Original Research Paper

Volume-9 | Issue-9 | September - 2019 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Pathology

HISTOPATHOLOGICAL SPECTRUM OF PROSTATIC LESIONS: A RETROSPECTIVE ANALYSIS OF TRANSURETHRAL RESECTION OF PROSTATE SPECIMENS IN A TERTIARY CARE HOSPITAL.

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ABSTRACT **Background**: The incidence of prostatic lesions increases with the advancing age, prostatic cancer (PCa) is the second most common cancer among males. Diagnosis is usually done by microscopic study of transrectal core biopsy and TURP is the commonly performed surgery.
Objective 1) To evaluate the spectrum of prostatic lesions as per histopathological classification of WHO .2)To highlight the rare cases.
Methods: The present study included 328 cases of TURP specimens received from January 2016 to December 2018 in the Pathology. 10% neutral buffered formalin was used as fixative and sections were stained with H&E stain.. The results of present series were compared with other reported studies .
Results: Out of 328 TURP specimens 150 (45.73%) were Benign Nodular Hyperplasia(BHP). 119 (35.36%) (BHP) with chronic prostatitis, 22(6.70%) were adenocarcinoma prostate. Among BHP, Basal cell hyperplasia was seen in 9(2.745%) cases. Squamous metaplasia in 3(0.91%) and Urothelial metaplasia in 1(0.30%)case. The rare lesions encountered were granulomatous prostatitis 2(0.60%) cases. Atypical Adenomatous Hyperplasia in 3(0.91%) cases. There were 14(4.26%) cases of Low grade Prostatic Intraepithelial Neoplasia(L PIN) and 5(1.52%) cases of High grade PIN (H PIN). In the group of adenocarcinoma 1(0.30 %) case had associated malakoplakia.,there were 2 (0.60%) cases of signet ring cell type adenocarcinoma.
Conclusions: BHP is the most common non neoplastic prostate lesion, most commonly encountered in age group of 61 to 70 years.

KEYWORDS : Prostatic Cancer, Benign Hyperplasia of Prostate , Transurethral Resection of Prostate , Prostatic Intraepithelial Neoplasia

INTRODUCTION

The incidence of prostatic diseases like Benign prostatic hyperplasia (BHP) and carcinoma increases with advancing age[1, 2] . Anatomically prostate gland is located at the neck of bladder, hence its enlargement may lead to urinary symptoms like hesitancy, retention, urgency and dribbling[3]. The most important categories of prostatic diseases are inflammatory lesions (e.g.prostatitis), nodular hyperplasia (Benign Prostatic Hyperplasia). Prevalence of BHP is more in eighth decade of life that is 90 % as compared with 20 % in age group of 40 yrs [4].

Transurethral resection of prostate (TURP) specimens forms a significant percentage of diagnostically challenging cases in surgical pathology[5]. TURP is a common urological procedure primarily used for the surgical management of enlarged prostate[6].Significant history and clinical examination especially Digital rectal examination (DRE), measurement of serum prostate specific antigen (PSA),trans-rectal ultrasound(TRUS) and TRUS-guided needle biopsies of the prostate are helpful in evaluation of patients with prostatic diseases[7].However, histopathological examination of the prostatic tissue is of paramount importance for the definitive diagnosis and categorisation of prostatic diseases. Serum PSA levels are an important investigation in evaluating prostatic carcinoma, as its high levels and serial increase in the levels ,indicate possibility of malignancy[8].

Androgen play an important role in the pathogenesis of both adenofibroleiomyomatous hyperplasia and carcinoma prostate and anti-androgen therapy forms an important part of treatment[9]. Benign prostatic hyperplasia is not premalignant lesion for the prostatic cancer, but it may be related to prostate cancer arising in transition zone[10]. The presence of tumour in TURP specimen may be due to extensive spread by conventional carcinoma of the peripheral zone of the gland or may be manifestation of the uncommon carcinoma of transitional zone [11].

This study was undertaken to get insight into the spectrum of histomorphological lesions in our institute.

MATERIALAND METHODS:

The present retrospective study was conducted in the Department of pathology of Dr.Vithalrao vikhe patil Foundations Medical College and Hospital over the period of 3 years i.e.January 2016 to December 2018.TURP specimens received during above mentioned period were studied, also the data was obtained from the medical record department and the files in surgical pathology department.

TURP specimens received were examined for gross findings and sections from representative lesional tissue. Slides were stained by hematoxylin and eosin (H&E) and available special stains.

Histopathology slides were reviewed by two histopathologists and the final diagnosis was arrived at. Following histopathologic assessment, the tumours were classified according to WHO recommendation, and histologic grading was done using modified Gleason's system**.**

RESULTS;

In this series a total 328 TURP specimens were encountered over the period of 3 years, in histopathology section of the department of pathology. The age ranged from 32 years to 94 years.

Out of total of 328 TURP specimens, 150 (45.73%) were Benign Nodular Hyperplasia .Microscopic features associated with BPH included mixed hyperplasia ,predominant stromal or glandular proliferation ,cystic dilatation of glands ,corpora amylacea ,squamous metaplasia, basal cell hyperplasia, AAH and inflammation. 119 (36.28%) out of 328 cases were Benign nodular hyperplasia of prostate with chronic prostatitis. These cases showed diffuse infiltration of lymphocytes, plasma cells and histiocytes.22 cases (6.70%) were adenocarcinoma. Among BHP cases some were associated with –basal

cell hyperplasia(2.745%), squamous metaplasia 3(0.91%)cases (Fig 1) and urothelial metaplasia 1(0.30%)case .

The rare lesions encountered included:2(0.60%)cases of granulomatous prostatitis(Fig 2), showing -non caseating granulomas with multinucleated giant cells and histiocytes .Atypical Adenomatous Hyperplasia in 3(0.91%).In the present study 19 cases showed Prostatic intraepithelial neoplasia.

These were further classified into low grade(LPIN) and high grade (HPIN).There were 14(4.26%) cases of LPIN,5(1.52%)cases of HPIN. One case of adenocarcinoma was associated with malakoplakia, there were 2 cases of signet ring cell type(Fig-3) showing cells with vacuolated cytoplasm pushing nucleus to periphery.

Table-1Age wise distribution of prostatic lesion.(n=328)

Age group (in years)	BPH	BPH + Chronic Prostatitis	BPH + Basal cell hyperplasia	BPH + Squamous metaplasia	BPH +urothelial metaplasia	Granulomatous prostatitis	LPIN	HPIN	Atypical AdenomatoUs Hyperplasia	Adenocar Cinoma	Total
<40	2					2					4
41-50	2	3							1		6
51-60	12	11	4				1			1	29
61-70	66	55	2		1		4	3	2	12	145
71-80	59	45	2	1			7	2		6	122
81-90	9	2	1	2			2			3	19
>90		3									3
	150	119	9	3	1	2	14	5	3	22	328

Table-2: Distribution as per histological lesions of the prostatic specimens

Benign Prostatic Hyperplasia	150
BPH +Chronic prostatitis	119
BPH +basal cell hyperplasia	9
BPH +Squamous metaplasia	3
BPH+Urothelial metaplasia	1
Granulomatous prostatitis	2
PIN LOW GRADE	14
PIN HIGH GRADE	5
Atypical Adenomatous Hyperplasia	3
Adenocarcinoma	22
Total	328

Table -3 :Pattern of Gleason Score Seen in Prostatic Adenocarcinoma

Gleason'score	Primary +Secondary	
Score 6	3+3	5
Score 7	3+4	10
Score 8	4+4	4
Score 9c	4+5	2
Score 10	5+5	1

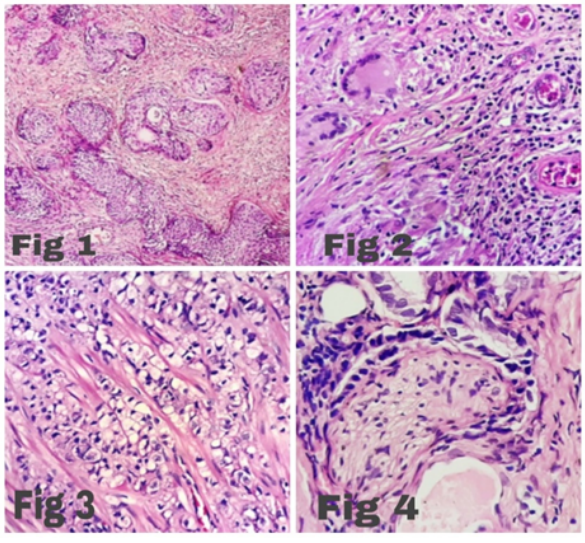

Fig 1: Photomicrograph showing squamous metaplasia in prostatic adenocarcinoma(H&E stain,400x)
Fig 2: Photomicrograph showing Granulomatous prostatitis-.(H&E stain,400x)
Fig 3 : Photomicrograph showing signet ring cell carcinoma (H&E 400x)
Fig 4: Photomicrograph showing perineural invasion in prostatic adenocarcinoma(H&E 400x)

DISCUSSION:

Prostate has three major regions: peripheral zone, transitional zone and central zone. Peripheral zone is the main site for carcinoma[12]. We observed 150(45.73%) cases of BPH, There were 14(4.26%) cases of LPIN,5(1.52%)cases of HPIN. The findings in this series co-rrelated well with the earlier documented series and evaluated only TURP specimens [13,14].

In the present study ,majority of cases(44.20%) were in the age group of 61-70 years followed by(37.19%)in the age group of 71-80 years,(8.84%) in the age group of 51-60 years,(6.70%) in the age group of >80 years and 1.82% in the age group of 41-50 years .This is in agreement with observations of other workers[15,16,17] . The occurrence of prostatic adenocarcinoma before 50 years of age was nil. These findings are consistent with findings of earlier studies.[18] BPH represents nodular enlargement of the prostate caused by hyperplasia of glandular and stromal component[11]. PIN is defined as a cytological alteration in architecturally normal glands .LGPIN and HGPIN. The most important feature in distinguishing HGPIN from LGPIN is nuclear appearance ,regardless of architecture[11].The most common predominant tumor pattern i.e.primary pattern score was found to be 4 and most common secondary pattern score was also found to be 4,The commonest overall Gleasons score or sum obtained by combining the primary and secondary score was found to be 7 (4+3,10).In the study done by SEER(Surveillance ,Epidemiology ,and End Results)the most common Gleason'score was found to be 5-7[19,20]. The most common co-existing finding with benign nodular hyperplasia was found to be chronic prostatitis. One of the studies has reported chronic prostatitis in 26.3% of cases as most common coexistent finding[21]. while another series reported prostatitis as the most predominant subgroup in non neoplastic lesions[22] . 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 and (3.85%)[21,22].Two cases of granulomatous prostatitis negative for AFB were reported as nonspecific granulomatous prostatitis. squamous metaplasia were the other but less frequent histopathological findings. Among the 22 cases reported as PCa perineural invasion (Fig 4) was seen in 4 cases (18.18%). One of the study has reported perineural invasion in 20% of their cases [19].

CONCLUSIONS:

Prostatic lesions are commonly encountered in the age group of 61-70 years with predominance of benign over malignant conditions.On histological evaluation of TURP specimens, Benign prostatic hyperplasia (BHP) was commonest finding followed by BHP with chronic prostatitis .PIN is also a significant finding in assessment of TURP specimens which requires careful follow-up. Granulomatous prostatitis and atypical adenomatous hyperplasia can be rare findings encountered in TURP specimens as observed in our study.

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