ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 04 | April - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

THE SPECTRUM OF HISTOPATHOLOGICAL PATTERNS IN PROSTATE SPECIMENS IN A TERTIARY CARE HOSPITAL

Histopathology

Dr. Rachana Binayke — Associate Professor, Grant Government Medical College & Sir JJ Group of Hospitals, Mumbai

Dr. Shweta Watane — Assistant Professor, Grant Government Medical College & Sir JJ Group of Hospitals, Mumbai

Dr Buddheshwar N. Hiwale — Professor, Grant Government Medical College & Sir JJ Group of Hospitals, Mumbai

Dr. Mohini Sharma* — Junior Resident, Grant Government Medical College & Sir JJ Group of Hospitals, Mumbai *Corresponding Author

Dr. Ashupriya Goyal — Junior Resident

ABSTRACT

Background: Prostate is fibromuscular glandular organ encircling the neck of the urinary bladder. Prostate cancer is the most common form of malignancy and the second leading cause of cancer death among men.1,2It accounts for about 15.1 % of male cancers and nearly of all malignancies. **Methods:** Total 40 prostatic lesions were received and studied in the department of pathology at tertiary care hospital, Mumbai for a period of 13 months (January 2022 to February 2023)3. TURP, TRUS guided biopsies, radical prostatectomy along with cysto-prostatectomy specimen were examined. The prostate lesions range from inflammatory, non- neoplastic and neoplastic. Modified Gleason's grading was used to grade all the prostatic adenocarcinoma cases. **Results:** In the present study, majority benign lesions were observed to be benign prostatic hypertrophy, out of which 13 cases had BPH alone as a primary feature and 20 cases had BPH associated with prostatitis, 3 cases showed only prostatitis and the remaining 3 cases were of adenocarcinoma. In our study, the peak incidence of benign and malignant lesions was in the age group of 61-80 years. All the cases of prostatic carcinoma were graded with modified gleason's criteria. The most common primary pattern found to be pattern 4 and the secondary pattern 5 were observed in 2 cases out of 3 cases making it the total sum of 9 while single case had the total sum of 10 with the primary and secondary pattern to be 5 hence both went to the grade group of 5. **Conclusion:** This study highlights the importance of identifying the nonneoplastic conditions from neoplastic conditions where biopsy still remain the gold standard.

KEYWORDS

INTRODUCTION:

Prostate is fibromuscular glandular organ encircling the neck of the urinary bladder. 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 to carcinoma of prostate on the other, which is the second most frequently diagnosed cancer in men and fifth leading cause of cancer death among men.[4] It accounts for about 15.1% of male and nearly of all malignancies. Because of the location of prostate gland at bladder neck, enlargement of the gland leads to problems related to urinary obstruction. The incidence of prostatic diseases, benign prostatic hyperplasia and carcinoma increases with age.[5] The prostate lesions range from inflammatory, non- neoplastic and neoplastic. Most common being the Benign prostate hyperplasia. Majority of prostate lesions present with the complaint of weak or interrupted flow of urine. Screening methods- PSA Level and DRE. PSA is the most important and clinically useful biochemical marker of the prostate because it is produced by and is specific for prostatic tissue.[6]TRUS prostate biopsy is the diagnostic criteria for confirmation of prostate lesions.

AIM:

To study the histopathological spectrum of prostatic lesions in a tertiary care hospital.

OBJECTIVES:

To determine the frequency of prostatic lesions, distribution of histopathological lesions of prostate with respect to age and site. To study the clinicopathological correlation and histopathological pattern of various prostatic lesions.

MATERIALS AND METHODS:

This study was conducted in Department of Pathology at tertiary care hospital Mumbai. A total of 40 specimens of TURP, TURBT guided biopsies and radical prostatectomy were included in this study for the duration of 13 months (January 2022- February 2023). The clinicopathological records of total 40 specimens of TURP, biopsies and resected prostate lesions submitted to histopathology department were included in this study. The gross examination carried out on larger specimen on arrival, routinely processed, 3-5 microns thick sections were processed, embedded for paraffin sectioning, stained with hematoxylin and eosin stain and routine microscopic examination was done.

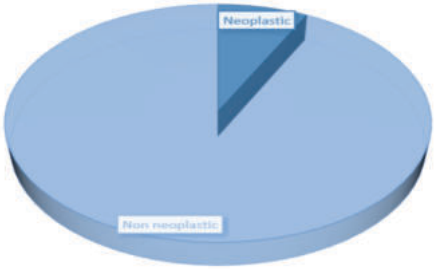
Inclusion Criteria

All prostate biopsies, TURP and prostatectomy specimens received for histopathological examination suspected for neoplastic and non-neoplastic lesions of prostate during the study period were included in this study.

OBSERVATIONS AND RESULTS:

The present study includes total of 40 prostatic specimen which constitute 1.75% of 2284 total specimen received in the pathology department out of which TURP were 28, 11 biopsies and single specimen of radical cysto-prostectomy.

Out of the 40 cases, almost 92.5% were non neoplastic while the remaining 7.5% include cases of adenocarcinoma. Henceforth, maximum of 23 cases were inflammatory, 13 cases showed benign morphology while 3 cases were malignant. Incidence of benign lesions found to be 32.5 %, inflammatory lesions were 57.5 % while the malignant lesions had an incidence of 7.5 %.



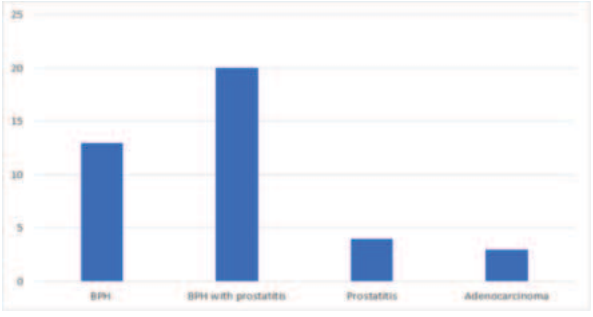
Graph 1: Incidence of Prostatic lesions.

In the present study, majority benign lesions were observed to be benign prostatic hypertrophy, out of which 13 cases had BPH alone as a primary feature and 20 cases had BPH associated with prostatitis, 3 cases showed only prostatitis and the remaining 3 cases were of adenocarcinoma.

The benign prostate hypertrophy also known as nodular hypertrophy had 2 cases of BPH with stromal nodule, 20 cases with BPH admixed with lymphocytes and plasma cells.

The malignant lesions were mainly of acinar adenocarcinoma which were further graded on the basis of modified gleason's score and histopathological grading were given. All of them showed one or more of the different growth patterns and were categorized on the predominant growth pattern.

Out of the 3 cases, 2 cases showed (4+5) score of 9 Grade group 5 and 1 case showed score of 10 (5+5) Grade group 5.



Graph 2: Incidence of histopathological spectrum of prostatic

The age of the patients varied between 40 years to 70 years (table 3). The benign lesions were seen at the median age of 60 years while the malignant case usually presented at the age above 70 years. The most common presenting feature was increased frequency of micturation followed by nocturia.

Serum prostatic levels were done in almost all the cases out of which 35 cases had level below 6 ng/ml and remaining 5 cases had level above 10 ng/ml.

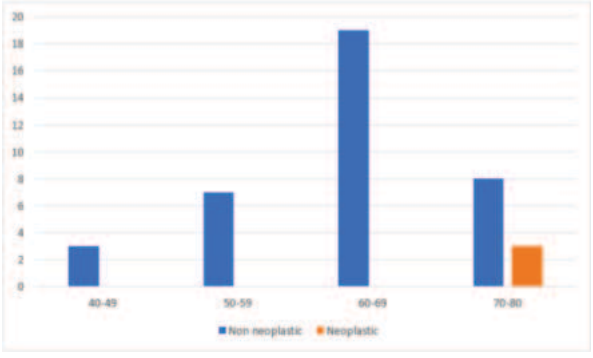


Table 3: Age incidence of prostatic lesions

DISCUSSION:

Prostatic disorders are one of the commonest causes of morbidity and mortality amonst the elderly men worldwide. Our study showed the age variation from 40 years to above 70 years. The most common presenting feature was increased frequency of micturation followed by nocturia. Most of the studies describe increased frequency of micturation, nocturia, difficulty in starting and stopping of urine, dribbling and dysuria as the most common presenting feature.

The most frequent benign entity in our study found to be benign prostatic hypertrophy along with prostatitis mostly observed in sixth to seventh decade of life. Mittal et al and monika et al also reported chronic prostatitis as the most common coexisting finding of benign prostatitic hypertrophy which was around 5.4 % and 3.85% respectively.

Out of the 40 cases 3 cases were diagnosed as malignant which accounts for around 7.5 % of all cases. Wasim Khitab et al described 10 cases of malignancy out of 88 cases in their study which was 11.3 % of all cases. All the 3 cases were of acinar adenocarcinoma and were noticed after 70 years of age. The occurrence of prostatic adenocarcinoma before the age of 50 years was nil. These findings were consistent with the findings of earlier studies.

All the cases of prostatic carcinoma were graded with modified gleason's criteria. The most common primary pattern found to be pattern 4 and the secondary pattern 5 were observed in 2 cases out of 3 cases making it the total sum of 9 while single case had the total sum of 10 with the primary and secondary pattern to be 5 hence both went to the grade group of 5. 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.[10-11]

Median lobe (80%) lesions were most common followed by total involvement of prostate (20%). In pure inflammatory lesions majority has Prostate specific antigen levels <4ng/ml while the malignant cases usually prostate specific antigen levels reach above 20 ng/ml.

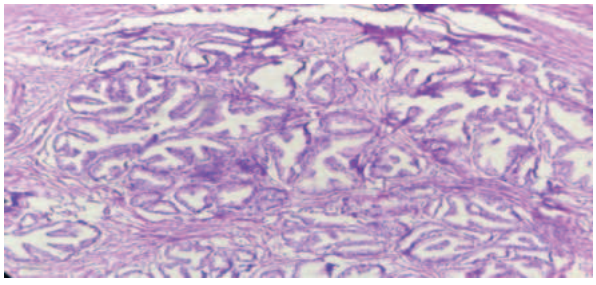


Fig. 1: Benign prostatic hyperplasia showing papillary infoldings within glandular lumen (H & E 40 X)

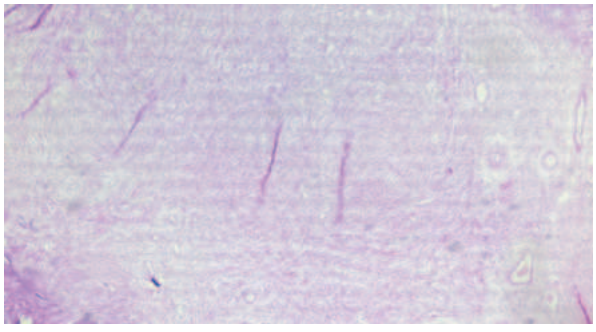


Fig. 2: Prostate biopsy showing stromal nodule in a case of BPH (H & E 40 X).

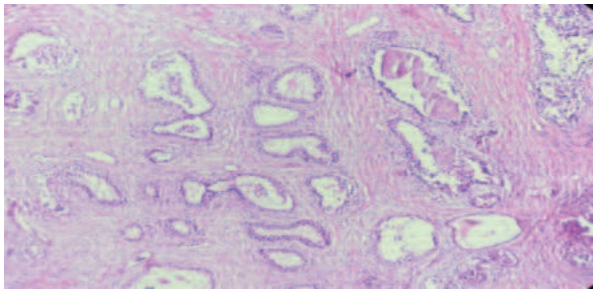


Fig. 3: Prostatic glands showing corpora amylacea (H & E 40 X).

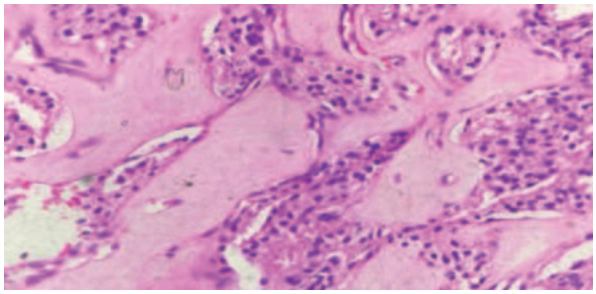


Fig. 4: Prostatic adenocarcinoma showing Gleasons pattern 5-Solid sheets of tumour cells (H & E, 40 X)

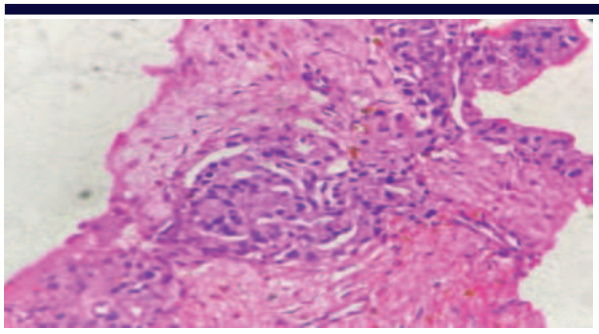


Fig. 5: Prostatic adenocarcinoma showing Gleasons pattern 4- Cribriform pattern (H & E, 40 X)

Table 3: Distribution of prostatic lesions on histopathological diagnosis in different studies

Histopathological Diagnosis	Mittal BV et al.7 (1989)	Maru et al (2014)8	Yelave et al (2020)9	Present study
Nodular hyperplasia	103 (55.67%)	534 (81.53%)	42 (28.18%)	33 (82.5%)
Prostatitis	30 (16.24%)	-	83 (55.70%)	24 (%)
Stromal nodule	-	-	01 (0.67%)	2 (5%)
Carcinoma	13 (7.02 %)	47 (7.17%)	15 (10.07%)	3 (7.5%)
Total no of prostatic specimens	185	655	149	40

CONCLUSION:

In our study, the peak incidence of benign and malignant lesions was in the age group of 61-80 years. Benign prostatic hyperplasia (BPH) with other benign lesions and adenocarcinoma are most common disease observed in our study. This study highlights the importance of identifying the nonneoplastic conditions from neoplastic conditions. The proliferative activity and invasiveness increase from benign to malignant end in the spectrum of prostatic lesions. Biopsy plays an important role in the diagnosis and treatment of prostate lesions.

Source of funding
None.

Conflict of Interest
None.

REFERENCES

1. Puttaswamy K, Parthiban R, Shariff S. Histopathological study of prostatic biopsies in men with prostatism. Journal of Medical Sciences. 2016 Jan;2(1):12. Puttaswamy K, Parthiban R, Shariff S. Histopathological study of prostatic biopsies in men with prostatism. Journal of Medical Sciences. 2016 Jan;2(1):12.
2. Koteswari M, Sudhakar G. Clinico Morphological Spectrum of Prostatic Lesions In A Tertiary Care Center. J Dent Med Sci. 2018;17(3):51-9.
3. Anushree CN. *Morphological spectrum of prostatic lesions–a clinicopathological study* (Doctoral dissertation, Rajiv Gandhi University of Health Sciences (India)).
4. Cooperberg MR, Chan JM. Epidemiology of prostate cancer. World journal of urology. 2017 Jun;35:849-.
5. Epstein JI. The lower urinary tract and male genital system, testis and epididymis. Robbins pathologic basis of disease. 8th ed. Philadelphia: WB. 2010:984-6.
6. Oesterling JE. Prostate specific antigen: a critical assessment of the most useful tumor marker for adenocarcinoma of the prostate. The Journal of urology. 1991 May 1;145(5):907-23.
7. Mittal BV, Amin MB, Kinare SG. Spectrum of histological lesions in 185 consecutive prostatic specimens. Journal of postgraduate medicine. 1989 Jul 1;35(3):157-61.
8. Maru AM, Makwana HH, Lakum NR, Chokshi T, Agnihotri A, Trivedi N, Joshi J. Study on correlation between prostate specific antigen (PSA) and various prostatic pathology. International Journal of Medical Science and Public Health. 2014 Jun 1;3(6):735-8.
9. Yelave R, Shahnaaz Z, Pawar V. Histopathological study of prostatic lesions in a tertiary care hospital.
10. Bastacky SI, Walsh PC, Epstein JI. Relationship between perineural tumor invasion on needle biopsy and radical prostatectomy capsular penetration in clinical stage B adenocarcinoma of the prostate. The American journal of surgical pathology. 1993 Apr 1;17(4):336-41.
11. Vani BR, Kumar D, Sharath BN, Murthy VS, Geethamala K. A comprehensive study of prostate pathology in correlation with prostate-specific antigen levels: An Indian study. Clin Cancer Investig J. 2015 Sep 1;4(5):617-20.