ORIGINAL ARTICLE

Prostate Biopsies - A Retrospective Review from the University Malaya Medical Center

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Summary

Prostate cancer is not common in south-east asia and in particular there are only scarce reports on the characteristics of Malaysian men with prostate cancer. A retrospective study where all prostate specimens sent to the pathology department during the period 1st January 1996 to 30th June 1998 were reviewed. A total of 131 prostate specimens were reviewed and these consisted of prostatectomy specimens, transurethral resection specimens and trucut biopsy specimens. Only 114 patients' case notes were evaluated. Data reviewed were age, race, presenting symptoms, clinical findings and prostate-specific antigen (PSA) level. Overall incidence of carcinoma of the prostate was 19.0%. The incidence of carcinoma of the prostate with serum prostate-specific antigen (PSA) of 4.1 to 20.0 ng/ml was only 10% and 60.5% of patients had evidence of subclinical histological prostatitis. The mean age of men with carcinoma of the prostate was 71.3 years and there was no differences in the incidence of carcinoma of the prostate among the 3 major ethnic groups (Malays, Chinese and Indian). About three-quarter of the patients with carcinoma of the prostate presented with lower urinary tract symptoms, a third had haematuria and about a tenth of patients presented with urinary retention. The majority of patients presented with metastatic disease (66.7%) with a mean PSA of 1476.8 ng/ml. A significant proportion of men with prostatic diseases attending the University of Malaya Medical Center had prostate cancer (19.0%). A small proportion of men with serum PSA in the range of 4.1 to 20.0 ng/ml had prostate cancer and this is thought to be due to the background histological prostatitis. The majority of patients presented late.

Key Words: Prostate cancer, Histological prostatitis, Malaysia

Introduction

Carcinoma of the prostate is the most common cancer in males accounting for 42.5% of all cancer in the United States in 1997. However, in terms of cancer death, prostate cancer is second to lung cancer accounting for 14.2% and 32.1% respectively[1]. The incidence of carcinoma of the prostate varies with countries; it is highest in North America and Northern European countries; intermediate in Southern Europe, Central and South America and lowest rates in Asian countries[2-5]. In Malaysia, prostate cancer research is scarce and a proper cancer registry is almost non-existent apart from the Sarawak State (one of the 13 states in Malaysia) Cancer Registry where in 1996 the incidence of prostate cancer is 2.3 per 100,000 population[6]. The aim of this retrospective study was to characterize Malaysian men attending the University of Malaya Medical Center with prostate diseases to evaluate the incidence, mean age, racial characteristics, presenting symptoms and associated prostate-specific antigen (PSA) level of men with prostate cancer.

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Materials and Methods

This was a retrospective study where all prostate specimens sent to the pathology department during the period 1st January 1996 to 30th June 1998 were reviewed. Data was obtained from a database and a total of 131 prostate specimens were reviewed and these consisted of prostatectomy specimens, transurethral resection specimens and trucut biopsies specimens.

Patient's data were obtained retrospectively from the case notes (manual search). Only 114 patients' case notes were found. Data reviewed were age, race, presenting symptoms, clinical findings and prostate-specific antigen (PSA) level. Other sources of patients' data were the Pathology database and Clinical Diagnostic Laboratory database.

Digital rectal examination results were recorded as "Normal" or "Abnormal". As most of the carcinoma of prostate was not graded as Gleason Sum, the tumour were graded into well, moderate and poorly differentiated tumour corresponding to Gleason sum of 2 to 4, 5 to 7 and 8 to 10 respectively.

For the statistical analysis, the final data that were obtained were tabulated into Microsoft Excel which allow sorting of variables. Statistical analysis performed included Chi Squared test for categorical data was done and where indicated Yates' correction was also performed. For the continuous data, t-test was performed. Statistical significance is taken as $p<0.05$.

Results

There were 131 prostate specimens sent to the pathology department during the study period, of which 114 specimens were reviewed. Seventy-six were transurethral resection (TUR) specimens, 9 Millin's prostatectomy specimens, 28 trucut biopsy specimens and 1 radical prostatectomy specimen.

The mean age of the sample group was 68.9 years with a standard deviation of 8.4 years (n=114). The majority of the specimens came from Chinese (58.8%), followed by Indian (24.0%), Malays (21.0%) and others (2.0%). Of the 114 prostate specimens, only 22 (19.0%) showed evidence of carcinoma of the prostate. The mean age of men with carcinoma of the prostate were 71.3 years compared to 68.4 years in the benign group.

The proportion of carcinoma of prostate appeared highest in Chinese (23%) and lowest in Indians (12%) (Table I). The observed differences in proportion was not statistically significant. Table II shows the percentage of prostate cancer as 10.5% and 46.0% for PSA level 4.1-20.0 ng/ml and 20.0 ng/ml and above respectively. The differences was statistically significant. About three-quarter of the patients with carcinoma of the prostate presented with lower urinary tract symptoms and about a third had haematuria. Only about a tenth of patient presented with urinary retention. In the benign prostatic disease group, about half presented with lower urinary tract symptoms and another half presented with urinary retention (Table III).

Table IV shows that 71.4% of digital rectal examination (DRE) for prostate cancer were abnormal. The sensitivity and specificity of DRE in this study were 71.4% and 85.5% respectively. The majority of carcinoma of the prostate in this study were poorly (47%) and moderately differentiated (47%). As for staging of the disease, only 12 of 22 patients with prostate cancers had proper documentation in the case notes. Of the 12 patients with prostate cancer, 8 (66.7%) had metastatic disease.

For patients with PSA levels in the range 4.1 - 20.0 ng/ml, there were 38 patients; 10.5% had carcinoma of the prostate, 29.0% benign prostatic hyperplasia and 60.5% had evidence of histological prostatitis (Table V). The mean PSA for BPH (n=15), BPH/prostatitis (n=44) and carcinoma of the prostate (n=18) are 7.8, 23.5 and 1476.8 ng/ml respectively. There was marked difference between prostate cancer and the benign diseases because the prostate cancer data is skewed by patients with metastatic disease. The differences in the 3 sets of data are not statistically significant.($F=0.265$, $df = 2, 74$, $p> 0.1$) However when comparing only the group BPH and BPH/prostatitis (excluding prostate cancer), PSA value of 7.8 and 23.5 ng/ml respectively are statistically significant. ($t=2.16$, $df = 57$, $0.02 <p< 0.05$).

Table I: Incidence of prostate cancer in the major ethnic groups

Race	Incidence of prostate cancer
Chinese (n = 66)	23 %
Indians (n = 24)	12 %
Malays (n = 21)	14 %
Footnote :	Minority race is omitted $x^2 = 1.71$ df = 2 p> 0.05

Table II: Incidence of prostate cancer with prostate-specific antigen (PSA) levels

PSA Level (ng/ml)	Incidence of Prostate Cancer
4.1 - 20.0 (n = 38)	10.5 %
> 20.0 (n = 26)	46.0 %

$x^2 = 9.29$ (with Yates' correction)
df = 1 p< 0.01

Table III: Presenting Symptoms

Presenting Symptoms	Prostate cancer (n=22) Number of patients	Benign Group (n=87) Number of patients
Lower urinary tract symptoms	12 (54.6%)	35 (40.2 %)
Urinary Retention	3 (13.6%)	39 (44.8%)
Haematuria	3 (13.6%)	9 (10.3%)
Lower urinary tract symptoms / Hematuria	4 (18.2%)	4 (4.6%)

Table IV: Digital Rectal Examination (DRE) findings in Prostate Cancer and Benign Prostatic Hyperplasia (BPH)

DRE Findings	Prostate Cancer (n=21) Number of patients	All BPH (n=83) Number of patients
Normal	6 (28.6%)	71 (85.5%)
Abnormal	15 (71.4%)	12 (14.5%)

x2 = 24.4 (with Yates' correction)
df = 1 ; p< 0.001

Discussion

Singapore, with a predominant Chinese population, has a very low incidence of prostate cancer. In a review of 695 patients in a multiphasic screening from 1992 to 1995 involving PSA testing, digital rectal examinations and prostate biopsy did not pick up any prostate cancer[7]. More than three-quarters of our patient with prostate cancer presents with lower urinary tract symptoms and urinary retention. Most of our patients with carcinoma of the prostate presented late and 66.7% presented with metastatic disease. About 47% of the tumours were poorly differentiated. In the study done by Teh[8], from the Institute of Urology, Kuala Lumpur, most of their patients presented late and with a poor combined Gleason score (61.8% had metastatic disease and 70% were Gleason 7 or more). These are similar to the review by Koh et al[9] from Singapore who reviewed patients in the pre-PSA era. In our series although we had been doing PSA testing, this probably reflected patients and general practitioner awareness of prostate cancer and PSA testing, as this study looked into our patients prior to our National Prostate Health Awareness Week in August 1998.

The incidence of carcinoma of the prostate is much lower in Asians. Yu et al[3] in a study of 562 patients in Taiwan who underwent transurethral resection of the prostate, open prostatectomy or radical prostatectomy found the incidence of prostate cancer was only 8.4% in patients with serum PSA of 4.1 to 20.0 ng/ml (24% of study population has serum PSA more than 10 ng/ml). The incidence only rises steeply when serum PSA was more than 20.0 ng/ml. He attributed the low incidence of carcinoma of the prostate to the presence of histological prostatitis. In his series of prostate biopsies, he reported an incidence of prostatitis of 23.3% in patients with serum PSA of 4.1 to 20.0 ng/ml[3,4].

Lim[5] in a Malaysian study of 185 patients who had undergone prostate biopsies also found low incidence of carcinoma of the prostate. In his study he found the incidence of prostate cancer was 4.3% and 27.0% for normal and abnormal digital rectal examination for PSA values of 4 to 20 ng/ml. However he found the incidence of prostatitis in his series to be only 3%. This low value could be due to underreporting and also areas of prostatitis missed during biopsy. However, Lim[10] in another study of 130 prostate biopsies reported the incidence of prostatitis to be 27%.

In this study, the overall incidence of carcinoma of the prostate in men with prostatic diseases attending the University Malaya Medical Center was 19.0%. This is a significant proportion but the bias may be due to the Center being a referral unit. More importantly, the proportion of carcinoma of the prostate in those patients with serum PSA of 4.1 to 20.0 ng/ml was low at only 10.5%. The incidence of carcinoma of the prostate also rises steeply when PSA was more than 20.0 ng/ml (Table II). These findings were similar to those done by Yu et al[3,4], but in this study, 55.8% of the study sample has PSA level more than 10.0 ng/ml and the incidence of histological prostatitis was 60.5% with serum PSA of 4.1 to 20.0 ng/ml.

This study shows that subclinical prostatitis (no patient with histological prostatitis had symptoms of prostatitis) was associated with raised PSA where the mean PSA for patients with and without prostatitis in hyperplastic glands was 23.5 ng/ml and 7.8 ng/ml respectively. Indeed subclinical prostatitis/prostatitis has been reported to cause raise serum PSA levels[11-13] and that this study shows that histological prostatitis was an important determinant in giving rise to a low incidence of prostate cancer in men with PSA in the range 4.1 to 20.0 ng/ml.

A significant proportion of men with prostatic diseases attending the University of Malaya Medical Center has prostate cancer (19.0%). A small proportion of men with serum PSA in the range of 4.1 to 20.0 ng/ml had prostate cancer and this is thought to be due to the background histological prostatitis. The majority of patients presented late.

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