HISTOPATHOLOGICAL PROFILE OF PROSTATECTOMY SPECIMENS IN A TERTIARY HOSPITAL

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ABSTRACT

BACKGROUND

Diseases of the prostate are common causes of morbidity and mortality in adult males. Benign prostatic hyperplasia is an extremely common disorder in men over the age of 50. Other frequently encountered diseases affecting the prostate are prostatitis, benign prostatic hyperplasia and prostatic cancer. Histopathological examination of prostate biopsy specimen is required to rule out the benign or malignant enlargement of prostate gland in older men. We wanted to study the histopathological patterns of prostatic diseases in prostatectomy specimens in RIMS Hospital.

METHODS

A 5-year cross sectional study was carried out between October 2007 and October 2012 in the Department of Pathology, RIMS. All the prostate specimens received for histopathological examination during the period of study were fixed, processed, and stained with Haematoxylin and Eosin, and examined for various prostatic lesions.

RESULTS

A total of 73 specimens were studied out of which 53 (72.60%) were Benign Prostatic Hyperplasia (BPH), making it the commonest lesion. 11 (15.07%) were BPH with nonspecific prostatitis while 2 (2.74%) were BPH with granulomatous prostatitis. BPH with Prostate Intraepithelial Neoplasia (PIN) was seen in 4 (5.48%) specimens. Only 3 (4.11%) were malignant. All the malignancies were Adenocarcinomas. The mean age of BPH cases was 69.2 years ranging from 54 to 80 years. The malignancies were seen in the seventh and the eight decades.

CONCLUSION

BPH accounted for about three-fourths (72.60%) of the prostatic tissue samples. Few pre-malignant (PIN) and malignant lesions were found. Other lesions like nonspecific prostatitis, granulomatous prostatitis were also encountered.

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BACKGROUND

Prostate is the largest accessory reproductive organ in male. Prostate is an exocrine gland and its secretion forms a significant component of seminal fluid. Diseases of the prostate are common causes of morbidity and mortality in adult males.[1] Benign prostatic hyperplasia (nodular hyperplasia) is an extremely common disorder in men over the age of 50 years. Prostate cancer is the second most common cause of cancer death in men in the most developed countries and its incidence is increasing in developing countries.[2] High grade prostatic intraepithelial neoplasia (PIN) is considered as premalignant condition of prostatic adenocarcinoma. Age is the most important risk factor of prostatic cancer. It is rare under the age of 40 years and its incidence increases exponentially with age.[3] This study was carried out to find out the histological disease patterns of prostate examined in a tertiary hospital.

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METHODS

This is a cross sectional study spanning 5 years from October 2007 to October 2012. The study was conducted in the Histopathology section, Department of Pathology, RIMS. All the prostate specimens received for histopathological examination during the aforementioned period were included in the study. The prostatic material consisted of transurethral resection of prostate (TURP) chips. All together 73 prostatic specimens were received. These were fixed in 10% neutral buffered formalin for 12 hours. After adequate fixation the specimens were submitted for processing. 3 to 4 cassettes were prepared in each case, which

accommodated 50% of total tissue, and weighed approximately 9 to 12 gms. Specimens weighing <12 gms were submitted entirely.[1] In general, random chips were submitted; however, if some chips were firmer or had a yellow or yellow-orange appearance, they were preferentially submitted. Tissue processing was done with automated tissue processor and sections were made manually with microtome of thickness 2-4 microns. The slides were routinely stained with Haematoxylin and Eosin method[4] and examined under light microscope. Special staining was done wherever necessary. They were reported as per the histopathological findings and data thus collected were analysed. Carcinoma of the prostate cases were classified into different grades. Grading was based on glandular differentiation and the most commonly used Gleason method was applied.

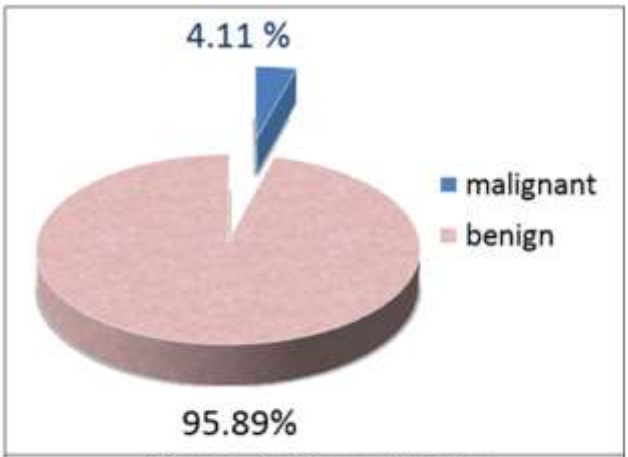

Figure 1. Incidence of Benign and Malignant Lesion

RESULTS

Altogether 73 histopathological specimens were analysed. Majority of the lesions were in the benign category constituting 95.89%. (Figure 1) Out of the 73 specimens studied, 53 (72.60%) were Benign Prostatic Hyperplasia (BPH) (Figure 2), making it the commonest lesion. 11 (15.07%) were BPH with nonspecific prostatitis while 2 (2.74%) were BPH with granulomatous prostatitis (Table 1). BPH with Prostate Intraepithelial Neoplasia (PIN) was seen in 4 (5.48%) of the specimens. Low grade PIN (LGPIN) was seen in 3 cases and high-grade PIN (HGPIN) (Table 2, Figure 3) was seen in a single case. Only 3 (4.11%) were malignant. The mean age of BPH cases was 69.2 years ranging from 54 to 80 years. The malignancies were seen in the sixth, seventh and the eight decades (Fig 4). All the malignancies were adenocarcinomas (Figure 5). All of them showed one or more of the different growth patterns and were categorized depending on the dominant growth pattern. The malignancies were graded using Gleason's scoring system. Primary grade given to dominant pattern and secondary grade given to subdominant pattern. Gleason's score of 2 (1+1) was seen in two cases and a score of 3 (1+2) was seen in 1 case.

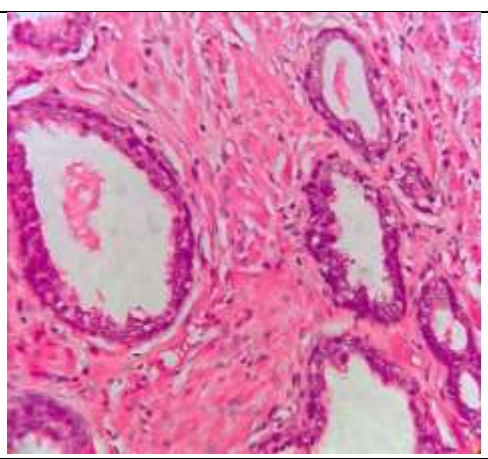

Figure 2. Photomicrograph of Benign Prostatic Hyperplasia Showing Glandulostromal Proliferation (H & E stain, 40X)

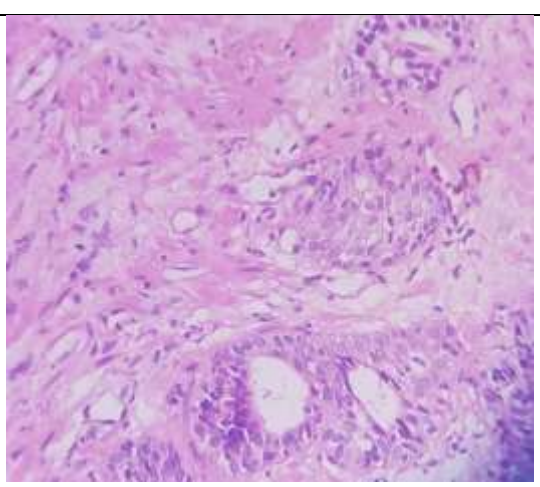

Figure 3. Photomicrograph Showing High Grade PIN (H & E Stain, 40X)

Microscopic Findings	Number of Cases	Percentage
Benign Prostatic Hyperplasia	53	72.60%
Chronic Nonspecific Prostatitis	11	15.07%
Granulomatous Prostatitis	2	2.74%
BPH with PIN	4	5.48%
Adenocarcinoma	3	4.11%
Total	73	

Table 1. Microscopic Diagnosis in Various Cases

Lesion	Number of Cases
LGPIN	3
HGPIN	1

Table 2. Prostatic Intraepithelial Neoplasia and Malignancy

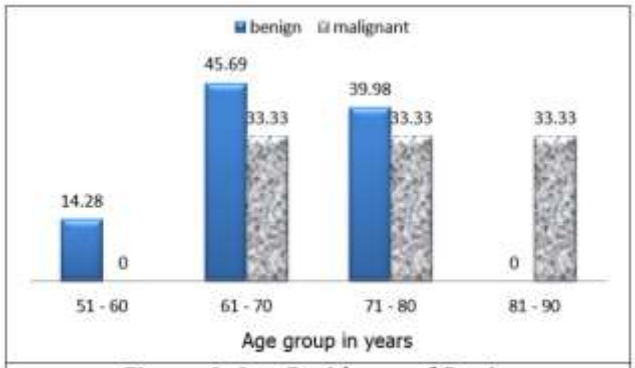

Figure 4. Age Incidence of Benign and Malignant Prostatic Lesions

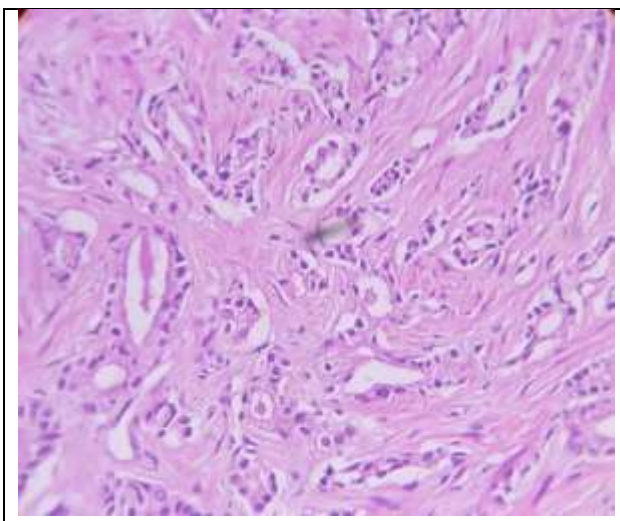

Figure 5. Photomicrograph Showing Prostatic Adenocarcinoma (H & E Stain, 40X)

DISCUSSION

In the present study of 73 prostatic specimens, the predominant lesion was BPH (70.60%). Dhawan et al (2000)[5], Karkhuzhali et al (2004)[6] and Jehoram et al (2005)[7] in their studies observed similar findings of 86%, 83% and 93% respectively. A clinico-pathological study by Shirish et al[1] observed that BPH constituted 83% of the prostatic lesions studied. Similarly, 88.89% of the 108 prostatic specimens studied were observed to be BPH in a study by Subhathra et al.[2] The most common prostatic lesion found in a study by Aslam et al[8] was BPH (87.5%).

Prostatism is a common malady in geriatric age group. In our study, the mean age of BPH cases was 69.2 years ranging from 54 to 80 years. The mean age was comparable to a study by Talukdar et al[9] and Cleary et al[10] with a mean age of 67.7 years and 60 years respectively. The decline in the number of cases beyond the age of 80 years may reflect the average life span of people in our country.

Nonspecific prostatitis accounted 15.07% of the prostatic lesions in the present study which is comparable to a similar study of 100 cases by Bal et al (11%).[11] Granulomatous lesions were seen in 2.73% of the cases. In the study by Mittal et al[12] granulomatous lesion were seen in 1.6%.

Malignant lesions accounted for 4.11% of the prostatic lesions in the present study. However, similar studies conducted in Karachi, Pakistan[13] and Patiala, India[11] observed a slightly higher incidence (12.5% and 10% respectively). The risk of prostate cancer rises very steeply with age. In our study, the malignancies were seen in the 6th, 7th and 8th decades.

The incidence of PIN in the present study was 5.47%. McNeal and Bostwick et al[14] found the incidence of PIN to be 43% while a study by Kovi et al[15] found it to be 46%. This may be explained by the fact that the present study included only TURP specimens which does not have enough material, while the aforementioned studies included TURP as well as radical prostatectomy specimens. PIN, particularly high-grade PIN, has high predictive value as a marker for adenocarcinoma.

CONCLUSION

Thus, our study concluded that Benign Prostatic Hyperplasia was the most common prostatic lesion occurring commonly after the age of 60 years. The commonest age group of presentation of both carcinoma and BPH was in the 6th and 7th decades. Incidence of PIN was less in our study. Screening protocols and awareness programs of prostatic cancer need to be introduced for early detection and treatment.

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