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ORIGINAL ARTICLE

Incidence of Adenocarcinoma with Gleason Grade in Clinically Enlarged Prostate Glands

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ABSTRACT

Background: Prostatic cancer is the 2nd most common malignancy in men. The understanding of incidence of malignancy along with Gleason grading of tumor is significant that led the development of investigations for early detection and prompt treatment of patients

Aims: The aim of this study is to determine the incidence of malignancies with Gleason grade in patients with clinically enlarge prostate glands.

Materials and Methods: This is a descriptive cross sectional study conducted in Rahbar medical and dental college from 100 patients with clinically enlarge prostate glands from January 2018 to December 2020.

Results: A total 100 prostatic biopsies were examined histologically from January 2018 to December 2020. Out of 100 biopsies 12(12%) cases were diagnosed as adenocarcinoma and 88 (88%) were benign lesions. The age of patients ranges from 52 to 95 years with mean age of patients was 73.5 years. Majority (41.66 %) of adenocarcinomas reported as Gleason grade group 5. In 16.66 % cases the malignancy was incidental as clinically there was no any suspicion of carcinoma. Perineural invasion was noted in 66.66% of adenocarcinomas, and in 16.66% of cases lymphovascular invasion was reported, that correlates with higher grade of tumor.

Conclusion: Majority of the tumor diagnosed were in grade group 4 that shows increased death rate. Prostate cancer is continue to rise and screening of every patient with enlarge prostate should be done for early detection of malignancy.

Keywords: prostate gland, adenocarcinoma, Gleason grade

INTRODUCTION

Prostate cancer is the 2nd most common malignancy in males in both developed and developing countries[1]. It is the disease of old age men and majority of malignancies detected in more than 65 years of age. The incidence of malignancy varies with age, race, family history and other environmental factors but exact etiology is unknown. The prevalence of prostate cancer seen in Pakistan is thought to be due to lack of complete information and awareness amongst general population regarding prostate cancer[2].There is an urgent necessity to familiarise public about awareness and timely screening for Prostate cancer in Pakistan.(b) Biopsy of prostate is considered as gold standard for diagnosis of prostate cancer. Indication for prostatic biopsy is complex but patients with abnormal digital rectal examination, PSA level more than 4ng/ml and obstructive urinary symptoms are considered to be common causes for biopsy[3]. Mere use of PSA for screening of prostate cancer is useful and has momentous effect on epidemiology but also gives rise to over diagnosis and ultimately over treatment of low stage prostate cancers[4]. The combination of raised serum prostate specific antigen (PSA) along with transrectal ultrasound is extremely useful tool for diagnosing prostate cancer in its early stage. Although PSA is highly sensitive marker but it's not specific for cancer as it may be raised in various non neoplastic prostate lesions and about 75 % of prostatic biopsy done after raised PSA levels do not have prostate cancer[5].

Transurethral resection of the prostate (TURP) is the standard surgical therapeutic and diagnostic procedure usually performed for enlarged prostate glands. It is the treatment of choice for benign prostatic hyperplasia and the incidence of incidental carcinoma in TURP is 5-13%[5].

Gleason grading is the modern and standard classification system used by histopathologist for prostate carcinoma. It predicts the aggressiveness and prognosis of tumor. Recently for better understanding of clinical management related with biological behavior of tumor, World health organization agreed upon 5 tired Gleason grade groups (GGG) for prostate carcinoma. In this group system Gleason grade 6 or less than 6 comes under grade group 1 and Gleason grade 9, 10 comes under grade group 5. Moreover GGG 2 is 3+4=7, GGG 3 is 4+3=7 and GGG 4 is Gleason score 8.[6]

This study was performed to determine the frequency of prostate carcinoma in prostatic biopsy specimens done for symptomatic enlarge prostate glands. This study also emphasized to promote active screening of patients above the age of 50 years and provide awareness to medical practitioners as well not to depend entirely on screening tests but to promote histopathological examination for confirmation of diagnosis. If the patients incidentally diagnosed with cancer then further evaluation could be done on time to limit the spread of disease.

METHODOLOGY

A retrospective study was performed in Histopathology department of Rahbar medical and dental college. All cases of prostatic biopsies (TURP & core biopsy) from January 2018 to December 2020 were included in this study. The cases included were patients enrolled in Punjab Rangers Teaching Hospital (PRTH).

Inclusion criteria was all cases of prostate biopsies of all age groups. Malignancies other than adenocarcinoma was excluded from this study. All the clinical data available from history like patient's age, PSA levels and clinical findings with provisional diagnosis were recorded. Prostate biopsy specimen received from PRTH were grossed in histopathology laboratory and subjected to routine histopathological processing. Hemotoxylin and Eosin (H&E) slides were prepared and examined by consultant histopathologist under light microscope. Standard method for processing of TURP chips were followed according to College of American Pathologists (CAP) protocols. If incidental carcinoma was found in any case then remaining chips were processed for histopathological evaluation. Along with adenocarcinoma prognostic parameters were reported including tumor load, Gleason grade and Grade group by using Modified Gleason grading system, perineural invasion and lymphovascular invasion. Latest SPSS version 21 was used for statistical analyses.

RESULTS

A total 100 prostatic biopsies were examined histologically from January 2018 to December 2020. Out of 100 biopsies 12(12%) cases were diagnosed as adenocarcinoma and 88 (88%) were of

benign nodular hyperplasia (BPH), BPH with chronic prostatitis and granulomatous prostatitis. The age of patients' ranges from 52 to 95 years with mean age of patients was 73.5 years and majority of them are more than 70 years. Among adenocarcinomas, 5 cases (41.66%) reported as Gleason score 9, hence Gleason grade group 5. 3 cases (25%) Gleason score 7 so grade group 2. 3 cases (25%) Gleason score 6 and grade group 1. 3 case (8.33%) reported as Gleason score 8 and grade group 4. In 2 cases (16.66 %) the malignancy was incidental as clinically there was no any suspicion of carcinoma. In 8 cases (66.66%) of adenocarcinomas, perineural invasion was noted and in 2 cases (16.66%) lymphovascular invasion was reported, that qualifies it as a high grade tumor.

Table 1: Distribution of prostatic carcinoma on histopathology by age group in years

Age range	51-60	61-70	71-80	81-90
No. of patients	1	3	7	1
percentage	8.33	25	58.33	8.33

Table 2: Distribution of gleason score in prostatic adenocarcinomas

Gleason score	6	7	8	9	10
No. of patients	1	1	4	5	1
%	8.33	8.33	33.33	41.66	8.33

Table 3: Distribution of Gleason grade group in prostatic adenocarcinoma

Gleason grade group	1	2	3	4	5
No. of patients	1	0	1	4	6
Percentage (%)	8.33	0	8.33	33.33	50

DISCUSSION

Prostate carcinoma incidence varies among different countries due to modifications in detection methods, lifestyle and genetic influences. The incidence is high in developed countries than developing countries due to effective screening methods.[7]

The incidence of prostatic adenocarcinoma is also affected by hormonal factors. Among hormonal predictors, the risk of carcinoma is highest among males whose total testosterone levels are in the highest quartile. According to Cancer registry Karachi, it is the 6th most common malignancy of men in Pakistan[8]. Worldwide, prostatic carcinoma stands second most common malignancy in men after lung carcinoma. However, low incidence here may either be due to lack of awareness and inaccessibility to effective screening methods, in which poor financial status plays a major role. This in turn, leads to undercompilation of actual data**.** Mean age of the patients observed in our study was 73.5 years**.** The similar age group is seen in study conducted in Rawalpindi by Gul et al.[9] The incidence of malignancy was found to be higher in our setup (12%) ,unlike the incidence found in study done by Asadur rehman in Islamabad, i.e, 5.8%[10]. In the present study, all prostatic carcinomas were histologically adenocarcinomas, concurrent with the study of Puttaswamy[11], and Jatav et al[12]. In our current study, majority of tumor 41.66%[5] had Gleason grade 9 and grade. This incidence is found to be in contrast with the study done by Puttaswamy in which only 27.2% of patients are diagnosed with highest grade group[11]. Gleason grade group 1 and 2 was found in 25.00% and group 4 proved to be the least common group (8.33%) in this study. No entities, such as transitional cell carcinoma, neuroendocrine tumors, squamous cell carcinoma, or secondary tumors were found. However, a study from Saudi Arabia reports histological variants such as squamous cell carcinoma and transitional cell carcinoma. It surely is due to large period of study[13].

CONCLUSION

Majority of the tumor diagnosed were in grade group 4 that shows increased death rate. Histopathology is mandatory for detection of malignancy. Incidence of prostate cancer is continue to rise and screening of every patient with enlarge prostate should be done not only by PSA levels but in combination with prostatic biopsy for early detection of malignancy.

REFERENCES

1. Akbar F, ul Haq A, Hussain M, ur Rehman Z, Amanullah A. Frequency of Carcinoma Prostate in Patients presenting with Clinically Benign Enlarged Prostate. Journal of Saidu Medical College. 2020 May 30; 10(1).
2. Beg BM, Pasha AB, Butt NF, Qureshi SS, Randhawa FA. Prostate Cancer Awareness And Knowledge; A Study Of Adult Men In Lahore, Pakistan. Pakistan Journal of Public Health. 2018 Dec 11; 8(3):128-32.
3. Streicher J, Meyerson BL, Karivedu V, Sidana A. A review of optimal prostate biopsy: indications and techniques. Therapeutic advances in urology. 2019 Aug; 11: 1756287219870074.
4. Lee DJ, Mallin K, Graves AJ, Chang SS, Penson DF, Resnick MJ, Barocas DA. Recent changes in prostate cancer screening practices and epidemiology. The Journal of urology. 2017 Dec 1; 198(6):1230-40.
5. Prakash VS, Mohan GC, Krishnaiah SV, Vijaykumar V, Babu GR, Reddy GV, Mahaboob VS. Ten-core versus 16-core transrectal ultrasonography guided prostate biopsy for detection of prostatic carcinoma: a prospective comparative study in Indian population. Prostate international. 2013 Dec 1; 1(4):163-8.
6. Bukhari U, George A, Shafique Y, Bukhari A. Prostatic Carcinoma: Frequency, Pattern and Evaluation of Gleason Grading in Prostate Biopsies. Pakistan Journal of Medical Research. 2020 Sep 4; 59(2):55-9.
7. Neupane S, Bray F, Auvinen A. National economic and development indicators and international variation in prostate cancer incidence and mortality: an ecological analysis. World journal of urology. 2017 Jun 1; 35(6):851-8.
8. Qureshi MA, Mirza T, Khan S, Sikandar B, Zahid M, Aftab M, Mohsin S, Sharafat S, Avesi L, Hassan S. Cancer patterns in Karachi (all districts), Pakistan: first results (2010–2015) from a pathology based cancer registry of the largest government-run diagnostic and reference center of Karachi. Cancer epidemiology. 2016 Oct 1; 44: 114-22.
9. Gul N, Iftikhar F, Ijaz A, Iftikhar N, Anum H. Frequency of Prostatic Adenocarcinoma in Men with Clinical suspicion of malignancy using TURP/Trans rectal Prostate Needle Biopsies with emphasis on Gleason score/grade. Journal of Rawalpindi Medical College. 2017; 21(S-1):6-10.
10. ur Rehman A, Shohab D, Jamil MI, Akhter S. Frequency of prostate cancer in clinically benign prostate in patients underging transuretheral resection of prostate. Rawal Medical Journal. 2016 Jul 1; 41 (3):320-2.
11. Puttaswamy K, Parthiban R, Shariff S. Histopathological study of prostatic biopsies in men with prostatism. Journal of Medical Sciences. 2016 Jan; 2(1):12.
12. . Jatav J, Tomar KS, Pandit V, Iyenger S, Jain B. Characterization of prostatic lesions in surgically resected specimens. Indian J Appl Res 2015; 5:444-6.
13. Albasri A, El-Siddig A, Hussainy A, Mahrous M, Alhosaini AA, Alhujaily A. Histopathologic characterization of prostate diseases in Madinah, Saudi Arabia. Asian Pacific Journal of Cancer Prevention. 2014; 15(10):4175-9.