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STUDY OF PROSTATIC LESION FOR A PERIOD OF FIVE YEARS

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ABSTRACT

Early detection and management of prostate cancer is an important public health problem in all industrialized countries, where the relative rate of the elderly population is rapidly increasing. Aims of the study is to identify the incidence of the premalignant and malignant conditions and Study of high grade prostatic intraepithelial neoplasia and its association with Prostatic hyperplasia and carcinoma.The present study was undertaken in the Upgraded department of pathology, King George Hospital, Andhra medical college for a period of five years from January 2002 to December 2006. A total of 340 cases evaluated, 277(81.47%) were benign, 11(3.23%) were premalignant and 52 (15.29%) malignant lesions. The ratio of benign to malignant lesions were 5.5: 1 ; Benign prostatic hyperplasia and prostrate carcinoma were the two principal conditions account for majority of all prostrate diseases. Among premalignant lesions only high grade prostatic intraepithelial lesion is seen in association with prostatic carcinoma (40%).

KEY WORDS

Prostate cancer (PC), High grade prostatic intraepithelial neoplasia(HGPIN), Benign prostatic hyperplasia(BPH)

INTRODUCTION

The term “prostate” was originally derived from the Greek word “prohistani”, meaning “to stand in front of”, and has been attributed to Herophilus of Alexandria who used the term in 335 B.C[1]. Early detection and management of prostate cancer (PC) is an important public health problem in all industrialized countries, where the relative rate of the elderly population is rapidly increasing. Diseases of the prostate are common causes of morbidity in adult males and show wide geographical and ethnic variations in incidence and mortality worldwide. There are several benign proliferations and normal histoanatomical structures of prostate which mimic malignancy and their awareness is essential to avoid diagnostic pitfalls. Currently, two premalignant lesions have been recognized: prostatic intraepithelial neoplasia (PIN) and atypical adenomatous hyperplasia (AAH), there is a need to determine their significance as there are many important unanswered questions. The present study aims at highlightening on all these issues. Aims of study are lesions of prostate during a five year period to identify the incidence of the premalignant and malignant conditions. Study of high grade prostatic intraepithelial neoplasia and its association with Prostatic hyperplasia and Prostatic carcinoma.

MATERIAL AND METHODS

The present study was undertaken in the Upgraded department of pathology, King George Hospital, Andhra medical college for a period of five years from January 2002 to December 2006. Specimens were obtained from the patients with prostatic lesions who underwent transurethral resection of prostate (TURP) or radical prostatectomy attending to the department

of surgery and urology. The study comprises a retrospective analysis of 187 cases received from January 2002 to May 2004 and prospective analysis of 153 cases received from June 2004 to December 2006.

The material obtained is embedded as per the guidelines suggested in Ackerman's surgical pathology (9th edition, 2004). All the prostatic specimens fixed in 10% formalin were received. They were weighed and subjected to a careful detailed gross examination, then fixed in 10% buffered formalin for 24 hours, after fixation bits were given from represent areas and processed routinely. Sections were prepared after routine processing and embedding, and then stained with Haematoxylin and Eosin.

RESULTS

Of the 340 cases, 277 cases had BPH, 8 cases had BPH with HGPIN, 3 cases had BPH with AAH, while 50 cases had prostate cancer, and 2 cases had secondary carcinomas in prostate extending from bladder.

TABLE-I: Age Wise Distribution of Lesions

AGE	BPH	PREMALIGNANT		MALIGNANT		TOTAL
		BPH-HGPIN	BPH–AAH**	MALIGANT	MALIGNANT WITH HGPIN	
31-40	3	0	0	0	0	3(0.9%)
41-50	31	2	0	0	0	33(9.7%)
51-60	109	4	3	2*	12	130(38.2%)
61-70	98	1	0	19	6	124(36.4%)
71-80	35	1	0	10*	2	48(14.1%)
81-90	1	0	0	1	0	2(0.58%)
TOTAL	277	8	3	32	20	340(100%)

* Secondary carcinomas-prostate; one case in each category; n=2

**Atypical adenomatous hyperolasia (AAH)

The maximum incidence of prostatic lesions was in the sixth and seventh decades. Maximum incidence of benign and premalignant lesions was sixth decade and malignant lesions were in the seventh decade.

TABLE-II: Hgpin Association with Benign Vs Malignant and Nature Of Specimen

LESION	TURP	PROSTATECTOMY	TOTAL
BENIGN WITH HGPIN	4	4	8
MALIGNANT WITH HGPIN	6	14	20
TOTAL	10	18	28

Changes of HGPIN were observed most commonly in prostatectomy specimens when compare to TURP chips

TABLE-III: INCIDENCE OF VARIOUS MALIGNANT LESIONS

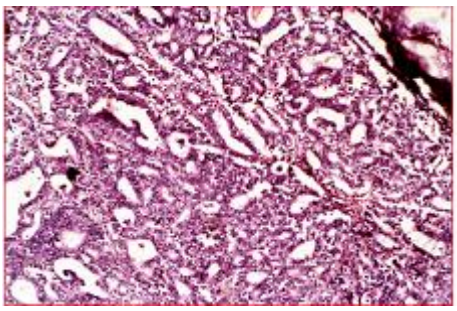
TYPE OF MALIGNANCY	NO. OF CASES
PRIMARY ADENOCARCINOMA	50 (96.15%)
VARIANTS OF PROSTATIC ADENOCARCINOMA	0
SECONDARY CARCINOMAS	2 (3.84%)
Transitional cell carcinoma -1	
Signet ring carcinoma-1	
TOTAL	52

TABLE-IV: Distribution of Gleason Grade

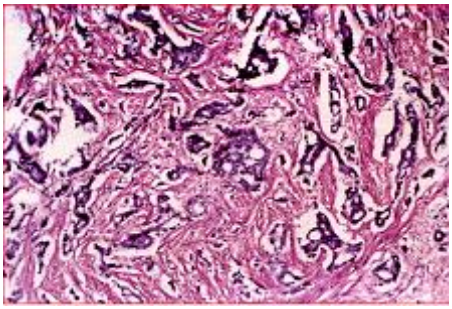
GLEASON GRADE	TURP	PROSTATECTOMY	TOTAL
1	0	0	0
2	4	4	8(16%)
3	8	15	23(46%)
4	2	15	17(34%)
5	0	2	2(4%)
TOTAL	14(28%)	36(72%)	50(100%)

Figure-1: TURP specimen displaying grey white bits of prostatic tissue

Figure-2: Prostatic cancer Gleasons pattern



Gleasons pattern-3 varying size and shape of the gland



Gleasons pattern-3C cribriform glands

DISCUSSION

Benign prostatic hyperplasia and prostrate carcinoma were the two principal conditions that involve the prostrate and account for majority of all prostrate diseases.

In the similar study done by Xess A et. al[2], Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna, out of 98 cases, 52% were adenocarcinomas and 42.8% cases were benign prostatic hyperplasia. A study done by Tay KP et. al[3] in Singapore found that the prevalence of BPH was higher, similar to the finding of the present study. In the present study, patients aged from 30-90 years were observed with majority of BPH occurring in the age group of 50-70years, with a mean age of 58 years.

In the study conducted by Ro J Y et al., the age range was 60-80 years with a mean age of 64 years[4]. Where as in the study conducted by Shapiro et al., mean age was 73 years. In the study conducted by J.T. Animet al., the age range was 33-98 years with a mean age of 63 years[5]. All these studies indicate that BPH has significantly associated with age and the present study correlated well with the above studies.

In the present study comprising mainly TURP chips 3(1%) cases of AAH was reported. Study by Qian J, Bostwick DG et al., in totally embedded radical prostatectomies with prostate cancer , AAH was identified in 23% of the cases, and was more frequent in transitional zone than in the non transitional zone. AAH showed a weak but significant association.

TABLE- V: Comparision of Various Studies

SL.NO	Studies	Prostates With Carcinoma	Prostates Without Carcinoma
1.	Mc Neal and Bostwick	33%	4%
2.	Troncoso et al	72.1%	17.9%
3.	Desai et al	85.24%	0 %
4.	Present study	40%	2.77%

All the studies indicate that HGPIN was the most commonly observed premalignant lesion, thereby suggesting it to be likely precursor of prostatic carcinoma. The incidence of HGPIN in transurethral resection of prostate is relatively uncommon with the studies reporting a rate of 2.3% and 2.8% respectively. Study by Pacelli A, Bostwick DG., reported 4.2% of HGPIN in TUPR chips. Including 2.8% of those with BPH and 10.2% of those with cancer and BPH. In the present study, the incidence of HGPIN in transurethral resection of prostate was 4.29% coinciding with the above studies. In the present study, the most common incidence of benign and pre-malignant lesions was in the 6th decade (40.3% & 61.2% respectively), with a mean age of 58 years. Prostatic carcinoma was in 7th decade (50%), with a mean age of 66years. Premalignant lesions were preceded by a decade as compare to malignant lesions, with a mean age of 8 years difference.

Kovi et al., demonstrated that the prevalence of PIN in malignant glands increased with age, and that these lesions appeared to predate the onset of carcinoma by more than 5 years[6]. Lee et al studied ultrasound guided biopsies of hypo echoic lesions and observed, the mean age of those with PIN (65years) was significantly lower than the age of men with cancer (70years) [7], findings consistent with these studies.

Gleason grading and scoring criteria, most common grade was Grade-3 (46%) closely followed by Grade-4. Most common Gleason score was 7 (28%) closely followed by 6 (22%). According to WHO classification of tumours. Pathology & Genetics (2002), Gleason pattern 3 is the most common pattern and Gleason scores 6 and 7 are the most common scores and include the majority of the tumours in most studies.

CONCLUSION

In a total of 15,800 surgical biopsies, 340 were prostatic biopsies giving an incidence of 2.15%. The ratio of benign to malignant lesions were 5.5: 1. Premalignant lesions were preceded by a decade (mean-58y) as compare to malignant lesions (mean-66y), with a mean age of 8 years difference. Among premalignant lesions only high grade prostatic intraepithelial lesion is seen in association with prostatic carcinoma (40%). In prostatic adenocarcinoma Gleason grade-3, Gleason score -7 were most commonly encountered. Direct spread from bladder carcinoma is the most common type of secondary's in prostate.

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