



## TO ANALYSE HISTOPATHOLOGICAL ANALYSIS OF PROSTATIC LESIONS BY USING TRUCUT BIOPSY

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### ABSTRACT

**Background:** As people get older, benign prostatic hyperplasia and prostate cancer become more common. The current study's goal is to analyse histopathological analysis of prostatic lesions by using Trucut biopsy **Method:** 80 tru cut biopsies of prostate were received and included in the study. All the specimens were fixed in 10% neutral buffered formalin and 5µ sections were stained with Hematoxylin and Eosin stain (H & E stain). Relevant clinical data including age, the presenting complaints and S.PSA values were recorded and analysed. **Result:** Among the 80 biopsies received, 40 (50%) cases were of Benign prostatic hyperplasia, four cases (5%) were Prostatic intraepithelial neoplasia and 10 cases (12.5 %) were Carcinoma of Prostate. Most common histological type of Carcinoma prostate was Adenocarcinoma. Elevations of serum PSA levels were noted in both BPH and Carcinoma prostate patients. Eight cases of BPH, had serum PSA values in the range of 0-4ng/ml. Ten cases of Carcinoma prostate ,had serum PSA values in the range of >40 ng/m. **Conclusion:** We conclude that BPH was most common benign lesion and adenocarcinoma was most common malignant lesion diagnosed using tru cut biopsy. However, histopathological evaluation of prostatic biopsies is mandatory to avoid overdiagnosis of malignancy.

**KEYWORDS :** Prostate biopsy , trucut biopsy , adenocarcinoma of prostate , gleason score

### INTRODUCTION:

Prostate biopsy is the cornerstone of establishing the diagnosis of prostate cancer. Recent advances in imaging technology have led to improvements in the early detection of prostate cancer.[1] Prostate carcinoma is predominantly a disease of elderly men with more than 75% of new cases being diagnosed in men older than 65 years.[2] Approximately, 95-98% of prostate cancers are adenocarcinomas developing in acini of prostatic ducts. Both early and advanced cancers of prostate consist of well or poorly formed small, medium or large acini and tubules. Glandular elements may be closely packed together with little intervening stroma and grouped in a nodular or linear arrangement. [3] Malignant acini usually consist of a single row of cuboidal or columnar cells and nearly always lack a basal layer of cells, even when the glandular elements seem to consist of more than one row of cells. Disturbances of architecture, invasion, and anaplasia are the important histopathologic criteria for the diagnosis of prostate cancer.[4]

The Gleason system is based on the glandular pattern of the tumor as identified at relatively low magnification. Cytology play no role in the grade of the tumor. Both the primary (predominant) and the secondary (second most prevalent) architectural patterns are identified and assigned a grade from 1 to 5, with 1 being the most differentiated and 5 being the least differentiated.4Gleason scores range from 2 (1 + 1 = 2), which represents tumors uniformly composed of Gleason pattern 1 tumor, to 10 (5 + 5 = 10), which represents totally undifferentiated tumors. Unfortunately, the intermediate (5-7) Gleason score tumors are highly unpredictable in their clinical aggressiveness.[5]

The aim of this study was to analyse histopathological analysis of prostatic lesions by using Trucut biopsy with Objective was to subclassify prostatic lesion and to diagnose prostate carcinoma in Tru-Cut biopsy specimens, determine Gleason's grading

### METHODOLOGY

The study was a prospective observational study was carried out at department of pathology of RNT Medical College, Udaipur , Rajasthan.. Department recieved 80 true cut biopsy of prostate during January 2018 to March 2020.Purposive sampling method was used. All Tru-Cut biopsies of prostatic diseases diagnosed during the study period having adequate data and tissue blocks available were included in the study.

Tissue blocks with inadequate tissue left for sectioning, cases with missing tissue blocks and cases with inadequate or missing data were excluded from the study.Tru-Cut needle was inserted to take 8-10 cores of prostatic tissue. Antibiotics were given for 5 days. The sample was put in 10% formalin in a sterile container. The biopsy material in each case was grossly examined and description noted. The material was processed as a routine in an automatic tissue processor.

Two paraffin sections were prepared in each case and stained with hematoxylin and eosin (H and E) stain. After that, smears were examined microscopically. Serial and thin sections were done wherever required. Ethical approval was obtained from the Ethics Committee of the Institution .

### RESULT:

#### Demographic characteristic:

It was diagnosed that among 80 sample , 10 ( 12.5% )were Malignant.Among 80 cases of prostatic lesion, majority of the cases belonged to the age group 60-69 years. The oldest person was 82 years old and youngest person was 43 years old as seen in table 1.

**Table 1 Age wise distribution of prostate biopsy sample**

S.No	Age(Yrs)	Benign Lesion	Malignant	Total
1	40-49	6	0	6
2	50-59	12	1	13
3	60-69	42	5	47
4	70-79	8	3	11
5	>80	2	1	3

#### Distribution of cases :

Among 80 true cut biopsy, 10 (12.5%) Malignant cases all were diagnosed as adenocarcinoma. Among 70 benign cases most common was 40 (57.1%) prostatic specimen were showing benign prostatic hyperplasia followed by prostatitis 20 (28.5%) as seen in table no 2.

**Table 2 : Distribution of cases according to diagnosis**

S.No.	Finding	No. of Cases
1	Benign Prostatic Hyperplasia	40
2	Prostatitis	20
3	A typical Hyperplasia	6
4	PIN	4
5	Adeno carcinoma	10
	Total	80

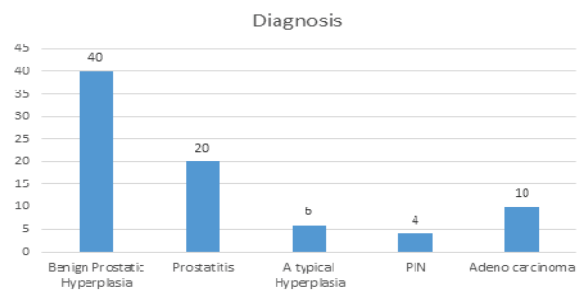


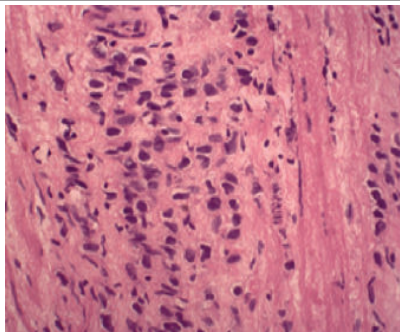
Diagram 1: Bar diagram showing distribution of diagnosis.

**Gleason score and grading:**

In the study we observed that among these Malignant cases 6 cases (60%) were showing Gleason score of 7, four cases(40%) were showing Gleason score of 6.. None of the cases had Gleason score less than 6 or more than 7 as seen in table 3.

Table 3 : Distribution according to Gleason score and grading

S.No.	HPE diagnosis	Gleason's grade	Gleason's score
1	Adenocarcinoma	4+3	7
2	Adenocarcinoma	4+3	7
3	Adenocarcinoma	3+3	6
4	Adenocarcinoma	3+3	6
5	Adenocarcinoma	4+2	6
6	Adenocarcinoma	3+3	6
7	Adenocarcinoma	3+4	7
8	Adenocarcinoma	3+4	7
9	Adenocarcinoma	4+3	7
10	Adenocarcinoma	4+3	7



Picture 1: Undifferentiated carcinoma of Prostate

**Serum PSA level**

Serum PSA level was measured in all tru cut biopsies. Serum PSA values were distributed widely ranging from normal (0-4ng/ml) to intermediate (>4-10ng/ml) to high levels (>10ng/ml). Among the diagnosed BPH patients, Serum PSA levels was in the range of 4-20 ng/ml. The highest value of serum.PSA noted among the BPH patients was 32.33 ng/ml. Among the prostate carcinoma patients, 3 cases had Serum PSA level (>4-10ng/ml) and 7 cases had serum PSA levels of (>10ng/ml). The average PSA level in Gleason grade 5-6 was 38.67 ng/ml, 7-8 was 44 ng/ml,. The highest PSA level was in Gleason's score of 7-8. Thus, the PSA levels are higher in patients with high Gleason's grade.

**DISCUSSION**

Prostatism is common in the geriatric age group. BPH and carcinoma of the prostate are increasingly frequent with advancing age. The various histological appearances of BPH and prostatic adenocarcinoma are well known and have been described in literature. In patients with clinically detected nodules, raised PSA, needle biopsy/trucut needle biopsy is an established tool to confirm the diagnosis.

Most common age group overall lesions was 60-69 years which is similar to Chauhan SC et al.[6]The incidence of disorders of prostate increases with increase in age . In Mittal et al., in their study comprising of 185 biopsies, reported BPH in 172 (92.97%) cases and carcinoma prostate in 13(7.02%) cases.[7]

Many studies had showed that the Gleason grading is an independent and very powerful prognostic factor, both for prediction of the natural history of prostate cancer [8],[9],[10] and for assessment of the risk of recurrence after radical prostatectomy.[11]

Prostate cancer is now the 6th most common cancer in the world (in terms of new cases) and 3rd important in men. It is predominantly a disease of elderly men. The risk rises steadily with age. Worldwide about three quarters of all cases occur in men aged 65 years or more.[12] Adenocarcinoma was the predominant histological type in our study as it represented 100% of histological types. This finding agrees with the study by Thompson, et al.[13]. In a study done by patel SK found that the most common Gleason score was score7 (55.17%) followed by score 9 (10.34%) and score 6 (6.9%).[14] Similar to our study we found that most common gleason score was 7 (60%).

**CONCLUSION:**

The present study described the gross and microscopic examination of 80 Tru-Cut needle biopsies of prostate in clinically highly suspicious cases on the basis of abnormal digital rectal examination and raised PSA.. Our study conclude that BPH was most common benign lesion diagnosed and adenocarcinoma of prostate was most common malignant lesion diagnosed using tru cut biopsy. Although, investigations like transrectal ultrasonogram and serum PSA estimation aids in diagnosis, a definitive diagnosis of benign and malignant lesions of prostate can be made by histopathological study of prostatic biopsies.

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