ORIGINAL ARTICLE

Morphological Patterns of Prostatic Lesions

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ABSTRACT

Objective: The aim of this study was to estimate the frequency of inflammatory, benign and malignant lesions in prostatic biopsies.
Study Design: Descriptive study.
Place and Duration: The study was carried out at the department of Histopathology at PGMI Lahore from January 2009 to January 2011.
Materials and Methods: 220 prostatic biopsies (radical prostatectomy, TURP and core biopsies) received from Urology department of Lahore General Hospital were included in this study.
Results: A total of 220 prostatic specimens were included in this study. Out of these 62% were reported as benign, 4% as premalignant and 33% as malignant neoplasms.

Key Words: Prostatic lesions, frequency, morphological features.

INTRODUCTION

Within the past decade or so, there has been a sudden increase of interest in diseases of the prostate. This is largely due to the recently perceived high incidence of prostatic carcinoma in different geographical and ethnic groupings.[1] Attention has naturally focused more on malignant, as well as premalignant, lesions of the prostate.[2] Malignant primary carcinoma of the prostate is the second most common malignancy in men after lung cancer, world wide.[3] It is a leading cause of death in men.[4,5] Recently, the premalignant lesions have also become better defined, largely as a result of advances in technology. As most of the literature is focusing more on malignant prostatic lesions, we have attempted to delineate a complete pattern of prostatic lesions by also analyzing the benign lesions as well as inflammatory lesions of prostate with review of the relevant literature.

Prostatic lesions including nodular hyperplasia and malignant primary prostatic carcinoma are common conditions of elderly male population.[6] Hyperplasia of the prostate is characterized by hyperplasia of the prostatic stroma and epithelial cells, resulting in large and fairly discrete nodules.[7] Malignant primary carcinoma of the prostate is a leading cause of death in men.[8] Early detection of cancer is an important issue in the field of oncology. The prostate gland is no exception to this rule. The routine screening of the vulnerable elderly male population with the three pronged approach: digital rectal examination, ultrasonography and estimation of PSA in serum has lead to marked increase in the frequency of prostatic biopsies.[9] The Pathologist faces many pitfalls in the accurate interpretation of prostatic biopsies. Prostatitis, benign prostatic hyperplasia and carcinoma cover almost the entire spectrum of prostatic lesions.[10]

MATERILS AND METHODS

This was a descriptive, retrospective study conducted for a period of two years i.e; from January 2009 to January 2011 in the Histopathology department of Post Graduate Medical institute, Lahore. The objective of this study was to estimate the frequency of inflammatory, benign, premalignant and malignant lesions of the prostate. The data was retrieved from the files of the patients which included clinical presentation, symptoms, clinical findings and serum PSA levels.

Formalin fixed specimens of the prostate including radical prostatectomy, TURP and core biopsies of 220 patients were received from Urology and Surgical departments of Lahore General Hospital, Lahore.

All prostatic lesions were categorized into benign and malignant and were also tabulated with their frequency and age distribution. The lesions were analyzed with following parameters: prostatic hyperplasia were categorized in two classes as: “glandulostromal” where there was excess

glandular proliferation over stromal or were roughly equal; those sections which show mostly stromal elements over glands or were made up of entirely stromal component were categorized as “stromal”.

Inflammatory changes within prostate glands were separated into acute, chronic and granulomatous inflammatory changes. Malignant lesions were kept as one category and included cases of prostatic adenocarcinoma. These lesions were further graded into subcategories in the present study depending upon their level of differentiation according to the Gleason’s score and were mainly analyzed for their mean age of presentation.

The literature was searched for those papers reporting incidence of prostatic lesions. Most of these articles provided information on cancer rates in general and some presented prostatic carcinoma rates specifically in various regions.

RESULTS

A total of 220 prostatic specimens were included in this study. Out of 220 cases, 137 (62%) cases were reported as benign, 09 (4.0%) cases as premalignant and 74(33%) cases as malignant neoplasms.

Table 1: Frequency of non-neoplastic & neoplastic lesions of prostate

Lesions	No. of cases
Benign hyperplasia	137 (62%)
High PIN	09 (4.0%)
Prostatic adenocarcinoma	74 (33%)

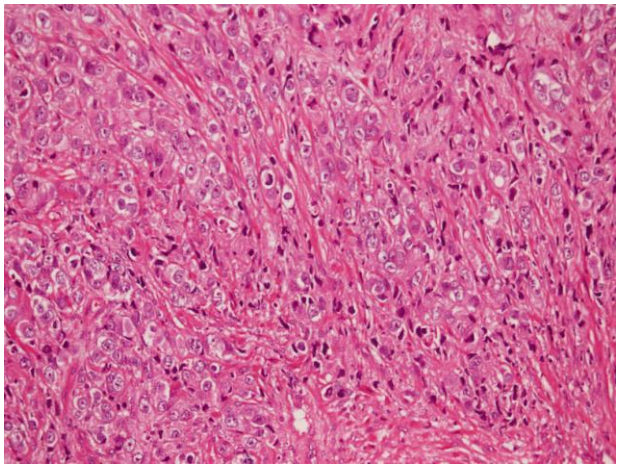
Table 2: Relationship of age with prostatic lesions

Lesions	No. of cases in % age	45-55 yrs	56-70 yrs	>70 yrs
BPH with inflammation	05%	04	03	04
BPH without Inflammation	62%	16	41	69
Premalignant lesions	4.0%	02	04	03
Prostatic carcinoma	33%	08	17	49

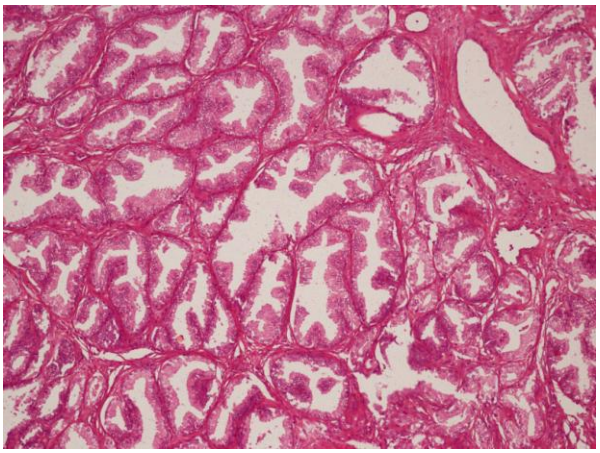
Out of 137 benign lesions, only 11 cases were associated with significant inflammatory changes. These 09 premalignant cases were reported as prostatic intra epithelial neoplasia. All the 74 cases of malignant neoplasms were diagnosed as adenocarcinoma of the prostate with Gleason’s scores as shown in table 3 below.

Table 3: No. of cases of Prostatic adenocarcinoma according to Gleason’s score

Gleason’s Score	Level of differentiation	No. of cases
2+2	well differentiated	04(5.40%)
3+4	Moderately differentiated	09(12.16%)
5+4	Poorly differentiated	61(82.43%)



Photomicrograph showing high grade prostatic carcinoma (H&E) 400x



Photomicrograph showing BPH (H&E) 400x

DISCUSSION

This was a descriptive, retrospective study done at Histopathology department of PGMI Lahore from January 2009 to January 2011. 220 prostatic biopsies were evaluated to assess the frequency of benign, premalignant and malignant lesions.

The incidence of prostatic carcinoma is increasing in our population. In developing countries which lack screening programmes, upto 80% of the patients present with advanced disease.

Our study included a range of ages starting from 45 years onwards. The age group of >60 years was the highest risk group in this study. Maximum number of premalignant and malignant lesions was found in this age group.

The morphological patterns of various prostatic lesions were not compared with serum PSA levels because serum PSA levels do not help us in determining the malignant nature of the disease in many of the cases. There are false positive and false negative results. Furthermore proper evaluation of PSA level also requires proper follow – up which is lacking generally in our part of the world.

In this study several benign mimickers of prostatic carcinoma like inflammatory atypia, adenosis and basal cell hyperplasia made the accurate diagnosis of malignancy difficult on haematoxylin and eosin (H&E) staining. Immunohistochemistry can help to overcome this difficulty.

This study was compared with other international studies. Anim J.T. et al. reported one large paper from Kuwait.[11] This paper analyzed 567 benign prostatic hyperplasia cases, and reported that the mean age of presentation was 63 years. They studied in detail the various morphological types of benign prostatic hyperplasia and inflammatory changes in prostate gland. There results were similar to ours.

In another study from Saudi Arabia,[12] a total of 535 histopathological prostatic specimens were studied. 54 (10%) of them were malignant prostatic carcinomas (adenocarcinoma) and rests were benign. Among benign 440 (82.2%) of specimens were diagnosed as having adenomuscular hyperplasia, 133 (24.9%) were having chronic prostatitis, 17 (3.1%) cases were having acute prostatitis and 5 (0.9%) cases were having granulomatous prostatitis. 4 cases of these granulomatous prostatitis were confirmed having tuberculosis. The mean age of presentation for each category were: for malignant prostatic carcinoma cases was 66.; for benign prostatic hyperplasia cases was 64.3; for acute prostatitis was 60.9; for chronic prostatitis was 65.1 and for granulomatous prostatitis was 67.

Study from Kaiser Permanente Medical Centre in Oakland[13] revealed 44% cases of BPH with non-specific inflammation, 16% 0f premalignant lesions and 63% cases of adenocarcinoma of the prostate. It further revealed that most of the cases of the adenocarcinoma of prostate were well-to-moderately differentiated while most of the cases reported in our study are poorly differentiated. It was also found out that previously prostatic carcinoma was more prevalent in western world but now its incidence is increasing in our region, possibly due to changes in dietary habits as more fatty acids are becoming part of our diets which has proved to be a factor in the causation of prostatic carcinoma.

CONCLUSION

In conclusion, from analysis of our study and review of literature we are under the impression that the rate of prostate cancer in Pakistan is low at this time as compared to the Western world, but due to lack of central cancer registry and wide scale studies, the importance of screening protocols and increasing education and awareness can not be downgraded. Therefore, we recommend further large-scale studies and continuous monitoring of the newly diagnosed cases, measuring of the morbidity caused by this disease and keeping an eye on its mortality rates. Every effort should be made for the appropriate measures to be taken towards possible prevention,

by avoiding some of the risk factors. Recognition of unusually high morbidity and mortality rates would justify the screening for early detection of this disease and serious attempts to seek effective and curative treatment at the early stages.

Tackling prostatic cancer in impoverished countries with underdeveloped health-care systems seems a daunting prospect. All the links in the chain including sampling, processing, screening, quality control and interpretation of the abnormal results with prompt action by the clinicians must be maintained.

REFERENCES

1. Bhurgri Y, Kayani N, Pervez S, Ahmed R, Tahir I, Afif M, et al. Incidence and trends of prostate cancer in Karachi South, 1995-2000. Asian Pac J Cancer Prev 2009; 10: 45-48.
2. Parsons JK, Kashefi C. Physical activity, benign prostatic hyperplasia, and lower urinary tract symptoms. Eur Urol 2008; 53: 1228-35.
3. Evans AJ. Alpha methylacyl co-A racemase (P504S): Overview and potential uses in diagnostic pathologyas applied to prostate needle biopsies. J Clin Pathol 2003; 56: 892-97.
4. Humphery PA. Diagnosis of adenocarcinoma in prostate needle biopsy tissue. L Clin Pathol 2007; 60: 35-42.
5. National Vital Statistics Reports of United States, Vol. 48, No. 11.
6. Fenter TC, Naslund MJ, Shah MB. The cost of treating the ten most prevalent diseases in men 50 years of age or older. Am J Mang Care 2006; 12: 90-98.
7. Ramseng EW. Benign Prostatic Hyperplasia: a review. Can J Urol 2000; 7: 1135.
8. Humphrey PA 2007. Diagnosis of adenocarcinoma in prostate needle biopsy tissue. Am J Clin Pathol; 60: 35-42.
9. Mostofi FK, Sesterhenn A, Davis CJ. Prostatic carcinoma: Problems in the interpretation of prostatic biopsies. Hum Pathol 1992; 23:223-41.
10. Damber JE, Aus G. Prostate cancer. Lancet 2008; 371: 1710-21.
11. Anim JT, Ebrahim BH, Abdul S. Benign disorders of the prostate: A histopathological Study. Ann Saudi Med 1998; 18: 22-27.
12. Mansoor I. Patterns of prostatic diseases in Saudi Arabia. Internrt Journal of Pathology 2003; Vol. 2, No. 2.
13. Roehrborn CG, Siami P, Barkin J. The influence of baseline parameters on changes in international prostate symptom score with dutasteride, tamsulosin, and combination therapy among men with symptomatic benign prostatic hyperplasia and an enlarged prostate: 2-year data from the CombAT study. Eur Urol 2009; 55:461- 71.