ORIGINAL ARTICLE

Prostatic Diseases Common Cause of Morbidity in Adult Males

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ABSTRACT

Aim: To find out the pattern of prostate diseases in adult males in our population.
Study design: Descriptive case study.
Place and duration of study: During a period of six months in 2009, a total of 100 prostatic specimen were studied in Pathology department of King Edward Medical University, Lahore in collaboration with the urology department of Mayo Hospital.
Methods: Study was conducted on those patients who had undergone prostatic surgeries for different clinical presentations. Non-probability convenience sampling was done.
100 consecutive prostate tissue specimen including transurethral resection of prostate (TURP) as well as suprapubic prostatectomy specimen were included.
Results: Among 100 samples of prostate tissue, 77 were diagnosed as Benign Prostatic Hyperplasia (BPH), 13 were diagnosed as adenocarcinoma, 08 samples were diagnosed as BPH with prostatitis and 02 samples were diagnosed as metastatic tumors. BPH was the most common disease in men with age range of 60-75 years followed by adenocarcinoma, BPH with Prostatitis and metastatic tumor respectively. Moderately differentiated adenocarcinoma with Gleason score 5-7 was more common as compare to poorly differentiated and well differentiated adenocarcinoma. Frequency and Percentage of Clinically Suspected Carcinoma Prostate & Incidental Carcinoma was 69.3% and 30.7% respectively.
Conclusion: BPH is the commonest prostatic disease in our setup and moderately differentiated adenocarcinoma is the commonest prostatic malignancy especially in age group 60-79 years. High frequency of incidental prostatic carcinoma showed that early diagnosis of prostate carcinoma is needed which can be effectively done by screening via prostate specific antigen (PSA) level.
Keywords: Histopathology, Benign Prostatic Hyperplasia, Adenocarcinoma.

INTRODUCTION

Prostate diseaseis a wide spread male problem and a cause of cancer mortality[1]. Most of the men develop a prostate problem in their late stages of life. Incidence of prostate cancer based on age in Pakistan is 5.3/100,000 which is continually increasing[2]. This disease is more common among men aged 65 and above 70 years and its occurrence may increase twofold after seventies[3].

Abnormal rectal examination and increased level of PSA may propose the prostate carcinoma, however it is confirmed only with histological examination as ~20% of the patients with metastatic disease have normal level of PSA[4].

The incidence of histologically diagnosed prostatic hyperplasia increases from 8% in ages of 31 to 40 years, to 40-50 %in aged 51 to 60 to more than 80% in men with age greater than 80 years. The histologic grade of prostate adenocarcinoma is based on Gleason scoring system, which predicts prognosis adjunct to tumor staging, aggressiveness of tumor and mode of therapy[5]. The Gleason score is based on the histologic grades 1 (well differentiated) to grade 5 (poorly differentiated).

The diseases of prostate include inflammatory lesions, benign tumors and malignancies.
Common prostate diseases include benign prostate hyperplasia (BPH), prostate carcinoma and prostatitis[6]. Approximately 90% of men suffer from BPH by the ninth decade of life[7]. BPH affects quality of life of 50% of men by the age of 60 and is present in 90% of men at the age of 85[8]. BPH is presented as stromal-glandular hyperplasia within the prostate gland; which usually is related to lower urinary symptoms[9]. In BPH, cellular proliferation directs to increased prostate volume and raised stromal smooth muscle tone[10].

Prostatitis can be acute/chronic bacterial and non-bacterial. It is the third known urological problem in men with age < 50 years[11].Prostatitis may lead to BPH. Its exact mechanism is unclear. However, it is proposed that metabolic syndrome, endorses systemic inflammation and oxidative stress which may lead to BPH[12].

Adenocarcinoma of the prostate varies from slow insidious growth of prostate to an aggressive one[13]. It is found that 1 in 10 men may develop adenocarcinoma, risk increases with age[14].Approximately 10-20% of prostate cancer

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shows metastasis.Most deaths are due to metastatic disease. Established prognostic tools are Gleason grade, the extent of tumor, and the occurrence of capsular penetration or margin positivity at the time of surgery[15].

Local studies show that the incidence of prostate carcinoma is still high in Pakistan. This may be due lack of screening programs for the early detection of disease. As the clinical symptoms of prostate carcinoma are not specific and resemble closely to the symptoms of BPH, it is important to establish a correct diagnosis as soon as possible for better prognosis. Only biopsy and histologic examination can give the confirmatory diagnosis and estimation of Gleason score.

Study was therefore carried out based on the histological examination of the prostatic tissue which confirmed the type of prostate disease seen in our population.

PATIENTS AND METHODS

A descriptive study was conducted on those patients who had undergone prostatic surgeries for different clinical presentations. All the prostate tissue specimen including TURP as well as suprapubic prostatectomy specimen were included in the study. Non-probability convenience sampling was done. 100 consecutive prostate tissue specimenwere included for histopathological examination.

Gleason grading system was used for the carcinoma prostate cases. Morphological aspects were taken into account for interpreting the benign/ inflammatory lesions. The frequencies of different prostatic diseases and specially the incidental carcinomas were calculated. The results were subsequently compared with similar international and local studies. Samples from patients younger than 45 years were excluded.

Data was entered and analyzed on SPSS version 18. The qualitative variables were evaluated through their frequencies and percentages. The quantitative variables were expressed as mean and standard deviation.

RESULTS

Age distribution of prostate diseases is tabulated as table 1. It was observed that among 100 samples of prostate tissue, 77 were diagnosed as BPH, 13 were diagnosed as adenocarcinoma, 08 samples were diagnosed as BPH with Prostatitis and only 02 samples were found to be metastatic tumors. It was observed that those diagnosed as BPH, 23.3% cases have an age range of 45-59 years, 63.7% cases have an age range of 60-75 years, 10.4% cases have an age range of 76-85 years and only 2.6% cases have an age range > 85 years.

Among the 13diagnosed cases of prostate adenocarcinoma, 23% cases have an age range of 45-59 years, 53.9% cases have an age range of 60-75 years, 15.4% cases have an age range of 76-85 years and only 7.7% cases have an age range > 85 years.

Among 8 prostate tissue specimen with prostatitis, 25% cases have an age range of 45-59 years, 62.5% cases have an age range of 60-75 years, 12.5% cases have an age range of 76-85 years. The two cases, diagnosed as metastatic tumors have an age range of 60-75 years.

Distribution of malignant cases is presented as table 2. According to Gleason score, it was observed that 7.7% were well differentiated adenocarcinoma (Gleason' score 2-4). Moderately differentiated adenocarcinoma (Gleason score 5-7) was observed in 61.5% cases, while poorly differentiated adenocarcinoma (Gleason' score 8-10) was observed in 30.8% cases.

Frequency and Percentage of Clinically Suspected Carcinoma Prostate & Incidental Carcinoma is tabulated as table 3. It was observed that clinically suspected carcinoma proved on histopathology was 69.3% and incidental carcinoma were 30.7%.

Mean ages in different prostatic diseases are presented in table 4. It was observed that mean age of patients with BPH was 63.7±10.25, mean age with adenocarcinoma was 66.5±11.42 years and mean age with BPH with prostatitis was 64.25±8.8 years and for metastatic carcinoma, it was 65±7.07years.

Table 1: Age Distribution of Prostatic Diseases (n=100)

Age group	BPH (n=77)	Adeno-carcinoma (n=13)	BPH with prostatitis (n=8)	Metastatic tumor (n=2)
45-59	18(23.3%)	3(23%)	2(25%)	00
60-75	49(63.7%)	7(53.9%)	5(62.5%)	2(100%)
76-85	8(10.4%)	2(15.4%)	1(12.5%)	00
> 85	2(2.6%)	1(7.7%)	00	00

Table 2: Distribution of Malignant Cases

Differentiation of tumor (adenocarcinoma)	Gleason score	n
Well differentiated	2-4	01(7.7%)
Moderately differentiated	5-7	08(61.5%)
Poorly differentiated	8-10	04(30.8%)

Table 3: Frequency and Percentage of Clinically Suspected Carcinoma Prostate & Incidental Carcinoma

Diagnosis	Frequency	%age
Clinically suspected Carcinoma proved on histopathology	09	69.3
Incidental carcinoma	04	30.7

Table 4: Mean ages (in years) for different Prostatic diseases

Diagnosis	n	Mean	Standard Deviation
BPH	77	63.7	10.25
Adenocarcinoma	13	66.5	11.42
BPH with Prostatitis	08	64.25	8.8
Metastatic carcinoma	02	65	7.07

DISCUSSION

Prostatic diseases cause noteworthy morbidity in the males in old age worldwide. The two most commonly diagnosed diseases are benign prostatic hyperplasia and Prostatic Adenocarcinoma in developed as well as the developing countries[7].

According to our study BPH is the most common prostatic disease in men especially in the age of 60-75 years followed by adenocarcinoma, BPH with Prostatitis and metastatic tumor. It is reported that BPH is the most common disease in men with age > 50 years[16]. Greater than 50% men suffer from BPH with mean age 65.4 years[17]. Its exact etiology is not known; however, it is proposed that overgrowth of smooth muscle tissue and glandular epithelial tissue is related with aging, hormonal changes, genetic factor and late activation of cell growth[18].

According to our study adenocarcinoma of prostate is 2nd most common prostatic disease of men and like BPH, its risk increases with age.Studies reported that risk of adenocarcinoma of prostate increases with age, it is 15% in age of 35-49 years , 51% in age 50-69 years and 58% in age >70 years[19]. It is proposed that high testosterone levels may trigger the activity of cancerous cells of dormant prostate. High level of testosterone level is also found associated with the early onset of prostate cancer[20]. However, the exact mechanism is still contentious[21]and some studies claim no association[22]. Suppression of testosterone levels by medical or surgical castration causes regression of the cancer, at least initially[23].

According to our study prostatitis is 3rd known disease of prostate and common in age of 60-75 years. However, according to the National Institutes of Health, prostatitis was observed in both young and middle age men. It may account for up to 25% of men with the complaints of problem in genital and urinary systems[24].

According to our study, Moderately differentiated adenocarcinoma (Gleason score 5-7), is the commonest, followed by poorly differentiated adenocarcinoma (Gleason score 8-10). It is reported that moderately differentiated carcinoma is found in high percentages and show increased aggressiveness[25].

Out of total 13 diagnosed cases of adenocarcinomas, 09 were clinically suspected while 04 were diagnosed incidentally. This shows 30.7% cases were incidental carcinomas. In a study conducted at Agha Khan University, Karachi, the frequency of incidental carcinoma was similarly high[26].

CONCLUSION

BPH is the commonest prostatic disease in our setup and moderately differentiated adenocarcinoma is the commonest prostatic malignancy especially in the age 60-79 years. High frequency of incidental prostatic carcinoma and moderate Gleason score indicates that we still lag behind in early diagnosis of prostate carcinoma, even in this era of cancer screening. Screening is suggested for improving the clinical outcomes, as the advanced disease and high grade tumors have poor prognosis.

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