Original Article

Prostatic Carcinoma

Clinico-Pathological Spectrum of Prostatic Carcinoma in a Tertiary Care Hospital of Lahore

Nadia Naseem[1], Uzma Nabi[2], Sadia Anwar[3], Muhammad Rashid Siraj[4], Waqas Latif[1]

ABSTRACT

Objectives: To determine the clinico-pathological characteristics of prostate cancer in a tertiary care Hospital of Lahore

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at the Department of Morbid Anatomy and Histopathology, University of Health Sciences, Lahore from January 2012 to December 2015.

Materials and Methods: Fifty paraffin embedded blocks of prostate specimens were selected on retrospective basis. Relevant clinical profile including age, presenting complaints and clinical diagnosis were retrieved from the clinical record. The tumours were diagnosed, sub-classified and graded according to the Revised Gleason's score 2013.

Results: Mean age of the patients was 70±22.3 years with a peak seen at65-75 years. Prostatic adenocarcinoma was diagnosed in all cases where in 75% cases it was clinically evident while in rest of the cases it was an incidental finding. Mean serum Prostatic Specific Antigen level was 98 ± 11ng/d. Histologically most of the carcinomas (61%) were of large acinar type. Variable Gleason scores (GSs) were obtained and most of the carcinomas scored 7 (4+3 in 41% while 3+4 in 23% cases).

Conclusion: Late presentation and lack of awareness for screening of prostatic carcinoma leads to presentation of patients in higher grade in our population

Key Words: Prostate carcinoma, Gleason grading, Serum PSA.

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INTRODUCTION

Globally prostate carcinoma is the second commonest malignancy in men, with an estimated 1,100,000 cases and 307,000 deaths in 2012.[1] The incidence of prostate cancer is low in Pakistan, with a figure of3.8% of our male population[2].The clinical behavior of prostate cancer ranges from a microscopic, well-differentiated tumor that may never be clinically significant to an aggressive, high grade cancer that ultimately causes metastases, morbidity, and death[3].

The frequency of patients presenting with prostate carcinoma has dramatically increased over last many years especially in Centres where patients are encouraged to be screened with serum prostate specific antigen (PSA) levels[4]. Over the years, studies have shown that genetic as well as environmental factors play their roles in causation of this malignancy. Prostate carcinoma incidence is less likely to be seen before 50 years of age; it increases swiftly after fifth decade[5]. Histologically, most prostate carcinomas are adenocarcinomas that may be small acinar, large acinar, cribriform, or solid/trabeculae types with varying degrees of differentiation[6]. The Gleason score (GS) is the most widely acceptable and reproducible system for grading prostate cancer; it is also considered as one of the most reliable prognosticator for the patients with prostate carcinomas[4]. It is based on the varying and heterogeneous dominance of glandular patterns within a biopsy. The precise diagnosis and grading of prostate cancer is critical for determining patient's prognosis and therapeutic options[7].

MATERIALS AND METHODS

Paraffin embedded blocks of all prostate specimens received in the department of Department of Morbid Anatomy and Histopathology, University of Health Sciences Lahore between January 2012- December 2015 were selected for the study. All sections were

[1.] Department of Pathology, University of Health Sciences Lahore.

[2.] Department of Pathology, CMH Medical College, Lahore.

[3.] Department of Pathology, Gujranwala Medical College, Lahore

[4.] Department of Pathology, Akhtar Saeed Medical College, Lahore

Correspondence: Dr. Nadia Naseem
University of Health Sciences Lahore
Contact No:
Email: drnadiaf@hotmail.com

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stained with routine hematoxylin and eosin stain for determination of diagnosis and histologic grading according to revised Gleason scoring system. Detailed clinical characteristics of the study population including age, presenting complaints and clinical diagnosis were retrieved from the clinical record kept with the surgeons. Blocks where tissue sections were inadequate for histologic diagnosis or where clinical data could not be retrieved were excluded from the study. The result obtained was analyzed using SPSS 20

RESULTS

Of the 50 reviewed specimens, 70%(n=35) were transurethral resection of prostate (TURP) biopsies, while 30%(n=15)were prostatectomies.

The mean age patients was 70±22.3 years with a range of 52-87 years. Peak was seen at 65-75 years. Only 4%(n=2)cases were found within 40 to 50 years age group.

Mean serum PSA level was 98 ± 11ng/d range (48-200ng/dl).

On histologic examination, all of the carcinomas were adenocarcinoma. Of these, 61% were histologically of the large acinar pattern, followed by small acinar pattern (22%), solid/trabeculae pattern (13%), and cribriform pattern (4%).

Gleason grading of the carcinomas showed that 64% (n=32) biopsies scored 7 while score 9, 8, 6 and 10 constituted 12%,10%, 8% and 6% cases.

Score 7 was distributed as 4+3 in 40%(20) while 3+4 in 24%(12 cases). Score 9 was distributed as 4+2 in 8%(n=4) while 3+3 in 4%(n=2) cases. Score 8 was distributed as 3+5 in 6%(n=3), 5+3 in 2%(n=1) while 4+4 in 2%(n=1) cases. Score 6 was distributed as 4+5 in 6%(n=3) and 5+4 in 2%(n=1) while Score 10 was distributed as 5+5 in all 6%(n=3) cases.

On applying chi-square and Fisher Exact tests, higher serum PSA level was strongly associated with higher Gleason score (p=0.023).

DISCUSSION

The incidence of prostate cancer in our study is high. Similar results were reported from Bashir et al who states prostatic carcinoma as the third most common malignancy among males in Pakistan[8]. Also JPMA reports prostatic adenocarcinomas comprising 14.2% of all prostate specimens which were transurethral resection, suprapubic prostatectomies and core biopsies[4].

This rising incidence may possibly indicate some locally prevalent environmental factors potentiating the genetic etiologic agents effecting our male population[9]. In a study from Faisalabad Pakistan, age and family history of prostate cancer along with, obesity were taken as potential risk factors for prostate cancer[8].This calls for future prospective studies for connecting the etiologic links with that of prostatic carcinoma in our population[10].

Majority (70%) of the malignant biopsies were obtained from TURP procedure especially for the cases with strong clinical suspicion for carcinoma developing in benign prostate hyperplasia. Carcinoma detected in prostatectomy specimens was largely an incidental finding.

A study in Washington DC reported peak age incidence within 70 to 79 years, which is similar to our finding. Minimum age recorded was 40 years (Mean age 66.4±9.1 years by a local study at Karachi[11].Age is considered to be the strongest risk factor for prostate cancer in our study, which has been recently revealed in an Indian study[12]. The mean age was 72.1 years; 68.1% patients were 65 years or older[4].

Majority (61%) of the adenocarcinomas were histologically of the large acinar variety, followed by small acinar pattern. This finding is in contradiction with a study reported in Benin where small acinar pattern (40.6%) was the most predominate followed by large acinar pattern (16.7%) and mixed pattern making up the rest[13].

As regards the Gleason score, reports from Benin[13] and Lagos[14]showedthe majority of the tumours were moderately to poorly differentiated (Gleason's scores 5 and 6) as compared to our study where score 7 and 9 were the commonest signifying late presentation and higher grades in our population. This finding however is concordant with that of a study by Han and colleagues where most of their cases demonstrated Gleason score from 6-7 whereas scores 8-10 accounted for <10% of the cases. However, our study and that of John Hopkins University are similar in having 7 as the peak score[15].

Lack of screening practices and awareness of the disease has been connected to the high scores and poor prognosis of the patients[16].

According to prognostification score of Freeman and Roase's[17], it can be inferred that the most of our cases (60.6%) having scores 7-10 have poor prognosis. This statement settles with other studies, which concluded that majority of patients with prostatic carcinoma present with already a higher grade and stage and thus have poor prognosis[18,19].

CONCLUSION

The incidence of prostate cancer relates well with an overall high incidence seen all over the world. Histologically, all cases are acinar adenocarcinomas. Most patients present late with high mean PSA levels and GS and therefore mark poor prognosis.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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