Pattern of Prostatic Lesions in Chhattisgarh Institute of Medical Sciences, Bilaspur: A Retrospective Tertiary Hospital Based Study

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Abstract

Introduction: Prostate gland is a very important source of male morbidity and mortality. Its prevalence varies from place to place with highest in African Americans and least in Asians. Its spectrum of diseases consists of inflammation, nodular hyperplasia to malignancy. All the diseases risks increases with age. Furthermore, new histological variants have come up with ongoing research on prostate since last few decades. New modality of diagnosis also has been developed comprising of radiological modalities and prostatic biomarkers. However, still histological diagnosis is mainstay for the final diagnosis.

Purpose: The present study was conducted to know the pattern of prostatic lesions around Bilaspur, Chhattisgarhi. It is situated in the central-east region of India and is predominantly a tribal belt.

Materials and Methods: The study period was from 2003 to 2014 in a tertiary level hospital and based on retrospective study. Total 215 prostatic samples were received in the department of pathology, out of which 195 were diagnosed as benign lesions, and 20 cases were found malignant. Benign prostatic hyperplasia (BPH) alone was the highest entity in benign category and adenocarcinoma of prostate in the malignant category. Routine stain used was hematoxillin and eosin.

Result: The highest age group presenting to us for benign prostatic lesions was 61-70 (83 cases) and malignant prostatic lesions (6 cases each) among 71-80 years age-group. The youngest patient presenting with prostatic lesion was 35 years, and oldest was of 95 years of age. Common lesion found was BPH. The prostatic cancer among overall malignancies was found to be 2.74% (20/729) during the study period.

Conclusion: The present study showed patterns of prostatic lesions in Central India which is a tribal belt. Neoplastic lesions are more common than non-neoplastic lesions. Among the histological types of prostatictic lesions, BPH is predominant type, followed by BPH with prostatitis.

Key words: Adenocarcinoma, Neoplastic, Prostate, Prostatitis

INTRODUCTION

The prostate gland is the largest secondary male reproductive organ and weighs approximately 20 gms in a normal adult. It is retroperitoneal organ and encircles the neck of the bladder and urethra. The prostate is an exocrine gland and forms a significant component of seminal fluid. Histologically it consists of glands lined by basal cuboidal cells and inner secretory columnar cells (double layered) and it depends on testicular androgen for its normal functioning. Important cause for prostatic morbidity and mortality includes inflammation, benign nodular enlargement and tumors. Benign prostatic hyperplasia (BPH) alone affects 210 million males worldwide, and it is so common in advanced ages that it can be considered as a part of normal ageing process.[1] BPH is the most common

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urologic disorder in men beyond 40 years of age group and is almost present in men aged 80-90 years of age group.[2] Furthermore, prostatic tumors are a very important cause of male morbidity and mortality and prostate cancer is second only to lung cancer among cancer-related deaths in men.[3] Prostate cancer is responsible for 3% of all deaths in men above 55 years of age.[4] The incidence of prostatic cancer increases rapidly with age than any other cancer. Its incidence varies from 8% in the 4th decade to 50% in the 5th decade and 75% in the 8th decade. Therefore, incidence of prostatic diseases including prostate cancer are expected to increase, as average life expectancy of men is increasing.[5,6] There is a definite ethnic variation in its prevalence with most common in African-Americans followed by Scandinavians, Caucasians and least common in Asians.[7]

In India, prostate cancers constitute about 5% of all male cancers.[8] Screening of prostatic lesions constitute prostate-specific antigen, digital rectal examination, and transrectal ultrasound, but biopsy remains the gold standard diagnostic tool for final diagnosis. Histological criteria for prostate cancer diagnosis are irregular growth pattern, nuclear atypia, high N/C ratio, increased mitotic index and absence of double layered epithelium.[9] However, it becomes very challenging in the presence of benign mimickers, mixed with benign glands and limited tissue availability. Under such circumstances immunohistochemistry plays a valuable diagnostic role.[10] Recent up gradation of our knowledge due to work of various authors on prostate in last two decades shows new variants of BPH, premalignant lesions as well as new histological variants and prognostic factors. High-grade prostatic intraepithelial neoplasia is considered as a premalignant condition of prostatic adenocarcinoma.[11] As most of the patients are of old age, therefore possible outcome of treatment versus treatment morbidity is the essential and hence accurate diagnosis and judicious management are essential. For this, many systems were developed but tumor, node, metastasis staging and Gleason's grading are universally accepted.[12] As there is no previous data from central-eastern part of India, where Chhattisgarh is located and mostly comprising of tribal population, therefore we have conducted this study to survey pattern of prostate diseases based on analysis of histopathological specimens received by Department of Pathology, Chhattisgarh Institute of Medical Sciences (CIMS), Bilaspur, a tertiary level teaching hospital. The data will be useful for planning and management of prostatic diseases especially cancer prostate in this tribal zone where mostly healthcare facilities are not optimum. The prostatic biopsies, total prostatectomy specimens and prostatic chips obtained by transurethral resection of prostate (TURP) forms a significant volume of surgical pathology material received in histopathology department of our institute, accounting for 6.09% (215/3526) of all surgical specimens.

Aims and Objectives

The present study was conducted to determine histological patterns and age distribution of various prostatic lesions in Bilaspur zone of Chhattisgarh, a central-eastern state of India by studying formalin-fixed prostate specimens and to carry out detailed morphologic study of various prostatic lesions.

MATERIALS AND METHODS

The study was conducted in the Department of Pathology, CIMS a teaching institute and tertiary level hospital of government situated at Bilaspur, Chhattisgarh. The study period was from 2003 to 2014 and prostatic specimen data were collected retrospectively from archives of histopathology register. During this period, a total of 215 prostate specimens were received, fixed in 10% neutral buffered formalin immediately. Three types of prostrate tissue biopsy were received-open prostatectomy, TURP chips and trucut needle biopsy. Tissue processing was done manually, followed by hematoxylin and eosin staining. The slides were examined under light microscope, and histopathological diagnosis was made.

RESULTS

Total 215 prostatic specimens were received during the study period. Out of rest 215 cases, 195 cases were benign and 20 malignant (Table 1 and Chart 1).

Histological subtypes showed predominantly BPH alone with 99 cases (46.04%) followed by BPH with chronic prostatitis in 82 cases (38.13%) among benign lesions. Adenocarcinoma prostate was predominant variant among malignant cases with 18 cases (8.37%) followed by transitional cell carcinoma with 2 cases (0.93%) (Table 2 and Chart 2).

The most common age group presenting with benign prostatic lesions was 61-70 years with 83 cases followed by 51-60 and 71-80 years age-groups. The common age groups affected mainly by malignant lesion were equally shared by

Table 1: Distribution of benign and malignant lesions

Histological types		Total
Benign	**Malignant**	
195	20	215

Table 2: Distribution of histological sub-types

Histological sub-types	Benign/borderline/malignant	Number of cases	% age (out of 215)
BPH alone	Benign	99	46.04
BPH with chronic prostatitis	Benign	82	38.13
BPH with acute on chronic prostatitis	Benign	3	1.40
Granulomatous prostatitis (including tubercular)	Benign	2	0.93
BPH with squamous metaplasia	Benign	4	1.86
Glandular hyperpasia only	Benign	2	0.93
BPH with urolith	Benign	1	0.47
Clear cell hyperplasia	Benign	1	0.47
Malakoplakia	Benign	1	0.47
Adenocarcinoma prostate	Malignant	18	8.37
Transitional cell carcinoma	Malignant	2	0.93
Total		215	100

BPH: Benign prostatic hyperplasia

Table 3: Age-wise distribution of cases

Age interval	Benign	Malignant	Total
≤30	0	0	0
31-40	2	0	2
41-50	17	1	18
51-60	46	5	51
61-70	83	6	89
71-80	40	6	46
81-90	6	2	8
91-100	1	0	1
Total	195	20	215

Chart 1: Distribution of benign and malignant lesions

two groups between 61-70 and 71-80 with a contribution of 6 cases in each group. The youngest patient presenting with prostatic lesion was 35 years and oldest was of 95 years of age (Table 3 and Chart 3).

DISCUSSION

Total cases studied in pathology department from 2003 to 2014 were 3526, in which malignant cases were 729 (20.68%), and benign cases were 2797 (79.32%). Out of total biopsies received in Department of Pathology 20 (0.57%) cases found prostatic malignancies and 195 (5.53%) cases found benign prostatic diseases. The contribution of prostate malignancy in overall malignancies was found 2.74% (20/729). In the present study, age group affected with prostatic pathology was 35-95 years with mean age 66.08 similar to other Indian studies.[13] The most common pathology encountered BPH and BPH with prostatitis 184 cases (85.58%) (Chart 3), which is quite higher as compared to other studies however it has been found that BPH and inflammatory changes has a predominant pathology as reported in various studies.[14-16]

Malignant lesions encountered in predominant age group includes two age groups affected equally 61-70 and 71-80, having 6 cases each (5.58%) with most common malignancy of adenocarcinoma of prostate (Chart 4),
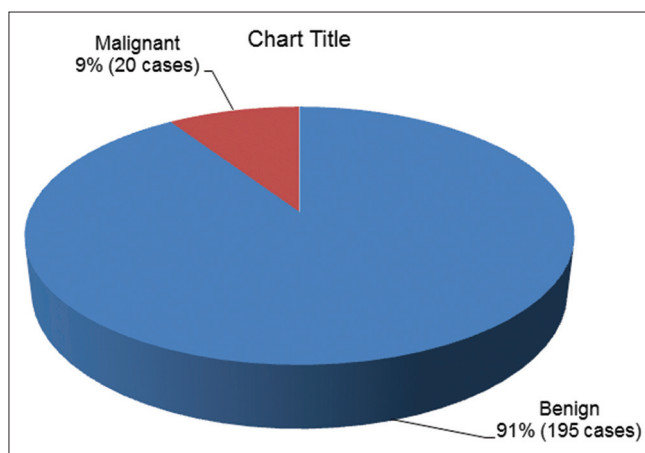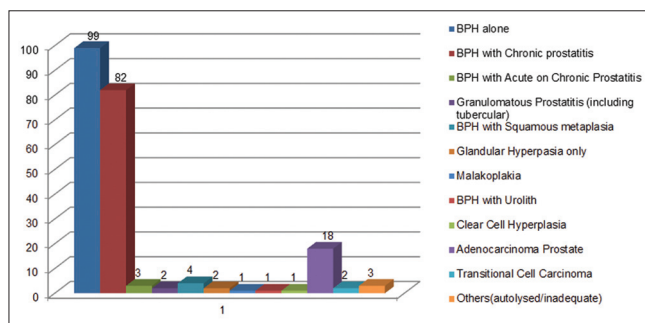

Chart 2: Distribution of histological sub-types

which is concordance with Indian and Western studies however the prevalence in present study was quite low.[2,11] The low prevalence in the present study may be supported by the low average age of this tribal region, lack of health awareness and low volume of cases included in the study. Adenocarcinoma of the prostate contributes 90% of all malignant lesions in countered in this study followed by transitional cell carcinoma which was 10% which co-insides with other studies (Chart 5).[14] Other lesions like granulomatous (tubercular) and pure glandular hyperplasia have contributed as rare findings.
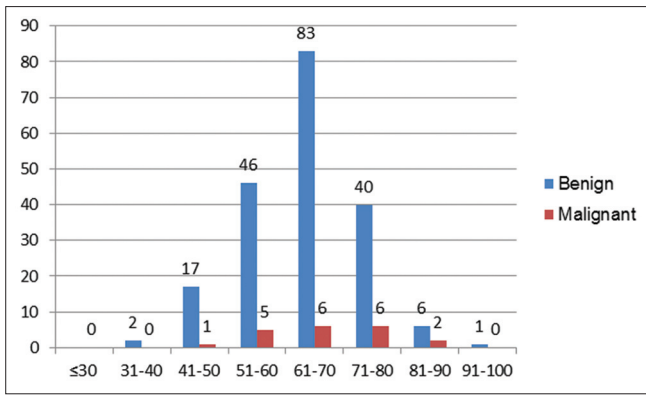
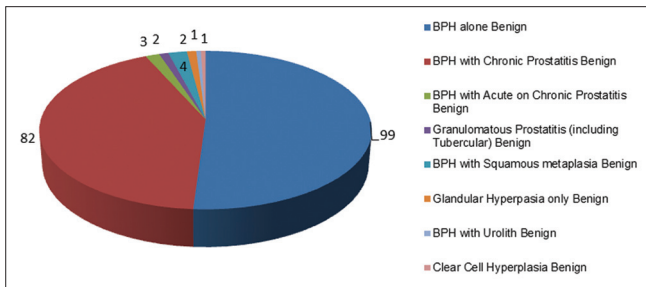**Chart 3: Age-wise distribution of cases**

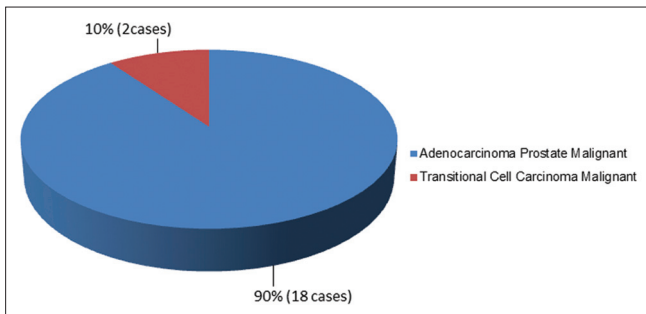**Chart 4: Distribution of benign cases**

Chart 5: Distribution of malignant cases

CONCLUSION

According to this study prostatic lesions are common in age group of 51-80 years. Neoplastic lesions are more common than non-neoplastic lesions. Among the histological types of prostatictic lesions, BPH is predominant type, followed by BPH with prostatitis. The aim of this retrospective analysis was to study the prevalence of prostatic lesions at a tertiary care hospital in a tribal zone of central India. We have concluded this study in order to gain insight about the overall pattern of prostatic lesions in our settings.

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