

# The Spectrum of Histopathological Patterns Observed in Prostate Specimens in a Tertiary Care Hospital in Kashmir

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## ABSTRACT

**Introduction:** Prostate gland involved by a no. of benign and malignant diseases is a common cause of morbidity and mortality in the elderly men. The present study was an attempt to understand the histopathological spectrum of prostatic lesions in the specimens received by a tertiary care hospital.

**Material and Methods:** 433 cases of prostatic specimens including TURP chips, TRUS guided biopsies and Prostatic specimens received in the Department of Pathology, Government Medical College Srinagar were included in the present study. There were 344 needle biopsies and 82 TURP chips. All the specimens were fixed in 10% neutral buffered formalin and thin sections were stained with Hematoxylin and Eosin stain (H&E stain). Relevant clinical data including age, the presenting complaints and S.PSA values in suspected cases of carcinoma prostate were recorded.

**Results:** A total of 433 prostate specimens were received during the period of three years. The specimens included 344 TURP chips and 82 TRUS guided biopsies. 7 prostatectomy specimens were also included. The age of the patients varied from 42 years to 89 years. There were 380 benign cases and 53 malignant cases. The most common presenting feature was increased frequency of micturition followed by difficulty in starting and stopping the stream of urine. Among benign lesions the most frequent histopathological entity observed was benign nodular hyperplasia. The most common age of presentation was the sixth to seventh decade of life. Almost all neoplasms of the prostate were prostatic adenocarcinomas with most of the cases seen in the sixth to seventh decade of life with another peak in the seventh to eight decade of life.

**Conclusion:** A variety of benign and malignant lesions are seen in prostatic specimens. These need to be differentiated and classified. Benign nodular hyperplasia is the most common benign lesion and prostatic adenocarcinoma is the most common malignant lesion of Prostate. Perineural invasion is a significant finding and guide. Serum PSA is a useful adjunct in cases where the values are higher.

**Keywords:** Spectrum, Histopathological Patterns, Prostate Specimens

diseases, both benign as well as malignant, increases with age. Androgens play an important role in the pathogenesis of both adenofibroleiomyomatous hyperplasia and carcinoma prostate and anti-androgens therapy form an important part of treatment.<sup>2</sup>

The evaluation of the patients with prostatic disease involves relevant history, clinical examination especially DRE, measurement of serum prostate specific antigen (PSA), trans-rectal ultrasound (TRUS) and TRUS-guided needle biopsies of the prostate.<sup>3</sup> The histopathological examination of the prostatic tissue is important for the diagnosis and categorization of the prostatic diseases. Serum determination of PSA levels are an important investigation in the evaluation of prostatic carcinoma. With high levels and serial increase, the likelihood of malignancy increases.<sup>4</sup>

The aim of current study was to describe the pattern of various pathologies of prostate gland encountered in all specimens received in a tertiary care hospital in Kashmir.

## MATERIAL AND METHODS

The present study was conducted in the Post Graduate department of Pathology, Government Medical College Srinagar. All the prostate specimens (TURP Chips, TRUS Guided biopsies and Prostatectomy specimens) received during a period of three years (Jan 2015 to Dec 2017) were included. The clinical details including PSA levels wherever possible were retrieved from the departmental records. The gross features and histopathological findings were collected from the departmental archival material and were analyzed by a single pathologist.

All the cases were analyzed for the following parameters: age of patient, type of specimen, PSA levels wherever possible, histopathological findings and final diagnosis. The slides were examined under light microscope, and various histopathological findings were noted in all cases. Following histopathological assessment, the lesions were classified into the benign and malignant. The prostatic carcinomas were

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## INTRODUCTION

The prostate gland, a fibromusculoglandular organ encircling neck of urinary bladder and urethra is involved by a number of diseases. These diseases are an important cause of morbidity and mortality in elderly men. These diseases vary in spectrum from adenofibroleiomyomatous hyperplasia the most common benign disorder on one hand to the carcinoma of the prostate on the other, which is the second most frequently diagnosed cancer in men and fifth leading cause of cancer death among men.<sup>1</sup> The incidence of prostate

graded as per the Gleason's microscopic grading system and analyzed.

## RESULTS

A total of 433 prostate specimens were received during the period of three years. The specimens included 344 TURP chips and 82 TRUS guided biopsies. 7 prostatectomy specimens were also included. The age of the patients varied from 42 years to 89 years (table-1). There were 380 benign cases and 53 malignant cases. The most common presenting feature was increased frequency of micturition followed by difficulty in starting and stopping the stream of urine. Among benign lesions the most frequent histopathological entity observed was benign nodular hyperplasia. The most common age of presentation was the sixth to seventh decade of life. Almost all neoplasms of the prostate were prostatic adenocarcinomas with most of the cases seen in the sixth to seventh decade of life with another peak in the seventh to eighth decade of life.

Benign nodular hyperplasia was the most frequent histopathological pattern observed. The most common co-existing finding with benign nodular hyperplasia was found to be chronic prostatitis (8.31%). Basal cell hyperplasia

was the other significant co-existing histopathological finding (4.15%). Two cases of granulomatous prostatitis negative for AFB were also seen and reported as nonspecific granulomatous prostatitis. Cribriform hyperplasia and squamous metaplasia were the other but less frequent histopathological findings (table-2).

The 53 cases reported as prostatic adenocarcinoma were graded with modified Gleason's criteria. The most common predominant tumor pattern i.e. primary pattern score was found to be 4 and the most common secondary pattern score was also found to be 4. The commonest overall Gleason's score or sum obtained by combining the primary and secondary score was found to be 7 (4+3, 12 cases) and (3+4, 08 cases) (Table 3).

Serum prostate specific antigen levels were available in 23 cases of prostatic adenocarcinoma cases. 21 out of 23 cases had serum prostate specific antigen levels greater than 10 ng / ml. (91.3%).

## DISCUSSION

Prostatic diseases are one of the commonest causes of morbidity and mortality in elderly men worldwide. The present study comprises of a group of patients presenting with prostatic disease in a tertiary care hospital. The age of patients varied from 42 years to 89. The most common presenting feature in our study was increased frequency of micturition followed by difficulty in starting and stopping the stream of urine. Most of studies describe increased frequency of micturition, nocturia, difficulty in starting and stopping the urine, dribbling and dysuria as most common presenting features of prostatic disease.<sup>5</sup> Out of 433 cases studied, a total of 53 cases with prostatic adenocarcinoma were observed thus comprising 12.44% of all cases. Wasim khitab et al described 10 cases of malignancy out of 88 in their study (11.3%).<sup>6</sup> Geogre and Thomas described a total of 10.7% of their cases as malignant.<sup>7</sup> The most frequent benign histopathological entity observed in our study was benign nodular hyperplasia mostly observed in sixth to seventh decade of life. Studies show benign nodular hyperplasia as the frequent benign histopathological pattern with peak incidence of occurrence in seventh decade of life.<sup>8</sup> Almost all neoplasms of the prostate were prostatic adenocarcinomas with most of the cases seen in the sixth to seventh decade of life with another peak in the seventh to eighth decade of life. The occurrence of prostatic adenocarcinoma before 50 years of age was nil. These findings are consistent with findings of earlier studies.<sup>9</sup>

The most common co-existing finding with benign nodular hyperplasia was found to be chronic prostatitis. Mittal et al. reported chronic prostatitis in 26.3% of cases as most common coexistent finding.<sup>10</sup> monika et al reported prostatitis as the most predominant subgroup in non neoplastic lesions.<sup>11</sup> Basal cell hyperplasia was the other significant co-existing histopathological finding (4.15%). Basal cell hyperplasia was reported as coexistent finding in (5.4%) of cases Mittal et al. and (3.85%) by monika et al.<sup>10,11</sup> Two cases of granulomatous prostatitis negative for AFB

Age range distribution of prostatic lesions	Benign prostatic hyperplasia	Prostate Adenocarcinoma
< 50	07	00
50-59	53	05
60-69	144	25
70-79	86	21
80 or Above	41	07
Total	324	58

**Table-1:** Age distribution of the patients

Benign prostatic hyperplasia	318
Benign prostatic hyperplasia with chronic prostatitis	36
Nonspecific granulomatous prostatitis	02
Basal cell hyperplasia	18
Squamous Metaplasia	02
Atypical adenomatous hyperplasia	03
PIN Low Grade	06
PIN High Grade	04
Prostatic Adenocarcinoma	58
Other Malignancies	02

**Table-2:** Distribution of Final histopathological lesions of the prostatic specimens

Gleason's score	Primary + Secondary	
Score 6	3+3	11
Score 7	3+4	21
	4+3	
Score 8	4+4	9
Score 9	4+5	10
	5+4	
Score 10	5+5	6

**Table-3:** Pattern of Gleason score seen in prostatic Adenocarcinoma

were also seen and reported as nonspecific granulomatous prostatitis. Cribriform hyperplasia and squamous metaplasia were the other but less frequent histopathological findings.

Among the 53 cases reported as prostatic adenocarcinoma perineural invasion was seen in 10 cases (18.87%). Bastacky et al reported perineural invasion in 20% of cases.<sup>12</sup> All cases of prostatic carcinoma were graded with modified Gleason's criteria. The most common predominant tumor pattern i.e. primary pattern score was found to be 4 and the most common secondary pattern score was also found to be 4. The commonest overall Gleason's score or sum obtained by combining the primary and secondary score was found to be 7 (4+3, 12 cases) and (3+4, 08 cases) table 3. In the study done by SEER (Surveillance, Epidemiology, and End Results) the most common Gleason's score was found to be 5-7. Bing – Yirshen et al., described there were 46% of carcinoma prostate patients presenting with GS 5-7.<sup>12,13</sup>

Serum prostate specific antigen levels were available in 23 cases out of 53 prostatic adenocarcinoma cases. 21 out of 23 cases had serum prostate antigen levels greater than 10 ng / Ul which is comparable to kavita kumara et al. and lakhey M.<sup>14,15</sup>

## CONCLUSION

A variety of benign and malignant lesions are seen in prostatic specimens. These need to be differentiated and classified. Benign nodular hyperplasia is the most common benign lesion and prostatic adenocarcinoma is the most common malignant lesion of Prostate. Perineural invasion is a significant finding and guide. Serum PSA is a useful adjunct in cases where the values are higher.

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