

## Retrospective and prospective study of prostate cancer for a period of five years

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### ABSTRACT

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. Aim is to study the lesions of prostate during a five year period to identify the incidence of malignant conditions. 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 2006A 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 condition that involve the prostrate and account for majority of all prostrate diseases. The most common incidence of Prostatic carcinoma was in 7<sup>th</sup> decade (50%), with a mean age of 66years.In prostatic adenocarcinoma Gleason grade-3, Gleason score -7 were most commonly encountered.Direct spread from bladder carcinoma is the most common type of secondaries in prostate.

**Keywords:** Prostate cancer (PC), High grade prostatic intraepithelial neoplasia(HGPIN), Benign prostatic hyperplasia(BPH), Gleason grade, Gleason score .

### Introduction

The term “prostate” was originally derived from the Greek word “prohistan”, 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. Benign prostatic hyperplasia and prostrate carcinoma were the two principal condition that involve the prostrate and account for majority of all prostrate diseases.

Prostate cancer is graded by Gleasons grade and score for treatment and prognostic point of view. This study is to know incidence of malignant tumours and grade of presentation.To study the lesions of prostate during a five year period to identify the incidence of malignant conditions.

### 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

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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**

In 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-1: 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%)
<b>TOTAL</b>	<b>277</b>	<b>8</b>	<b>3</b>	<b>32</b>	<b>20</b>	<b>340(100%)</b>

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

\*\* Atypical adenomatous hyperlasia(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 2: Incidence of various malignant lesions**

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

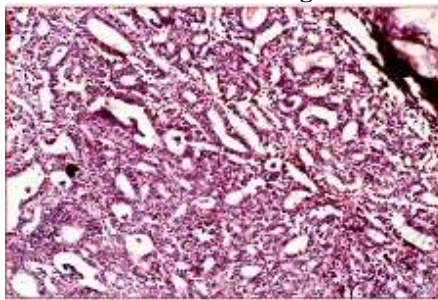
**Table 3: Distribution of gleason grade**

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%)
<b>TOTAL</b>	<b>14(28%)</b>	<b>36(72%)</b>	<b>50(100%)</b>

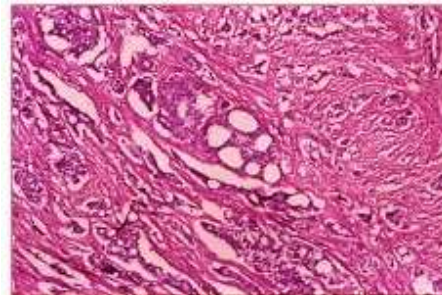
**Table 4: Distribution of gleason score**

GLEASON SCORE	TURP	PROSTATECTOMY	TOTAL
2	0	0	0
3	0	0	0
4	2	0	2(4%)
5	3	4	7(14%)
6	3	8	11(22%)
7	3	11	14(28%)
8	3	7	10(20%)
9	0	5	5(10%)
10	0	1	1(2%)
<b>TOTAL</b>	<b>14</b>	<b>36</b>	<b>50(100%)</b>

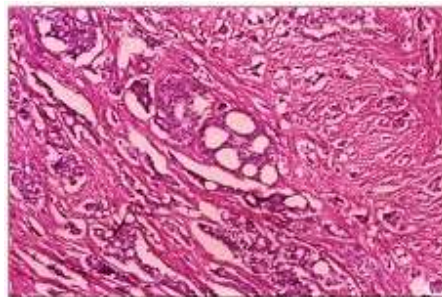
**Figure1: Cut sections of prostrate cancer**



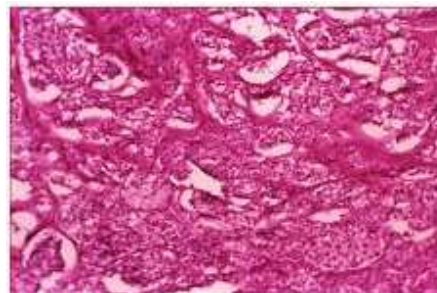
Prostatic cancer Gleasons pattern-3  
varying size and shape of the gland



Prostatic cancer Gleasons pattern-3C  
cribriform glands



Prostatic cancer Gleasons pattern-4A



Prostatic cancer Gleasons pattern-4B

**Discussion**

Benign prostatic hyperplasia and prostrate carcinoma were the two principal condition 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, 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[4]. 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) [5], findings consistent with these studies.

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.

In this study, following the above 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%). Moderately differentiated and moderate to poorly differentiated carcinomas (36%+28%) were most commonly observed when compare to poorly differentiated carcinomas (32%). Whereas well differentiated carcinomas were a rare finding (4%) only observed in TURP specimens. Our findings coincided well with the above studies.

**Source of Support: NIL**

**Conflict of Interest: None**

## 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 secondaries in prostate.

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