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Histopathological Profile of Prostatic Lesions: Two Year Study

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Abstract

Background: Benign prostatic lesions like hyperplasia, prostatitis and prostatic carcinoma are important causes of morbidity and mortality in aging men. Prostatic carcinoma is the second leading cause of death in males worldwide. Diagnosis of prostatic lesions is important and is done by radiological procedures, serum biomarkers and surgical methods like transurethral resection (TURP) and needle biopsies. Biopsy with subsequent histopathological examination remains the gold standard for the final diagnosis. Aim of the current study was to compare various histopathologic patterns of prostatic lesions on needle biopsies and TURP specimens, including benign prostatic hyperplasia, prostatitis, prostatic carcinoma and application of modified Gleason's grading.

Methods: A total of 162 prostatic specimens including TURP and needle biopsies were analysed in relation to type of specimen, age of patient, histological pattern and final diagnosis received during January 2016 to December 2017.

Results: There were 124 TURP specimens and 38 prostatic biopsies. Age range of patients was 40-90 years and most patients (51%) were in the age group of 60-70 years. The various histopathological patterns observed were benign prostatic hyperplasia (BPH) in 72.7%, BPH with chronic prostatitis in 4.3%, BPH with acute prostatitis in 1.2% and BPH with basal cell hyperplasia in 3.7%. one case each of nonspecific granulomatous prostatitis and BPH with squamous metaplasia were seen. Prostatic adenocarcinoma was reported in 14% of cases.

Conclusion: Benign lesions of prostate are more common than malignant and both are common in 7th decade of life. BPH is the commonest benign lesion

Keywords: Prostate, Hyperplasia., Prostate specific antigen

Introduction

Prostate is a pear shaped fibromuscular organ encircling the neck of urinary bladder. So, any lesion causing enlargement of prostate will cause symptoms of bladder outlet obstruction.[1] A significant component of seminal fluid is formed by prostate. Histologically, prostate is composed of stromal and glandular elements. Glands are lined by basal cuboidal cells and inner secretory columnar cells (double layered).[2] The stroma is composed of smooth muscle cells, fibroblasts and endothelial cells. Clinically, the diseases most frequently affecting the prostate are benign prostatic hyperplasia (BPH), prostatic cancer and prostatitis.[3]

Benign prostatic hyperplasia (BPH) is an extremely common condition in men over the age of 50 years and shows remarkable racial and geographical variations in incidence and mortality.[4] The incidence

of BPH is 8% during the 4th decade which reaches 50% in the 5th decade and 75% in the 8th decade.[2] In benign prostatic Hyperplasia (BPH), there is an unregulated proliferation of connective tissue, smooth muscle and glandular epithelium within the prostatic transition zone.[5] Occasionally, non-specific granulomatous prostatitis is diagnosed in prostate specimen. It was first described by Tanner and Mc Donald in 1943, who reported an incidence of 3.3% of granulomatous prostatitis in inflammatory lesions. Recently premalignant lesions have become defined, largely as a result of advances in technology. Two premalignant lesions have been recognized: prostatic intraepithelial neoplasia (PIN) and atypical adenomatous hyperplasia (AAH). PIN is defined as a cytological alteration in architecturally normal glands and is further categorized into low grade (LGPIN) and high grade (HGPIN). AAH was first described by McNeal and it represents an architectural alteration in cytologically unremarkable glands.[2,6,7]

Globally prostatic carcinoma is the second most frequently diagnosed cancer and the sixth leading cause of cancer death in males. In India, prostate cancers constitute about 5% of all cancers in males and ranks 5th in incidence and 4th in mortality.[8, 9] Screening of prostatic lesions is done by serum prostate specific antigen (PSA), digital rectal examination, and transrectal ultrasound, but biopsy remains the gold standard diagnostic tool for final diagnosis. The modified Gleason's system appears better predictor of progression free survival after radical prostatectomy than the original Gleason's system.

The present study was conducted with an aim to enumerate the histomorphological spectrum of prostatic lesions on TURP and prostatic needle biopsies.

Material And Methods:

The present study was a two year study conducted in the Department of Pathology Government Medical College Srinagar from January 2016 to December 2017, after obtaining due clearance from Institutional Ethics Committee. Data were collected from archives of histopathology register. A total of 162 specimens of transurethral resection (TURP) and needle biopsies were evaluated. The specimens were fixed in 10% formalin and routinely processed and stained with hematoxyline and eosin. Each case was analyzed in relation to type of specimen, age of the patient, histological pattern and final diagnosis. The various histological patterns noted were prostatic hyperplasia, inflammations, premalignant and malignant lesions. The malignant lesions were graded by using the modified Gleason's system.

Results:

Of the total 162 specimens, 124 (76.5%) were transurethral resection (TURP) specimens and 38 (23.5%) were prostatic biopsy specimens.

The most common diagnosis made was benign prostatic hyperplasia (BPH) [Fig.1 and 2] in 118 (72.7%) cases, BPH with chronic prostatitis in 7 (4.3%) cases, BPH with acute prostatitis in 2 (1.2%) cases and BPH with basal cell hyperplasia in 6 (3.7%) cases. Single case (0.6%) each of non-specific granulomatous prostatitis and BPH with squamous metaplasia was noted. Glandulo-stromal pattern was the most common pattern of BPH seen in 114 (70.3%) cases and stromal pattern was seen in 4 (2.4%) cases. Age range of patients with BPH was 40-90 years and most patients (45.6%) were in the age group of 60-70 years.

We diagnosed 3 (1.8%) cases with low grade PIN and single case (0.6%) of atypical adenomatous hyperplasia (AAH) with high grade PIN.

Prostatic acinar adenocarcinoma [Fig. 3] was diagnosed in 23 (14%) cases and all were acinar adenocarcinomas histologically. Out of these 17 (73.9%) had moderately differentiated adenocarcinomas with Gleason score of 6 or 7 and 7 (30.4%) had poorly differentiated adenocarcinomas with Gleason score of more than 7. Most of the carcinoma patients were in the 60-70-years age group.

Discussion:

Diseases of prostate show an increased incidence with increasing age. Clinically, the diseases most frequently affecting the prostate are benign prostatic hyperplasia (BPH), prostatic cancer and prostatitis. Benign prostatic hyperplasia (BPH) is an extremely common condition in men over the age of 50 years and shows remarkable racial and geographical variations in incidence and mortality. Prostatic carcinoma is the second most frequently diagnosed

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cancer worldwide and the sixth leading cause of cancer related death in males.

In our study, the age group most commonly affected in both BPH (45.6%) and prostatic carcinoma (60.8%) was 60-70 years. This finding was similar to the studies conducted by Chandanwale Shirish S et al, Yadav et al, Matapurkar BG et al and Sharma GC et al.[10-13]

The most common diagnosis was BPH (82%) followed by carcinoma (14%) in our study.

In the studies conducted by Brawn et al and Chandanwale Shirish S et al BPH was diagnosed in 83% and carcinoma in 17% of cases. The findings of our study were similar to these two studies.[10,14]

In our study, the most common histological pattern of BPH was glandulostromal (70.3%) followed by stromal predominant pattern (2.4%). These findings were similar to the studies conducted by Zeenath Begum et al (40% and 8%) and Yadav et al (72% and 4%) which also showed a predominant glandulostromal pattern.[11,15]

Prostatitis was present in 9 (5.5%) cases in our study and chronic prostatitis (4.3%) was more common than acute prostatitis (1.2%). Chronic prostatitis was also more common in studies conducted by Dr Ashish Joshee et al and Yadav et al (10%).[11,16]

Nonspecific granulomatous prostatitis was diagnosed in 1 (0.6%) case in our study. It was diagnosed in 0.5% of cases in a study conducted by Stillwell TJ et al which is similar to our study.[17]

Prostatic intraepithelial neoplasia (PIN) was diagnosed in 4 (2.4%) of cases in our study. This was similar to studies conducted by Silverio FD et al, Pacelli et al and Chandanwale Shirish S et al which showed a diagnostic rate of 2-4%.[10,18,19]

In the present study, prostatic adenocarcinoma was diagnosed in 23 (14%) of cases and Gleason's grading was done in all cases. Majority of carcinomas were having a modified Gleason's score of 6 (26%) and 7 (48%). Similar findings were seen in studies conducted by Brawn PN et al and Chandanwale Shirish S et al.[10,20]

Conclusion:

We conclude that benign lesions of prostate are more common than the malignant ones and both are common in 7th decade of life. BPH is the commonest histological type followed by BPH with prostatitis. In case of prostatic carcinoma, Gleason's grading should be applied to improve the management.

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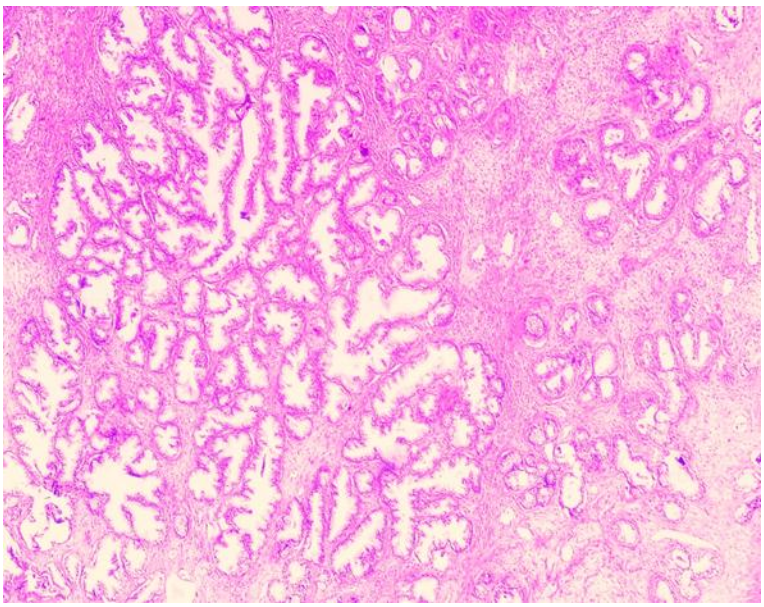

Fig 1: Photomicrograph showing hyperplastic benign glands of varying size (BHP)

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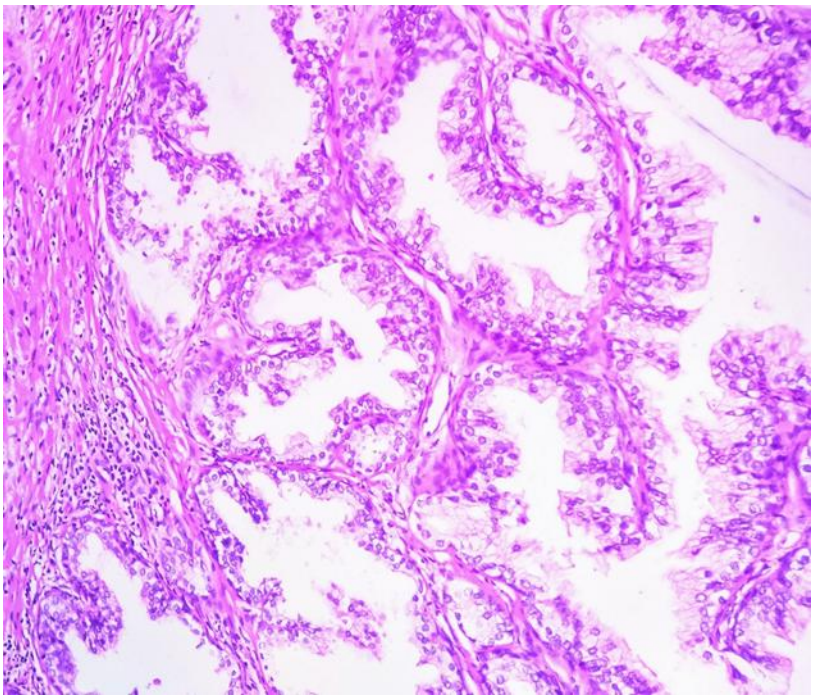

Fig 2: Higher magnification showing glands with papillary infoldings lined by double layered epithelium (BHP).

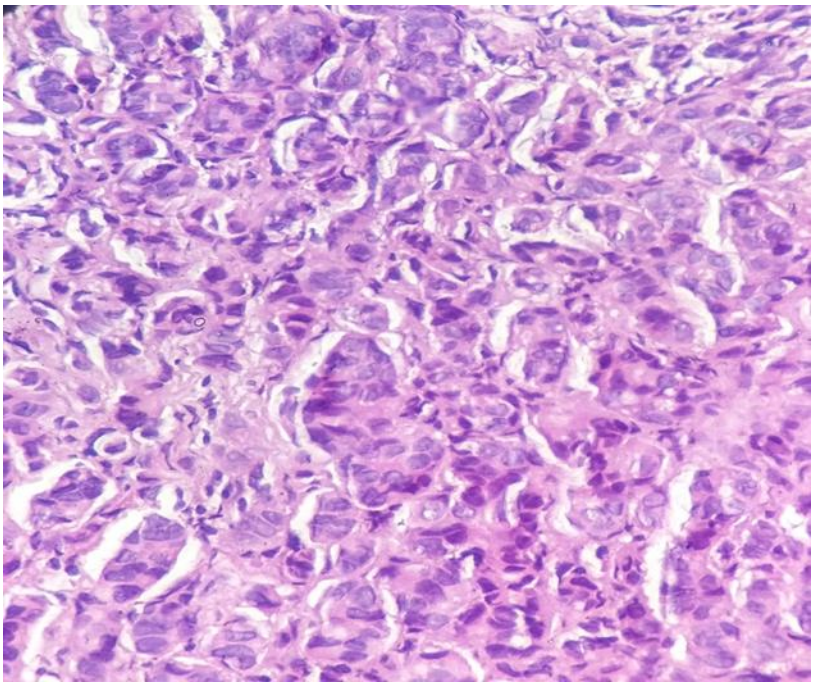

Fig. 3: Photomicrograph showing atypical glands that are poorly formed, fused and glomeruloid, (modified Gleason pattern 4 adenocarcinoma).

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