FNAC by trans-perineal route with the Spinal needle before tru-cut biopsy. The smears were then prepared from needle contents and processed as either air-dried May-Grunwald-Giemsa (MGG)-stained or alcohol-fixedPapanicolaou (PAP)-stained smears. The presence of 10-12 epithelial cell clusters were taken as adequate for diagnosis. This was followed by the tru-cut biopsy Whichwas taken by Tru-cut biopsy gun through transrectal route.

FIXATION AND STAINING :
Air-dried smeared slides was placed in 95% alcohol immediately for 24 hours (afterproper labeling) for fixation. Slides was then stained by hematoxylin, Giemsa or May Grunwald Giemsa (M.G.G.) stain by standard technique. The findings of FNAC were later compared with the results of histopathological diagnosis.

IV. Observations & Results :

The study was conducted between March 2018 and November 2019. Amongst the patients aged between 50-80 years who presented to the Department of Surgery, Maharana Bhupal Govt. Hospital, Udaipur.; 40 patients were included in this study after subjecting them to the initial inclusion and exclusion criteria, 20 Patients subjected to FNAC only while rest 20 Patients subjected to both FNAC & Tru-Cut Biopsy.
The patients were worked up according to the pre-tested pro forma and the data was tabulated and analyzed.

Graph 1: Showing Age Distributions Among Patients.

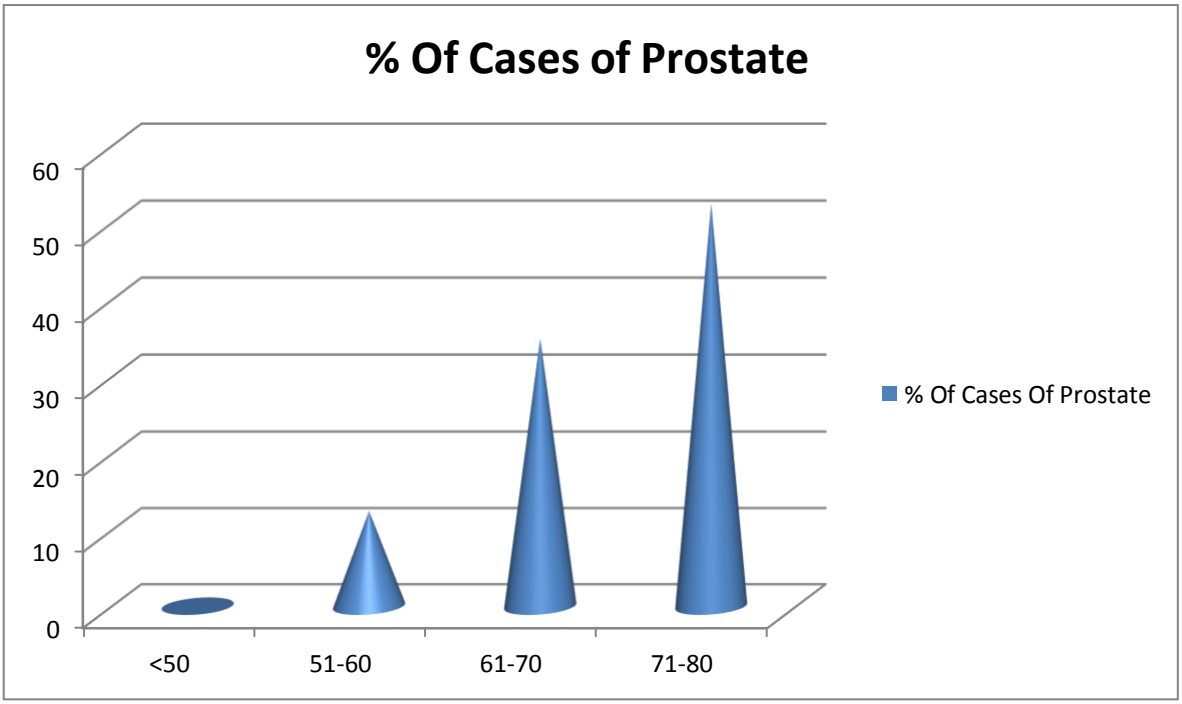

Table 1: Showing Presentation Of patients among study Group :

Complaints	No. Of Patients	%	Duration Of Symptoms		
			<1Mth.	1-2 Mon.	>2 months
Hematuria	07	17.5	02	01	04
Dysuria	33	82.5	12	10	11
Burning Micturition	38	95	18	08	12
Retention of Urine	19	47.5	15	04	00
Weight loss	08	20	00	03	05
Bony Pain	09	22.5	08	01	00

Table 2: Showing Histological Findings correlation with FNAC Findings in 20 cases.

Histopathological Diagnosis	No.Of Patients	FNA cytological Diagnosis	N (%)
BPH	5 (25%)	BPH	4 (80%)
		Atypical Hyperplasia	0
		Carcinoma	1 (20%)
Atypical Hyperplasia	1 (05%)	Atypical Hyperplasia	1 (100%)
Carcinoma	14 (70%)	Carcinoma	11(78.57%)
		BPH	2(14.28%)

		Inconclusive	**1(7.14%)**
Total	**20**		**20**

Graph 2 : Showing Histopathological Correlation Of FNA cytological Findings In 20 cases

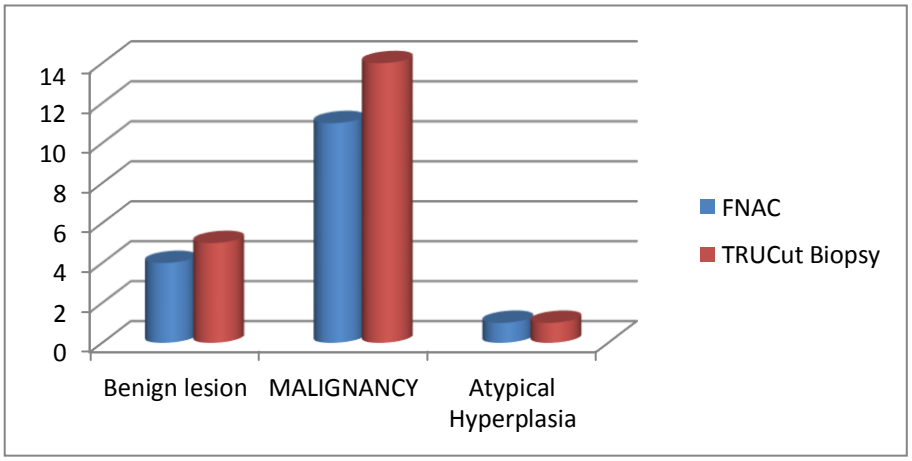

Table 3: showing Correlation of Histology, FNAC Findings & Raised S.PSA

S.PSA (ng/ml)			**FNAC Findings**		**Histology Findings**				
	No. OfPt.	**(%)**	**Benign**	**%**	**Malignant**	**Benign**	**%**	**Malignant**	**%**
< 4	6	15	6/40	15	0/40 (0)	2/20	10	0/20	0
4-10	5	12.5	4/40	10	0/40 (0)	1/20	5	0/20	0
> 10	29	72.5	5/40	12.5	25/40(62.5)	2/20	10	14/20	70

V. Discussion

The detection of Prostatic Ca in the population continues to be a vexing problem for clinicians. An ideal screening test should have high sensitivity, high specificity, the disease entity tested for should have had an important impact on the social and economic indicators and there should be appropriate curative modalities available totreat the condition once it is detected. Prostatic Cancer is the most common visceralmalignancy in the western world, and there were over 11,000 deaths recorded in India in 2005.

The purpose of this study was to determine the accuracy of FNAC in the diagnosis of prostatic lesions as facility of tru-cut biopsy may not be available in every place.

Malograna and associates showed 91% correlation between aspiration biopsy, andno false positive diagnosis[8]. In review of 3,002 transrectal aspiration biopsy of prostate, complication rate was in 12 (0.4%) cases[9].

In present study of 40 cases of Suspicious of ca Prostate Most of the cases werebetween 71-80 years age group followed by 61-70 and 51-60 years respectively.

The IPSS scores were ascertained for all the subjects in this study and were clubbed as mild, moderate and severe. The vast majority of the patients presentedto the clinic only when their symptoms were moderate (45%). Severe in 42.5 % cases & mild in 12. % cases.

There are several studies such as Kojima et al. [10]Matsumoto et al. [11] Terris et al. [12]Stamatiou et al. [13]Taylor et al. [14] and Eskew et al. [15] studies, which all have consensus on usefulness of increasing the number of specimens more than 6-core biopsy to increase the power of prostate cancer detection. However, the optimum number of biopsies required to detect prostate cancer is still largely unknown.

In this study 5 cases (80%) were cytologically diagnosed as nodular hyperplasia. Histopathology of these 4 cases showed concordance in 1 cases and discordance in one case which was diagnosed as carcinoma of prostate leading to one false negative diagnosis (20%). The discrepancies between histological and cytological findings may be explained by sampling of different sites, since carcinoma of the prostate may be focal and FNAC obtained may not include the involved sites. In this study, 11 (78.5%) cases were diagnosed cytologically as carcinoma of prostate. Out of these 11 cases, one case as suspicious of malignancy , one case as adenosquamous carcinoma and 9 cases were diagnosed as adenocarcinoma. Biopsywas available in 20 cases. Out of these 20 cases, 14 cases were diagnosed as carcinoma histologically and 5 case was diagnosed as nodular hyperplasia. The concordance rate in the present study and the other studies are similar in case of carcinoma of

prostate. Cytologic features in this study also agreed with Lin et al.[16].

Table 4 : Incidence of prostatic carcinoma diagnosed by FNAC in present study with previousstudy.

Name of theAuthor	No. of cases	Incidence of cancerdetection
Esposti P.L., etal. [17]	1100	33%
Kline TS, et al. 18	51	62.75%
Tariqul Islam[19]	27	59.25%
Present study	40	62.50%

Table 5 : Incidence Of False Negative reports In Various Study

Name Of Auther	No. Of Cases	False +ve Reports	False –ve Reports
Melograna, et al.[20]	58	0%	23%
S. Dhanraj Reddy[21]	27	0%	15.79%
Present study	40	0%	12.50%

VI. Conclusion

In conclusion, the present study indicates that fine needle aspiration of the prostate is rapid, safe and efficient. It can be utilized without fear of complication as an office procedure, and should be used as a primary toolin the diagnosis of prostatic carcinoma. It is useful in distinguishing between benign and malignant lesions of prostate. No appreciable complications have occurred with this technique except mild discomfort and pain in some cases.

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