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HISTOPATHOLOGICAL STUDY OF PROSTATE PATHOLOGY IN A TERTIARY CARE HOSPITAL IN NORTH TELANGANA

Pathology

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ABSTRACT

BACKGROUND: Prostate cancer (PC) has turned out to be the most important health problem in developed countries during the last two decades. PC is mainly a disease of the aged with more than 70% of the cases occurring in men above 65 years of age.

MATERIALS & METHODS: The present study is a retrospective and prospective study done in Department of Pathology for a period of two years from June 2016 to July 2018. Total 26 cases were included, almost all the patients gave similar complaints of difficulty in passing urine. Prostate gland was completely excised and sent for histopathological examination. Complete clinical history, radiological findings and Prostate specific antigen (PSA) levels were considered.

RESULTS: Age group between 61-70 years affected more in our study compared to other groups. Benign Prostatic Hyperplasia (BPH) contributed highest number of cases and Prostate adenocarcinoma contributed least number of cases. PSA levels were raised in majority of the cases.

CONCLUSION: Prostate cancer remains an important malignancy in men and regular screening with PSA levels should be done in patients whose prostate gland is enlarged. Metastasis to bone is also one of the important feature of Prostate cancer. So early detection and surgical removal is the treatment of choice to prevent further complications.

KEYWORDS

Prostate, PSA levels, Gleason's grade

INTRODUCTION

There are a number of ways in which the prostate can cause medical problems, including:

Prostate cancer — this is the most common form of {HYPERLINK "https: //www. medicalnewstoday.com/info/cancer-oncology/" \o "What is Cancer?"} in males, affecting around {HYPERLINK "https: // www. cancer.org/cancer/prostate-cancer/about/key-statistics.html" \t "_blank"} during their lifetime. Around 1 in 39 men die of {HYPERLINK "https://www.medicalnewstoday.com/ articles/ 150086. php" \o "Prostate cancer in detail" }

Enlarged prostate — also known as benign prostatic hypertrophy (BPH), this affects almost all men aged 50 or over. It makes it difficult to urinate and, in rare, serious cases, can prevent urination entirely. Most commonly, the enlargement occurs in the transition zone.

Cancer of the prostate is typically a disease of men over age 50 years. Serum prostate specific antigen (PSA) is an invaluable tool for the detection, staging, and monitoring of men diagnosed with prostate cancer. After the clinical application of serum PSA, identification of cancers confined to the prostate has improved curability. Prostate cancer is the fourth most common male malignant neoplasm worldwide; however, the incidence and prevalence of carcinoma prostate in Asia is the lowest in the world, but the serum PSA cutoff value is treated within the same range as their Western counterpart. The present study helps us to know the incidence of prostate cancers and age group more commonly affected. Most of the hyperplasias arise in the transitional zone of the prostate whereas most carcinomas originate in the peripheral zone.

MATERIALS & METHODS

The present study is a retrospective and prospective study done for a period of two years in Department of Pathology. All the prostate specimens were recieved from Department of Urology after surgical removal of the gland. Detailed clinical history, family history, any other complaints and PSA levels were recorded. The specimen was all embedded and diagnosed. Total of 26 cases were studied. PSA levels were known for only 22 cases and PSA levels not available for other 4 cases.

RESULTS

In our study, Benign Prostatic Hyperplasia was the most common lesion observed contributing for 13 cases. Prostate adenocarcinoma contributed 03 cases [Table 1]. PSA levels were raised in all the carcinoma cases. Age group between 61-70 years contributed highest number of cases [Table 2].One case of Prostate adenocarcinoma showed metastasis to Bone marrow also.Gleason's score was 7 in 2 cases and 6 in other case.

Table 1: Showing different prostatic lesions

Sl no	Type	Number of cases
1	BPH	13
2	BPH with Chronic prostatitis	06
3	BPH with PIN changes	04
4	Adenocarcinoma	03
Total	-	26

Table 2: Showing age groups

Sl no	Age group	No. of cases
1	41-50	03
2	51-60	04
3	61-70	19
Total		26

DISCUSSION

Diseases primarily inflicting prostate gland are inflammation, benign nodular enlargement, and tumors.1 Worldwide benign prostatic hyperplasia (BPH) affects 210 million males and is common over the age of 50 years.[1,2] Carcinoma of the prostate is most common nonskin cancer in the west and the second leading cause of cancer death among men.[2,3] Carcinoma is a disease of elderly men occurring at age 65 years and above; with increasing trend in Asian countries in last 25 years. In India, carcinoma of prostate occupies 2nd to 10th rank among cancers in men, in various metro cities as per national cancer registry.[4,5]

Among the carcinomas, the majority are adenocarcinomas that develop from the acini of the ducts. Other rare histological subtypes include small cell carcinomas, signet ring carcinoma, adenoid cystic carcinoma, neuroendocrine tumor, transitional cell carcinoma, which account for about 5%. A possible precursor lesion of prostatic malignancy is prostatic intraepithelial neoplasia, which is dysplasia of the epithelium lining the prostatic glands. Studies have shown that the appearance of prostatic intraepithelial neoplasia may precede carcinoma by 10 or more years.[6]

Digital rectal examination (DRE) and transrectal ultrasonography are a preliminary practical diagnostic method but has low specificity and sensitivity.[1,7] A transrectal biopsy is essential to confirm the diagnosis. Most popular is Gleason's microscopic grading system development of Donald F Gleason in 1966.[8] Gleason's grading system is superior and the best predictor of disease progression and outcome. Serum prostate-specific antigen (PSA), a marker for prostatic carcinoma has high sensitivity, specificity, and compliments histopathological diagnosis. Gleason's microscopic grading is a paramount feature and with PSA are important for diagnosis, management, and prognosis of carcinoma.[7,8]

There are multiple complex causes for the worldwide and ethnic

variations in prostate cancer incidence. Environment plays an important role in modulating prostate cancer risk around the world. Japanese and Chinese men in the United States have a higher risk for the development of prostate cancer and dying of it than do their relatives in Japan and China . Likewise, prostate cancer incidence and mortality have increased in Japan as the country has become more westernized . However, Asian Americans have a lower prostate cancer incidence than white or African American men do, indicating that genetics still plays a role in determining prostate cancer predisposition. Studies suggest that dietary factors may contribute to prostate cancer development . The incidence of latent prostate cancers is similar around the world, but the incidence of clinically manifest cancers differs, with Asians having the lowest rates of clinical prostate cancer. The most convincing evidence for the role of the diet and other environmental factors in modulating prostate cancer risk comes from migration studies showing an increased incidence of prostate cancer in first generation immigrants to the United States from Japan and China . These observations suggest that diet may play a role in converting latent tumors into clinically manifest ones. A strong positive correlation exists between prostate cancer incidence and the corresponding rates of several other diet-related cancers, including breast and colon cancers .

Although PSA screening has improved survival, outcomes are not the same for all T1c detected disease as some of these cancers may not pose a threat to survival [5]. Despite routine application of PSA assays, limitations of specificity for this marker remain. Although PSA is widely accepted as a prostate cancer tumor marker, it is organ specific and not disease specific. Unfortunately, there is an overlap in the serum PSA levels among men with cancer and those with benign disease. Thus, elevated serum PSA levels may reflect alterations within the prostate secondary to tissue architectural changes such as cancer, inflammation, or benign prostatic hyperplasia (BPH). Currently, serum PSA levels as low as 2.6 ng/mL are used as a threshold to perform transrectal ultrasound-guided biopsy in Western literature. Although up to 30% of men presenting with an elevated PSA may be diagnosed following this invasive procedure, as many as 75 to 80% are not found to have cancer. To this end, the application of PSA derivatives such as PSA density, PSA velocity, age-adjusted values, and, more recently, molecular derivatives have attempted to improve the performance of PSA .

The majority of men with PSA elevations have serum levels in the range of 4 to 10 ng/mL . In these men, the most likely reason for PSA elevation is prostate enlargement, not prostate cancer, because of the high prevalence of BPH in this population.

CONCLUISON

Prostate cancer is one of the major cause of death in males, elderly males should have regular check up with PSA values, radiological findings and urologist consultation should be done to prevent metastasis.

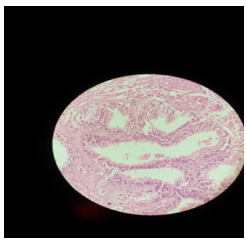

Figure 1: Section showing hyperplasia of smooth muscle and glandular elements in prostate along with grade1 PIN changes –BPH with grade 1 PIN [H&E,x 40

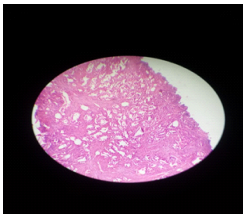

Figure 2: Section showing tumour cells which are round to oval having prominent nucleoli arranged in acinar pattern and in monolayered sheets along with prostate tissue – Adenocarcinoma of Prostate [H&E,x 40]

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