Original Research Article

Study of Prostatic Lesions in Tertiary Care Hospital In Konakan Region: Histomorplogical Lesions

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Abstract

Background: Prostate gland isinvolved in three pathologic processes namely prostatitis, nodular hyperplasia and carcinoma. The important causes for prostatic morbidity and mortality are inflammation, nodular enlargement and tumours. BPH is a part of normal ageing process affecting 210 million males worldwide.BPH is the most common urologic disorder in men beyond 40 years of age group and is almost present in men aged 80-90 years of age group. Furthermore, prostatic tumoursare a very important cause of male morbidity and mortality and prostate cancer is second only to lung cancer among cancer-related deaths in men. **Objective:** To study prevalence and incidence of various morphologic types of prostatic lesions in tertiary care hospital in Konkan region. **Materials and Methods:** The present study was carried out in the Department of Pathology at Dervan, Sawarde for two year period from 1st Jan 2019 to 31st Dec 2020. The prostatic tissues bits/ biopsies received at the Pathology Department were included in the study. **Results:** A total of 76 cases were included in the study. BPH was diagnosed in 60 patients while malignancy was diagnosed in 16 patients. Two patients had previous history of prostatic carcinoma and presented with metastatic disease at the time of the study. **Conclusion:** BPH is commonest lesion in advancing age however continuous monitoring of symptomatic patient is necessary with advancing age. The PSA Values above 20.1ng/ml are significantly correlated to prostatic carcinoma.

Key Words- BPH, Carcinoma, PSA

Introduction

BPH is the most common urologic disorder in men beyond 40 years of age group and is almost present in men aged 80-90 years of age group[1]. Currently, there is an increasing trend of the occurrence of both neoplastic and non-neoplastic lesions of the prostate, particularly in the elderly[2]. Prostatic carcinoma is more common in India compared to other Asian Countries[3].

The prostate specific antigen (PSA) levels have been widely used for the screening and the diagnosis of carcinoma prostrate. Its level may be elevated in patients with prostate cancer due to the leakage of PSA into the blood which are widely produced by the prostatic cancer cells and they precede clinical disease by 10 years or longer[4].

The present study has been conducted to study prevalence and incidence of various morphologic types of prostatic lesions in tertiary care hospital in Konkan region.

Materials and Methods

The present study was conducted in Department of Pathology at B.K.L.Walawalkar Rural Medical College and Hospital, Dervan, from 1st Jan 2019 to 31st Dec 2020 for a period of two years.

All TURP chips and guided biopsies from prostate received at the department were included in the study. Significant signs and symptoms including PSA levels were noted.

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The paraffin processed 3 microns thick sections stained with Haematoxylin and Eosin were studied. Immunohistochemistry (IHC) special markers were used whenever needed to get the accurate diagnosis. Lesions were then graded into benign, inflammatory and malignant lesions.Gleason`s microscopic grading was used to grade all the prostatic adenocarcinoma cases.

Results

Clinically 60 cases were diagnosed as benign prostatic hyperplasia and 16 cases of prostatic carcinoma. Two cases had previous history of carcinoma prostate and presented with metastasis to bone marrow and D6 vertebrae. Out of 16 malignant cases one patient had synchronous bladder malignancy. The nature of prostate studied was USG guided biopsy in 53.6 % followed by TURP chips in 34.6 % and prostatic chips in 9.33% cases. One each case of bonemarrow biopsy and vertebral was also received.

Table 1 Age wise Distribution of Prostate Lesion

Age(yrs)	Benign (%)	Malignant (%)	Total (%)
30–39	-	-	
40–49	1(1.31)	0(0)	1(1.31)
50–59	8(10.52)	3(3.94)	11(14.47)
60–69	29(38.15)	4(5.26)	33(43.42)
70–79	18(23.6)	8(10.52)	26(34.21)
80–89	4(5.26)	1(1.31)	5(6.57)
Total	60(78.9)	16(21.05)	76(10)

Benign lesions were common in the age group of 60-69 years while malignant lesions were common in the age group 70-79yrs. Two

cases with metastasis were in the age group of 60-69 while malignant lesions peaked in age group of 70-79 yrs.

Table 2 Spectrum of Clinical Symptoms in Prostate Lesions

Clinical symptoms	Benign	Malignant	Total
1.Frequency	25	05	30
2.Nocturia	08	02	10
3.Urgency	07	02	09
4.Difficulty in voiding	03	02	05
5.Micturation	13	03	16
6.Poor stream	18	03	21
7.Abdomen pain	02	01	03
8.Incomplete voiding	01	00	01
9.Hematuria	01	02	03
10.Acute retention	17	05	22
11.Dysuria	00	01	01

Increased urinary frequency and acute urine retention were the two most commonly observed symptoms in both benign and malignant cases. Also, few benign cases showed poor stream as a main complaint.

Table 3 Association of PIN with Benign and Malignant Prostate Lesions

Lesions	No. of cases (%)
LGPINwith BPH	00
LGPINwithcarcinoma	04(5.26)
HGPINwith BPH	02(2.63)
HGPINwithcarcinoma	03(3.94)

The High grade PIN with BPH was seen in 2.63% cases.Prostatic carcinoma with LGPIN was seen in 4(5.26%) cases and HGPIN in 3(3.94) cases .

Table 4 Gleason's Score in Cases of Prostate Adenocarcinoma

Gleason`s score	No. of Cases (%)
2	-
3	-
4	-
5	-
6	3(23.07)
7	4(30.76)
8	3(23.07)
9	2(15.38)
10	1(7.69)

Table 5 PSA Levels in Prostate Lesions

PSA Values (ng/ml)	Benign	Malignant	Total
0-4	22	0	22
4.1-10	16	0	16
10.1- 20	11	2	13
>20.1	9	12	21
unknown	3	0	03

In benign prostate lesions the PSA level was 0-10ng/ml in 38 cases, 10.1 to 20 in 11 cases and >20 in 9 cases. In most of the malignant lesion the PSA was > 20 ng/ml and only 2 cases it was between 10.1 to 20 ng/ml.

The PSA values more than 20.1ng/ml are significantly correlated to malignant lesion. The cases with PSA > 20.1ng/ml, have 8.21 times more chances of being malignant.The chi-square statistic is 25.03. The p-value is < 0.00001significant at 5% level of significance. In the present study incidence of benign lesions was 85%, whereas incidence of malignant lesions was 15%. Prevalence of prostate carcinoma in this study of 2years is 28%.

Table 6 Spectrum of microscopic features

No	Microscopic featurs	No of cases	Benign cases	Malignant cases
1	Glandular hyperplasia	17	13	04
2	Fibromuscular hyperplasia	29	22	07
3	Clear cell cribriform metaplasia	02	00	02
4	Basal cell hyperplasia	02	02	00
5	Mononuclear cells	32	23	09
6	Adenofibromyomatous hyperplasia	10	10	00

Table 7 Microscopic findings in malignant lesions

Microscopic Findings	No of cases
Acinarpattern	05
Adenocarcinoma	08
Metastasis	02

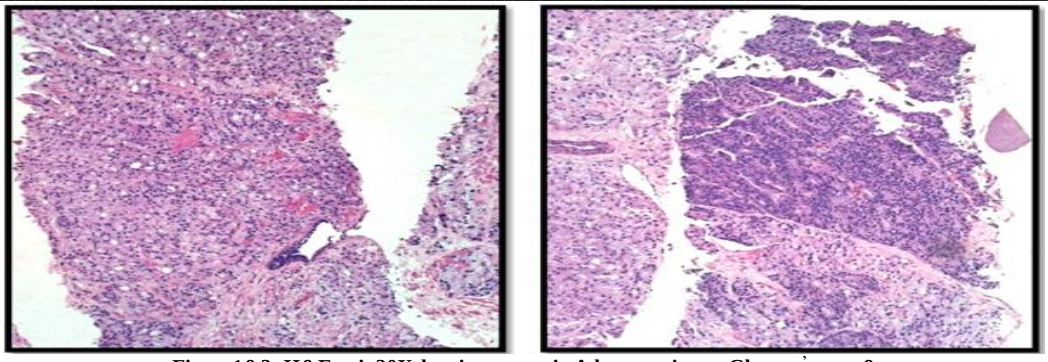

Figure1&2: H&Estain20Xshowingprostatic AdenocarcinomaGleason'sscore9

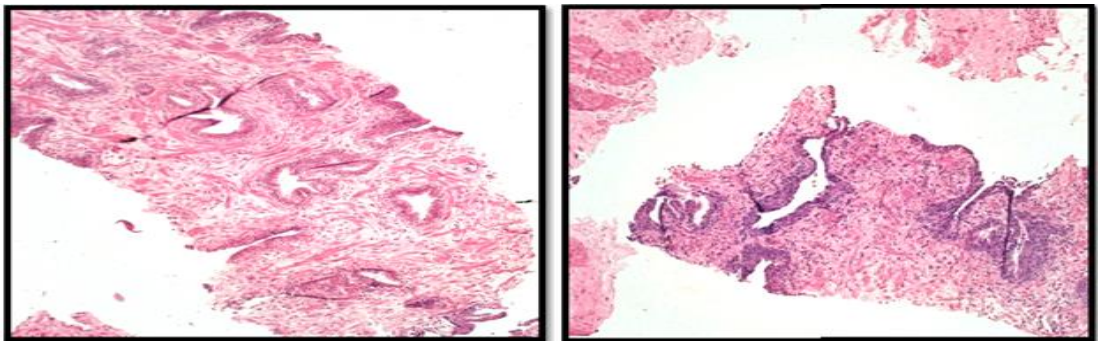

Figure 3&4: H&E Stain 20X showing irregular glands lined by cells displaying nuclear stratification, focal crowding, moderate nuclear pleomorphism &prominent nucleoli.

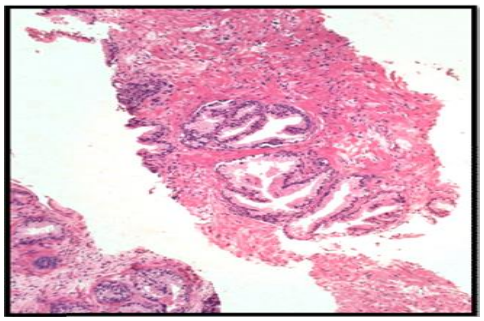

Figure5: H&Estain20Xshowingatrophicacini, fibro myomatousstroma & hyperplastic prostaticacini.

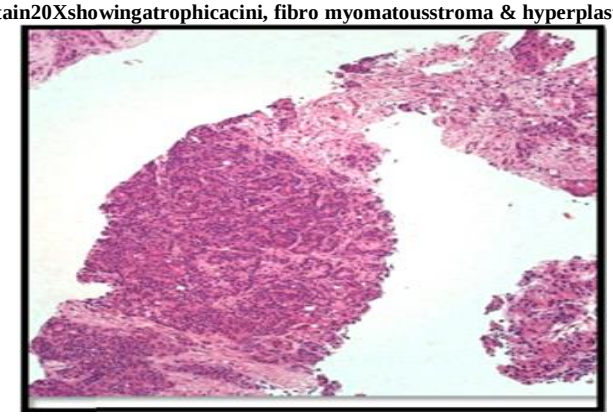

Figure6: H&Estain20Xshowingtumorcellsarrangedinsheets, cords, trabecular cribri form pattern & occasional gland.

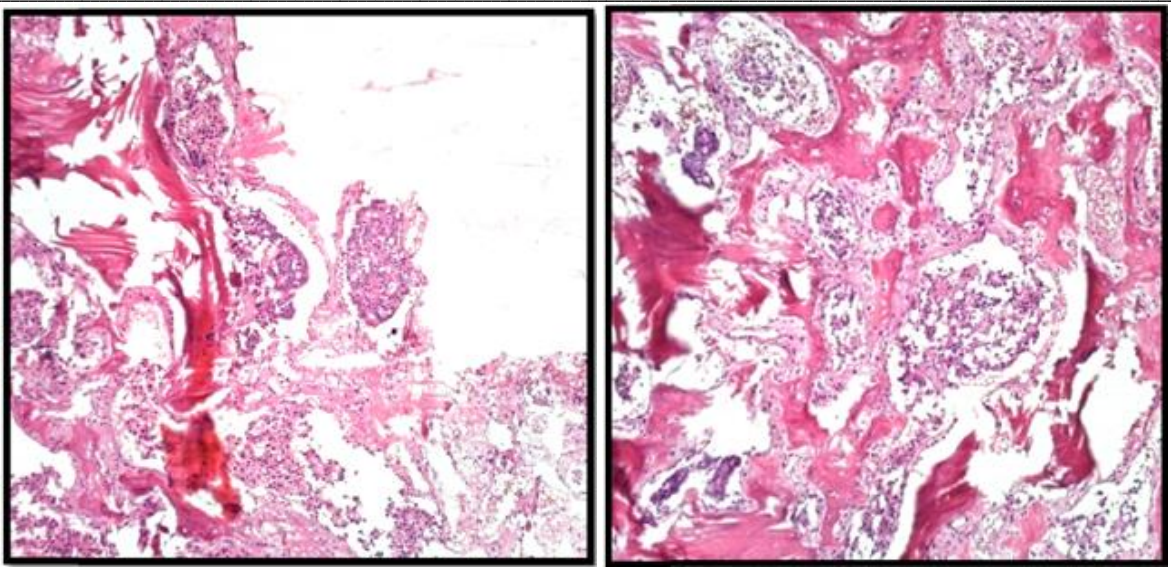

Figure7&8: H&Estain20Xintertrabecular spaces showing deposits & meta static adeno carcinoma.

Discussion

A total of 76 cases were analysed wherein, the commonest estimated age group for Carcinoma of prostate was 70-79 years which was similar to that of other studies like Moore (1935)[5], Rich(1934)[5], Andrews (1949)[5] and Edward et al (1953)[5]. The incidence of BPH in our study was observed to be 85% and that of prostatic carcinoma was 15% which is similar to the study conducted by W. Horinger et al in his study reported 73.1% BPH and 22.2% prostatic carcinoma[6]. Anna Pacelli and David G. Bostwick reported incidence of 81.7% of BPH and18.3% adenocarcinoma[7]. Bob Djavan reported 22% incidence in carcinoma[8].

The study highlights the fact that symptoms play the most important role in cases of Prostatic lesions. It was observed that all the patients who underwent TURP or USG guided biopsies had mainly increased in urinary frequency or urinary retention. None of the patients observed in this study were diagnosed for prostatic Lesions by chance on routine examination. Therefore in the present study low grade adenocarcinoma was not detected because these lesions are usually asymptomatic.

Out of 76 specimens examined, 9 cases showed PIN. 02 cases showed HGPIN with BPH, 04 cases showed LGPIN with carcinoma and 03 cases showed HGPIN with carcinoma. Nodular hyperplasia is a common cause of serum PSA elevation and accounts for 60-70% of cases. Studies of patients with histologically confirmed nodular hyperplasia have shown that 21.86% have elevated serum PSA levels. The degree of elevation is modest (4.1-10ng/ml)[9].

In the present study 60 cases of BPH were associated with elevated serum PSA level. In 22 cases serum PSA was less than 4 ng/ml, 16 cases had PSA values between 4.1 to 10 ng/ml.11cases had values between 10.1 to 20 ng/ml and 21 cases showed values more than 20 ng/ml. In 3 cases serumPSA level could not be evaluated. In malignant lesion 2 cases showed PSA levels in range of 10.1 to 20 and 12 cases showed PSAin more than 20 ng/ml. Nine benign casesalso showed> 20 ng/ml PSA levels and were associated with prostatitis, abscesses and granulomatous prostatitis. According to a study in chronic prostatitis, serum PSA was high in 99% of the cases. Also prostatic manipulations including cystoscopy, needle biopsy and TURP are known to elevate serum PSA levels. In a small percentage of men digital rectal examination (9%), prostatic massage (6%) and trans rectal ultrasound scanning (11%) result in elevation of serum PSA levels[10].

Serum levels of PSA were frequently elevated in patients with PIN ranging from 0.3 to 22.3 ng/ml (mean 4.0)[11]. In the present study, 9 PIN cases showed elevated serum PSA out of which 2 cases were of HGPIN with BPH. Three cases of HGPIN with carcinoma were seen with the serum PSA levels in the range of 100 to 179.6 ng/ml. 4 cases were seen in LGPIN with carcinoma with the serum PSA in range of 14.76 to 100ng/ml.

Table Comparison of prostatic carcinoma[5]

Sl. No.	Authors	No. of Prostatic specimens	No. of Prostatic carcinoma	Percentage
1	Newmanet al(1982)	500	71	14.20
2	Murulietal(1985)	222	19	8.56
3	Mooreet al (1986)	143	31	21.68
4	Murphyet al (1986)	386	66	17.10
5	Yamabe et al (1986)(Japan)	191	24	12.57
6	Yamabe et al (1996) (Netherlands)	452	57	12.61
7	Ebleand Tejada(1986)	700	132	18.56
8	Present study	75	15	20.0

Table 9 Comparison Of Carcinoma With Reference To Gleason's Score[12]

Studies	Gleason score	No. of patients (%)
Carter HB and Partin AW	2-4	64(9)
	5	168(24)
	6	303(43)
	7	130(19)
	8-10	38(5)

	Total	703(100)
Present study	**2**	**0**
	3	**0**
	4	**0**
	5	**0**
	6	**3(23.07)**
	7	**4(30.76)**
	8	**3(23.07)**
	9	**2(15.38)**
	10	**1(7.69)**

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