



## Characterization of prostatic lesions in surgically resected specimens

### KEYWORDS

BPH, Prostatic Carcinoma, PIN

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**ABSTRACT** Background :- Prostate gland of male reproductive system is about the size of walnut and surrounds the urethra. Most frequently encountered diseases affecting prostate are prostatitis, Benign Prostatic Hyperplasia (BPH) and prostatic cancer. The aim of this study is to characterize various prostatic lesions on histological ground in patients undergoing prostatectomy for worsening symptoms of BPH.

Methods:- It was a cross-sectional study conducted in pathology department of G.R. Medical college, Gwalior (M.P.). During the period of June- 2010 to June-2014. Pathology department of G.R. Medical college collected specimens from Jayarogya group of hospitals. Specimens were taken through TURP, simple prostatectomy and radical prostatectomy. A questionnaire was made and information including name, age, Biopsy number were noted in it.

Results:- During the targeted months, 92 prostatic specimens were received with a mean age of the patients was 67 year (45 year to 90 year). When histological biopsy chart of 92 male patients who underwent prostatectomy between specified period were reviewed the findings were as follows - 90.3% cases were benign whereas 9.7% cases were malignant.

Conclusion:- Frequency of prostatic cancer is on the rise and measures should be taken for its early detection. Both BPH and prostatic adenocarcinoma were more prevalent in the age group of 60-70 years. Among Benign lesions BPH and prostatitis were most common whereas high grade PIN is least common

### Introduction:

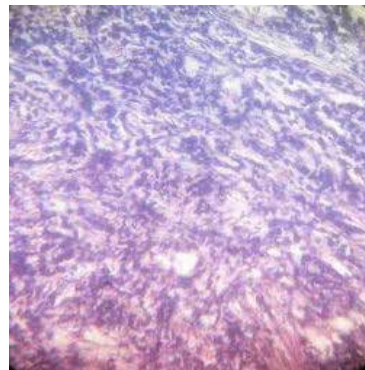
Worldwide, diseases of prostate gland are responsible for significant morbidity and mortality among adult males [1]. It is estimated that number of males in the U.S. who will experience prostatitis during their lifetimes range up to 50% [2]. Prostate cancer is the most common malignant tumor in men all over the world and is also the second important cause of cancer related deaths in men after lung cancer. In India prostatic cancer was third commonest tumor occurring in 7.3% of all men [4].

Prostate gland of male reproductive system is about the size of walnut and surrounds the urethra. In adults, Prostatic parenchyma can be divided into four biological and anatomical zones: peripheral, central, transitional and anterior fibromuscular stromas. Most hyperplasia occurs in transitional zone while most carcinoma originates in the peripheral zone. Most frequently encountered diseases affecting prostate are prostatitis. Benign prostatic hyperplasia and prostatic cancer [1], Inflammation of prostate gland is called prostatitis, it is characterized by urinary frequency, dysuria, body aches and sometimes fever. Prostatitis may be infective and non-infective [5]. In some males, prostate enlargement occurs with the increase in age [6].

Incidence of prostatic cancer is increases proportionally after age of 50 years [1]. In approximately, 70% of cases it arises in the peripheral zone of gland particular in the posterior location [4]. Adenocarcinoma is its most common histological variant [1]. Most important risk factors for developing prostate carcinoma are Family history, increasing age, lack of exercise, pain and difficulty in urinating and problems during sexual intercourse [5].

Methodology :- it was a cross-sectional study conducted during the period of June- 2010 to June-2014. In pathology department of G.R Medical College, which collects specimens from jayarogya group of hospitals. Specimens examined were taken by transurethral resection of prostate (TURP), single prostatectomy, radical prostatectomy and radical cystoprostatectomy. Biopsies were kept in 10% neutral buffered formalin. Specimens were grossly examined and size/quantity and weight of all specimens were recorded. Abnormalities such as increase in weight or size and gross characteristics such as nodular and cystic changes were noted. After cutting and processing of sections they were embedded in paraffin. Sections were 4-6 micrometer thick and they were stained with Hematoxylin & Eosin in all cases. Diagnostic criteria for various prostatic lesions were as follows -

### Diagnostic criteria for prostatic cancer include



**FIG 1. POORLY DIFFERENTIATED ADENOCARCINOMA COMPOSED OF TUMOUR CELLS ARRANGED IN DIFFUSE PATTERN.**

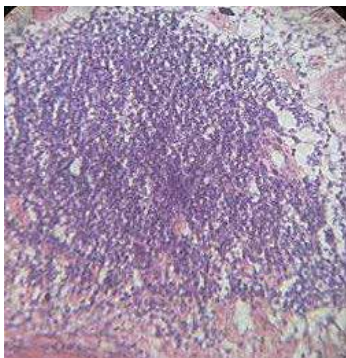
1. Nuclear changes - Presence of prominent nucleoli was advocated as diagnostic criterion of prostate cancer. In addition to nucleolar prominence, multiple nucleoli and nucleolar margination have also been suggested as diagnostic criteria for prostate cancer. Multiple nucleoli are never found in benign gland. Perineural invasion used to be considered as a diagnostic hallmark of malignancy.
2. Cytoplasmic features:- Cytoplasmic features in malignancy vary from clear amphophilic to eosinophilic.
3. Collagenous micronodules:- Collagenous micronodules are another recently described histological observation in prostate cancer.

**Diagnostic criteria for BPH:-** Nodularity is the hallmark of Benign Prostatic Hyperplasia. In the usual case prostate enlarges up to 100gm and nodular hyperplasia of the prostate originates almost exclusively in the inner aspect of prostate gland. On cross section, the nodules vary in color and consistency.



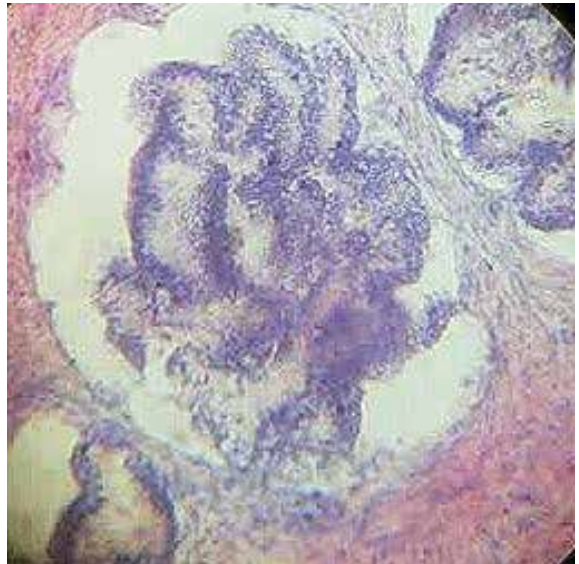
**FIG.2 nodular hyperplasia of prostate with cystic dilatation of glands.**

**Diagnostic criteria for chronic non-specific prostatitis:-** Malignant lymphoma of the prostate must be separated from chronic non-specific prostatitis. Lymphoma of the prostate primarily affects the fibromuscular stroma. On the other hand in chronic non specific prostatitis the earliest pathologic changes are found in the glands. In malignant lymphoma ,the prostatic infiltrate is composed of one cell type whereas in chronic non specific prostatitis cell population is mixed including mainly lymphocytes, some plasma cells, histiocytes, monocytes and a few neutrophils also.



**FIG.3 CHRONIC NON-SPECIFIC PROSTATITIS SHOWING LYMPHOCYTIC INFILTRATION.**

**Diagnostic criteria for high grade PIN:-** It is non-invasive intraductal cytologically malignant epithelial process. Some important histopathological findings are as follows: (1) Epithelial nuclei must show features of carcinoma. (2) Invasive pattern must not be seen. (3) Cribriform and flat variants are seen rarely. (4) Mitotic figures are very rare. (4) No perineural invasion.



**FIG.4. HIGH GRADE PIN, SHOWING TUFTING OF DUCTAL EPITHELIUM AND MICROPAPILLARY PATTERN.**

**Result :-** During the period of four years from June 2010 to June 2014. 92 cases were received, age range of patients was 45-90 years. Mean age of presentation was 67 years. Majority of cases were in the age groups 60-70 years (58.3%). All prostatic lesions were classified as benign and malignant. Out of 92 patients 83 were of Benign lesions and 9 were malignant.

Both BPH and adenocarcinoma were more prevalent in the age group of 60-70 years.

**Discussion:-** Most common prostatic lesion found in our study was BPH with Chronic non-specific prostatitis 42 (45.7%) which was frequently found in the age group of 60-70 years. BPH was found 26 (28.3%), chronic non-specific prostatitis was found 11 (11.95%), BPH with squamous metaplasia was found 01 (1.1%), Low grade PIN was found 2 (2.2%) and high grade PIN was found only 01(1.1%).

Out of 92 cases only 09 (9.7%) were malignant almost all of them were prostatic adenocarcinoma.

**Conclusion:-** BPH with chronic non-specific prostatitis was most common 42 (45.7%). prostatic lesion occurring commonly after sixties. High grade PIN was least common 01 (1.1%) in our study. Sample size is very small so we cannot calculate the prevalence of various prostatic lesion in greater Gwalior Region. Screening protocols and awareness programs of prostatic cancer need to be introduced and screening programs should be focused on level of androgens and molecular pathogenesis.

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