Original Article

Clinical spectrum of prostatic lesions: A clinicopathological study

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Abstract

Introduction: Prostatic disease is responsible for significant morbidity and mortality in men, throughout the world. Currently, there is an increasing trend of the occurrence of both neoplastic and nonneoplastic lesions of the prostate, particularly in the elderly. **Amis and objectives:** To correlate the histopathological features of prostatic lesions with the clinical data. **Materials and Method:** The present study was conducted in the Department of Pathology, of MIMSR Medical College, Latur during period of Nov 2010 to Oct 2012. All the prostate specimens referred to department of pathology for histopathological diagnosis were included. Detail clinical data were noted from case records, which Includes age of patients, presenting symptoms, Digital Rectal Examination (DRE) findings and relevant investigations like serum PSA levels, USG and clinical diagnosis. **Results:** Incidence of benign lesions was 93.64% and malignant lesions 6.36% in this study. In benign lesions, maximum (43.69%) cases were found in the age group of 61 to 70 years. The most common chief complaint was frequency (46.60%), nocturia (33.98%) and hesitancy(28.16%). Among malignant lesions, maximum (57.14%) cases were seen in age group of 71 to 80 year with most common complaints of nocturia and retention in 42.86% cases followed by frequency and urgency in 28.57% and hesitancy in 14.28% patient respectively. Hematuria and intermittent stream were significantly associated with malignant lesions. The sensitivity of DRE in diagnosing malignant lesion was 71.43% whereas specificity was 93.20%. Serum PSA values over 10ng/ml were seen in 9 benign (29.03%) cases and 7 malignant (22.58%) cases. **Conclusion:** Frequency and nocturia were the common presenting symptoms in benign, whereas hematuria and intermittent stream were significantly associated with malignant lesions. DRE appears to be a test with high specificity and negative predictive value, but a low sensitivity and positive predictive value.

Keywords: prostatic lesions, DRE, clinical features, frequency, hematuria.

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INTRODUCTION

Prostatic disease is responsible for significant morbidity and mortality in men, throughout the world. It is the second most common cause of cancer death in men in the most developed countries and its incidence is increasing significantly. Enlargement of prostate in a aged male is the main cause of dysurea and retention of urine leading to prostactomy. Currently, there is an increasing trend of the occurrence of both neoplastic and nonneoplastic lesions of the prostate, particularly in the elderly. Prostatitis, NH and tumors are the three important lesions to be studied in detail as they are frequently encountered. Diagnosis of prostatitis is very necessary as they can be successfully treated with antibiotics. NH describes a hyperplastic process of stromal and epithelial elements of prostate. It is an extremely common problem in elderly men over the age 50.[1] Prostatic carcinoma is more common in India compared to other Asian Countries.[2] It is the 5th cause of cancer in men and 4th in cancer mortality in India. At some time in their lives approximately one in 22 Indian males will be struck by prostatic carcinoma and its incidence is increasing by

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3.5% every year.[3] Etiology of prostatic carcinoma is largely unknown today rendering disease prevention difficult. Hereditary factors have a role.[4,5] The great differences in the incidence of clinically manifest carcinoma indicate that the nutritional and environmental factors also may have an influence on the development and progression of the disease.[6] Accurate diagnosis of prostatic disease frequently requires simultaneous data from clinical chemistry, imaging techniques and surgical pathology laboratory. Thus the present study was undertaken to correlate the clinical features of these lesions with the histological data.

AMIS AND OBJECTIVES

To correlate the histopathological features of prostatic lesions with the clinical data.

MATERIALS AND METHOD

The present study was conducted in the Department of Pathology, of MIMSR Medical College, Latur during the period of Nov 2010 to Oct 2012. All the prostate specimens referred to department of pathology for histopathological diagnosis were included in the study. Following inclusion and exclusion criteria were adopted in this study.

- **Inclusion Criteria:** All types of prostatic specimens including TURP, Needle biopsy and prostatectomy are considered in this study.
- **Exclusion Criteria:** Inadequate biopsies and poorly preserved prostatic specimens are excluded.

Sample Size

Total 115 specimens were received in the study duration. With reference to above mentioned exclusion criteria 5 specimens excluded because of inadequate biopsies and poor preservation. Therefore total 110 prostatic specimens were included in the present study. Detail clinical data were noted from the case records, which Includes age of patients, presenting symptoms, Digital Rectal Examination (DRE) findings and relevant investigations like serum PSA levels, USG and clinical diagnosis. All the prostatic specimens were subjected to a careful and detailed gross examination. 10% formalin fixed and paraffin embedded tissue sections from these specimens were used for microscopic study. 4 to 5µ thick sections were being prepared and stained routinely with H and E and classified into various benign and malignant lesions. The clinical findings in the patients and the histological findings were compared with each other. Results are presented as number and percentages for qualitative data. Group-wise comparisons were made by Chi-square test. P value of 0.05 or less was considered for statistical significance.

RESULTS

Table 1: Distribution of benign and malignant lesion

Benign lesions	Malignant lesions	Total
103 (93.64%)	07 (6.36%)	110 (100%)

In the present study total 110 specimens of prostatic lesions were studied and it was observed that 103 were benign lesion whereas remaining 7 were malignant lesion. Incidence of benign lesions was 93.64% and malignant lesions 6.36% in this study. Out of the 110 specimens received 108 (98.18%) were TURP and 2 (1.82%) were needle biopsies.

Table 2: Age wise incidence of various prostatic lesions

		Malignant lesions	Benign lesions	Total
AGE (Years)	41-50	01 (14.29%)	03 (2.91%)	04 (03.64%)
	51-60	00 (00.00%)	21 (20.38%)	21 (19.09%)
	61-70	02 (28.57%)	45(43.69%)	47 (42.73%)
	71-80	04 (57.14%)	28 (27.19%)	32 (29.09%)
	81-90	00 (00.00%)	06(05.83%)	06 (05.45%)

In benign lesions, maximum (43.69%) cases were found in the age group of 61 to 70 years. Among malignant lesions, maximum (57.14%) cases were seen in age group of 71 to 80 years.

Table 3: Clinical presentation of prostatic lesions

Symptoms	Benign lesion(n=103)	Malignant lesion (n=7)	Total	p value
Frequency	48 (46.60%)	02 (28.57%)	50	0.35
Nocturia	35 (33.98%)	03 (42.86%)	38	0.63
Urgency	21 (20.39%)	02 (28.57%)	23	0.60
Hesitancy	29 (28.16%)	01 (14.28%)	30	0.42
Poor stream	26 (25.25%)	02 (28.57%)	28	0.84
Dribbling	22 (21.36%)	02 (28.57%)	24	0.65
Retention	23 (22.33%)	03 (42.86%)	26	0.21
Hematuria	01 (00.97%)	04 (57.14%)	05	p<0.000*
Fever and chills	14 (13.59%)	02 (28.57%)	16	0.27
Intermittent stream	22 (21.36%)	04 (57.14%)	25	p<0.05*

*significant

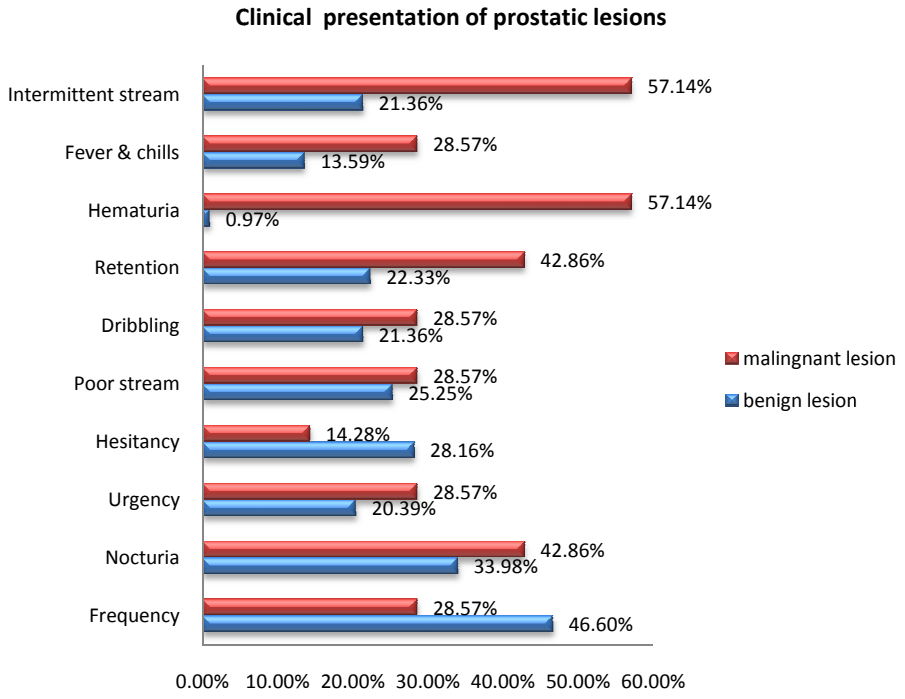

Figure 1:

The most common chief complaint of benign lesions was frequency (46.60%), followed by nocturia and hesitancy in 33.98% and 28.16% cases respectively. In malignant lesions most common complaint was nocturia and retention in 42.86% cases followed by frequency and urgency in 28.57% and hesitancy in 14.28% patient respectively. However when both lesions were compared, hematuria and intermittent stream were significantly associated with malignant lesions with p<0.000 and p< 0.05 respectively.

Table 4: Digital rectal examination (DRE) findings in benign and malignant lesions

DRE	Benign lesions	Malignant lesions	Total
Soft to firm	96 (93.20%)	02 (28.57%)	98 (89.09%)
Hard/ nodular	07 (06.80%)	05 (71.43%)	12 (10.91%)
Total	**103 (100%)**	**07 (100%)**	**110 (100%)**

χ^2 =28.17, df = 1, p< 0.000 (significant), **Sensitivity =** 71.43% (95% CI: 29.27% to 95.48%), **Specificity** = 93.20% (95% CI: 86.49% to 97.21%), **Positive Predictive Value =** 41.67% (95% CI: 15.32% to 72.25%), **Negative Predictive Value =** 97.96% (95% CI: 92.81 % to 99.69 %)

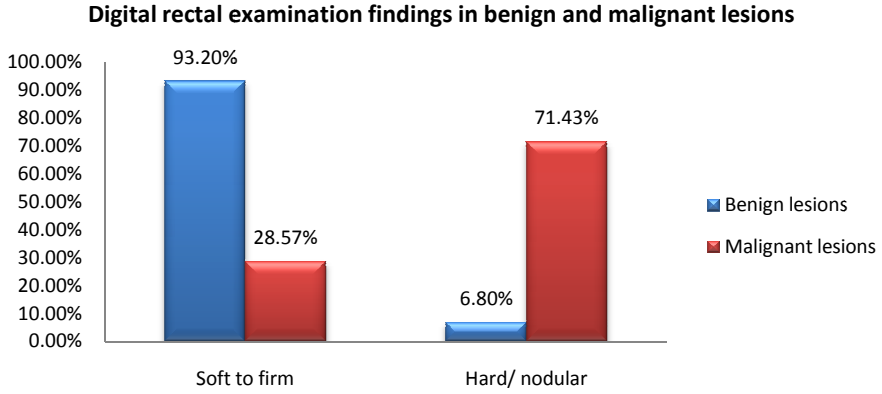

Figure 2:

Out of total 110 cases, 98 (89.09%) cases revealed DRE findings suggestive of benign lesion (soft to firm) and 12 (10.91%) cases suggestive of malignant lesion (hard/ nodular). Out of the 98 cases suggestive of benign lesion, histopathology revealed adenocarcinoma of prostate in 2 cases. Whereas 12 cases suggestive of malignant lesion on histopathology showed that 5 cases were malignant and 7 cases were benign. The sensitivity of DRE in diagnosing malignant lesion was 71.43% whereas specificity was 93.20%. Positive Predictive Value was 41.67% and Negative Predictive Value was 97.96%.

Table 5: Serum psa levels in prostatic lesions

PSA values (ng/ml)	Benign lesions	Malignant lesions	Total
0 – 4.0	03 (12.50%)	00 (00.00%)	03 (09.68%)
4.1 – 10.0	12 (50.00%)	00 (00.00%)	12 (38.71%)
10.1 – 20.0	08 (33.33%)	01 (14.29%)	09 (29.03%)
> 20+	01 (04.17%)	06 (85.71%)	07 (22.58%)
Total	**24 (100%)**	**07 (100%)**	**31 (100%)**

Total serum PSA levels were done in only 31 cases of which 24 cases were benign and 7 cases were malignant. Serum PSA values over 10ng/ml were seen in 9 benign (29.03%) cases and 7 malignant (22.58%) cases. However when both PSA values were compared, p=0.0001 which was highly significant**.**

DISCUSSION

The present study was conducted with objective to correlate the histopathological features of prostatic lesions with the clinical data. During the present study period total 110 prostatic specimens were analyzed in the Department of Pathology, of the study institute to achieve the above mention objectives. Out of total 110 patients, 108 specimens were obtained by TURP and 2 specimens were obtained by Transrectal needle biopsy. In the present study it was observed that out of 110 specimens, incidence of carcinoma was 6.36%. It was evident from the table No 2, that benign lesion was more common in the age group of 61-70 years (43.69%) which was comparable with the study of As Anjorin *et al*[7] in which incidence was 40.4% in same age group. The incidence of malignancy increases with age and it was more in the age group of 71-80 years (57.14%). Similar findings were also reported by Rich *et al*[8] (44.44%) and Andrews *et al*[8] (43.75%). Information about various clinical presentations was also collected from the patients. It was observed that in benign lesion most common symptom was increased frequency of urination (46.60%) followed by nocturia (33.98%), hesitancy (28.16%) and poor stream (25.25%). In study carried out by Barakzai MA *et al*,[9] the main presenting symptoms of the patients were, retention of urine (37%), poor stream (33.3%), frequency (27.7%), urgency (16.6%), hematuria (12.9%), incomplete emptying (11.1%), nocturia (11.1%), hesitancy (7.4%), and post void dribbling (5.5%), in variable combination. Overall 92% patients were symptomatic at the time of presentation. In our study poor stream (25.25%) was comparable whereas frequency (46.60%) and nocturia (33.98%) were higher as compared to study conducted by Barakzai MA *et al*[9]. In study carried out by As Anjorin *et al*,[7] over 82% of patients had NH and an appreciable number among them presented with acute retention, frequency, urgency, hesitancy and nocturia. In patients with malignant lesion most common symptom was hematuria (57.14%) and intermittent stream (57.14%) followed by retention (42.86%) and nocturia (42.86%). Miller DC *et al*[10] found that Prostate cancer is typically asymptomatic in its early stages. It is commonly found during a routine health checkup. If it is symptomatic, then it usually mimics benign prostate hyperplasia. Polyuria, nocturia, urinary retention, hematuria and dysuria are characteristic symptoms. In malignant patients statistical significant association was found with hematuria ($p< 0.000$) and intermittent stream ($p< 0.05$). Age wise distribution of patients showed that DRE findings suggestive of benign lesion were more in the age group of 61 – 70 yrs (42 cases) and DRE findings suggestive of malignant lesion were more common in 71-80 yrs of age group i.e. 6 cases. These finding were comparable with the study done by Lamine Niang *et al*.[11] It was observed that in 93.20% patients with benign lesion, DRE findings were soft to firm. Out of total malignant lesion in 71.43% patients DRE findings were hard or nodular and the difference was statically significant ($p< 0.000$). The sensitivity of DRE in diagnosing malignant lesion was 71.43% whereas specificity was 93.20%. Positive Predictive Value was 41.67% and Negative Predictive Value was 97.96%. Thus the DRE appears to be a test with a high specificity and negative predictive value, but a low sensitivity and positive predictive value. Hoogendam A *et al*[12] conducted a meta-analysis to study the diagnostic value of the digital rectal examination (DRE) for the diagnosis of prostate cancer and observed that DRE has high specificity and negative predictive value, but a low sensitivity and positive predictive value. Manyahi JP *et al*[13] also observed similar findings in their study. In the present study, only 31 cases had serum PSA levels estimated. Out of 31 cases, 24 cases were benign. A total of 12 benign cases showed modest elevation (4.1 – 10 ng/ml) of PSA levels and 8 cases showed elevation in between 10.1 to 20 ng/ml. One benign case showed PSA level more than 20 ng/ml. This is because, these cases of NH was associated with prostatitis, abscess and infarcts. Out of the total 31 cases, chronic prostatitis was found in 7 cases. One case had serum PSA level in between 4.1 to 10 ng/ml, where

as in six cases serum PSA was in between 10.1 to 20 ng/ml. According to a study on chronic prostatitis, serum PSA was high in 99% of cases. Prostatic manipulations including cystoscopy, needle biopsy causes marked elevation of serum PSA levels. Whereas digital rectal examination, prostatic massage and ultrasonography have minimal effects on serum PSA levels in most patients.[14] Acute urinary retention also elevates the serum PSA values.[15] Serum PSA levels were frequently elevated in patients with PIN ranging from 0.3 to 22.3 ng/ml (mean 4.0).[16] In the present study, 6 cases of prostatic carcinoma showed PSA levels > 20 ng/ml, however one case had PSA level 10.24 ng/ml. This is attributed to study in which prostate cancers detected at lower PSA levels are more likely to have a small volume and are of low grade.[17]

CONCLUSION

Thus it was observed that benign and malignant prostatic lesions presents commonly in men more than 60 years of age. Frequency and nocturia were the common presenting symptoms in benign, whereas hematuria and intermittent stream were significantly associated with malignant lesions. DRE appears to be a test with a high specificity and negative predictive value, but a low sensitivity and positive predictive value.

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