HISTOMORPHOLOGICAL SPECTRUM OF PROSTATIC LESIONS IN TERTIARY CARE HOSPITAL

Pathology

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ABSTRACT

Introduction: Prostate gland is crucial source of morbidity and mortality in elderly males. The spectrum of lesions includes Inflammation, BPH and Malignancy. Histomorphological diagnosis and its grading in malignancy plays cardinal role in management of prostatic lesions. Current study aims at analyzing histomorphological spectrum of lesions in prostate.

Materials and Methods: Current study is done in Department Of Pathology of Tertiary Hospital from May 2018- 19. Total 98 samples were received during this period. The received biopsy was grossed, processed and Haematoxylin and Eosin slides were prepared for reporting.

Results: Total 98 cases with age ranged from 30 to 82 years. 74 cases were non-neoplastic and 24 neoplastic.

Conclusion: As per current study, 51 – 80 years is the commonly affected age group. BPH is the most common lesion. Of which BPH with chronic inflammation is most common non-neoplastic lesion. All malignant cases are of Adenocarcinoma.

KEYWORDS

Prostatic Intraepithelial Neoplasia, Adenocarcinoma.

INTRODUCTION

Prostate is retroperitoneal organ encircling neck of bladder and urethra, comprising of glands and fibromuscular stroma histologically. It consists of glands lined by inner secretory columnar cells and outer basal cuboidal cells. It is an exocrine gland forming prostatic secretions and is largest accessory reproductive organ in males.⁽¹⁾ Prostatic cells growth and survival is maintained primarily by testicular androgens.^(4,7) Geriatric population and prostatism go in sink.⁽²⁾ Since, its androgen dependent large spectrum of lesions are seen affecting this gland. Inflammation, Benign Prostatic Hyperplasia and tumors are most important cause for morbidity and mortality in males.⁽²⁾ Almost 210 million males worldwide are affected with BPH alone. It is contemplated as part of normal ageing process.⁽¹²⁾ Whereas, prostate cancer stands second after lung cancers in terms of incidence and mortality risk.⁽¹³⁾ There is ethnic variation in prevalence of ethnic diseases with most commonly seen in Scandinavians, Caucasians and least in Asians.⁽²⁾

In India, Prostatic Cancer forms 5 % of all male cancers.⁽¹⁴⁾ High Grade Prostatic Intraepithelial Neoplasia (HGPIN) is premalignant condition of Prostatic Adenocarcinoma. Screening of prostatic lesions includes Digital Rectal Examination, Transrectal Ultrasound and analysis of Prostate Specific Antigen Values. However, biopsy is the gold standard for accurate diagnosis of all prostatic lesions.⁽⁴⁾ Adenocarcinomas are further graded on basis of Gleason Score and WHO Grading depending on its microscopic characteristics to know the morbidity and mortality of respective case.⁽¹⁾

MATERIALS AND METHODS

Current study was conducted for duration of 1 year from May'18 – May'19 in Department Of Pathology, MGM Medical College and Hospital. A total of 98 cases were studied. Material studied includes transurethral resection of prostate (TURP) and needle biopsies. We didn't received prostatectomy specimens during this period.

Eligibility criteria in present study:-

Inclusion criteria:- All transurethral resection of prostate (TURP), needle biopsies were included.

Exclusion Criteria:-

Inadequate biopsies. Clinical data of each patient comprising age, presenting complaints along with provisional clinical diagnosis were noted from respective case records. Laboratory findings analysis was not done in current study.

In 10% formalin, biopsies were fixed. If TURP specimens quantity received was less than 12cc, then whole of the tissue was processed. If more than 12cc volume is received then additional blocks made for every 5cc tissue received. Tissue was processed and Haematoxylin and Eosin staining done.

RESULTS

Out of 98 cases, 74 were of benign prostatic lesions, 14 of pre-malignant lesion and 10 cases were of malignant lesions (Table 1). BPH is the most common lesion accounting for 72 cases (73.46%). Out of total 72 cases of BPH, 42 cases (42.81%) were of BPH with Prostatitis. This was further divided into 40 cases (40.81%) of non-granulomatous prostatitis and 2 cases (2.04%) of granulomatous prostatitis. BPH without prostatitis formed incidence of 30.61% whereas inflammatory lesion formed incidence of 2.04% (Table 3).

Table 1: Incidence Of Prostatic Lesions

Total	Benign Cases	Premalignant Cases	Malignant Cases
98 (100%)	74 (75.5%)	14 (14.2%)	10 (10.2%)

Among 14 cases of pre-malignant conditions, 11 cases (11.2%) were of low grade PIN and 3 cases (3.06%) of high grade PIN. Remaining 10 cases (10.2%) were of Adenocarcinoma of Prostate (Table 1).

Table 2: Age wise incidence of prostatic lesions (Total-98 cases)

Age (years)	Non-neoplastic lesions	Neoplastic lesions	Total
<30			
31-40	2 (2.04%)	1 (1%)	3 (3.06%)
41-50	11 (11.2%)	2 (2.04%)	13 (13.3%)
51-60	29 (29.5%)	5 (5%)	34 (34.7%)
61-70	23 (23%)	10 (10.2%)	33 (33.7%)
71-80	8 (8.2%)	4 (4%)	12 (12.2%)
>81	1 (1%)	2 (2.04%)	3 (3.06%)
Total	74 (75.5%)	24 (24.4%)	98 cases (100%)

Table 3: Age-wise distribution of benign lesions (Total-74 cases)

Age (Years)	Inflammatory	Nodular Hyperplasia		
		Without Prostatitis	With Prostatitis	
			Non-granulomatous	Granulomatous
<30				

31-40			2	
41-50	1	4	5	1
51-60	1	11	16	1
61-70		9	14	
71-80		6	2	
>81			1	
Total	2(2.04%)	30(30.61%)	40 (40.8%)	2(2.04%)

Table 4: Age wise distribution of pre-malignant and malignant lesions (Total – 24 cases)

Age (years)	PIN		Malignancy
	Low Grade	High Grade	Adenocarcinoma
<30			
31-40			1
41-50	2		
51-60	3	1	1
61-70	5	2	3
71-80	1		3
>81			2
TOTAL	11(11.22%)	3(3.06%)	10(10.2%)

Maximum number of prostatic lesions are in age group of 51 to 60 years(34.7%) followed by 61-70 years(33.7%). Among Benign Prostatic Lesions, maximum incidence is in 51-60 years(28.42%) whereas in pre-malignant lesions maximum incidence is in age group of 61-70 years(5%). In malignant lesions of prostate, maximum incidence is in age group of 51-70 years(6%). Youngest age of benign and malignant prostatic lesions were 32 and 40 years respectively whereas oldest with age of 80 and 85 years respectively (Table 2,3,4). In present study, most common symptom is increase in frequency in 65 cases(66.3%) followed by acute retention of urine(40%), hesitancy(26%) and difficulty in voiding(10%). In malignant cases, most common symptom is of dysuria in 7 out of 10 cases(70%), followed by incomplete voiding(60%), difficulty in voiding (45%) and hematuria(20%).

Table 5: Various Gleason Scores of Adenocarcinoma (Total – 10 cases)

Gleason Score	No. Of cases	Percent age	Remark, if any	WHO Grade Group
4(2+2)	1	10%		1
5(2+3)	1	10%		1
6(3+3)				1
7(3+4)	1	10%		2
7(4+3)	1	10%	Perineural invasion present	3
8(4+4)	3	30%	Perineural invasion present	4
9(4+5)	1	10%	Perineural invasion present	5
10(5+5)	2	20%	Perineural invasion present	5

In present study, Gleason score 8(4+4) - WHO Grade 4 with Perineural invasion is the most common lesion with incidence of 30% followed by Gleason Score 10(5+5) with Perineural invasion – WHO Grade 5(20%). Total perineural invasion is seen in 7 cases (70%)(Table 5).

DISCUSSION

Prostate gland is usually affected by Benign Prostatic Hyperplasia and Adenocarcinoma. Benign Prostatic Hyperplasia consists of hyperplasia of stromal and glandular components causing enlarged prostate gland. Glands are hyperplastic and cystically dilated lined by inner columnar and outer cuboidal layer with inconspicuous nucleoli and contiguity of basal cell layer above basement membrane.^(10,15) (Figure.1). Chronic Prostatitis shows features of interglandular or periglandular mononuclear cell infiltrate comprising lymphocytes, few plasma cells and histiocytes^(10,15)(Figure.2). Adenocarcinoma shows large acini with no convolutions; fused, crowded glands along with cords, columns and solid sheets pattern of tumor cells. Enlarged nucleus with prominent nucleoli. Gleason score is by glandular pattern and morphological appearance of glandular cells^(10,15)(Figure.3).

Fig 1. Benign Prostatic Hyperplasia

Figure 2. Chronic Prostatitis

Fig 3. Adenocarcinoma of Prostate

In current study, prostatic lesions seen in maximum of 51 to 60 years (34.7%); whereas study done by SD Birare et al⁽²⁾, Kusum et al⁽⁵⁾, RC Arya et al⁽⁶⁾ and Satyasri et al⁽¹⁾ show maximum incidence of prostatic lesions in age group of 61 to 70 years.

In present study, most common symptom is of increase frequency (66.3%) and least being difficulty in voiding (10%) in benign lesions whereas in malignant lesions dysuria (70%) and hematuria(20%) being most and least common respectively. This is similar to study done by SD Birare et al⁽¹⁾ which has increased frequency(67%) as most common symptom in benign lesion whereas least being difficulty in voiding with incidence of 12%, whereas dysuria being most common symptom in malignant lesions with incidence of 88.9% and least common symptom being difficulty in voiding(55%). As per study done by Puttuswamy et al⁽³⁾, hesitancy(31.6%) is the most common symptom and least being acute retention of urine(38.7%).

Table 6: Comparison of incidence of prostatic lesions in different studies

	Benign (%)	Pre-malignant (%)	Malignant (%)
Present Study (n=98)	74(75.5%)	14(14.2%)	10(10.2%)
SD Birare et al(2)	145(91.7%)	4(2.53%)	9(5.7%)
Satyasri K et al(1)	279(86.91%)	15(4.67%)	25(7.7%)
Rajeshwari et al(5)	539(52.68%)	385(37.6%)	99(9.7%)
Bhatta S. et al(7)	86(89.58%)	2(2.08%)	8(8.34%)

In present study, Gleason score 8(4+4) with Perineural invasion - WHO Grade 4 followed by Gleason Score 10(5+5) with Perineural invasion – WHO Grade 5 is the most common score in Prostatic Adenocarcinoma with incidence of 30% and 20% respectively. As per study done by Satyasri et al⁽¹⁾ most common Gleason Score is 7(3+4 and 4+3) seen in 13 cases(56.52%) whereas least common is Gleason Score 4(2+2) seen in 3 cases. Perineural invasion identified in 7 cases(70%) in present study whereas study done by Satyasri et al⁽¹⁾ have perineural invasion in 11 cases with incidence of 47.82%. As per

study done by SD Birare et al⁽²⁾, 4 cases(44.44%) of Gleason Score 7 is seen whereas least common is Gleason Score 9 in 1 case with incidence of 11.11%(Table 6).

CONCLUSION

As per current study, BPH is the most common lesion observed followed by Benign Prostatic Hyperplasia with Prostatitis. All prostatic malignancy were of Adenocarcinoma type with few being observed as Incidental Carcinoma. In few cases perineural invasion seen which was associated with High Gleason Score. Biopsy remains gold standard for histopathological diagnosis. 51-80 years is the most common affected age group for prostatic lesions. PIN are known precursor lesions of Prostatic Carcinoma and have important diagnostic challenge. For management of Prostatic Carcinoma; accurate histopathological diagnosis and appropriate grading plays significant role.

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