

Histopathological prevalence of the Prostate enlargement: 5 Years local review, a Single Centre Study in Sana'a the capital city of R. Yemen

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Abstract

Objectives Analysis of the pattern of prostatic enlargement as seen in our practice, Design of Study retrospective study. Setting Department of Pathology, University of Sana'a, Yemen. Period Duration of the study is five years. Methods and Materials All consecutive prostatic specimens (Biopsy, Open operation and transurethral resection TURP) received between January, 2005 and end of September, 2009 were included in the study. Results During this period 839 prostatic specimens were examined,

497 (59.2%) were TUR specimens, 224 (25.7%) enucleation specimens, and 118 (14.1%) needle biopsies. The mean age of the patients was 67.3 years (std. deviation 10.353). Out of these 839 (76.6%) 643 were benign, 47 cases (5.6%) with clinicall suspicious of cancer was negative. The prostate malignancy was 17.8% (149) of all cases. The most common of these findings of malignancies is 136 (92%) adenocarcinoma of the prostate gland. Metastasis appeared in 13 (9%) of these prostatic adenocarcinoma cases. Other malignant tumours constituted only 8% of the cases which were transitional cell cancer 5 (3%), squamous cell cancer 5 (3%) and rhabdomyosarcoma 3 (2%). Most of the prostatic adenocarcinomas (81%) were well to moderated differentiated. The highest incidence of hyperplasia and malignancy occurred between 60-70 years of age. Conclusions Benign prostatic hyperplasia (BPH) is extremely common and constitutes the most of prostate specimens. The Majority of prostatic carcinomas are still diagnosed on TUR or enucleation specimens.

The most common Gleason score in all type of specimens were 2-6.

Key Words : Prostate enlargement, BPH, Prostatitis, cancer, Adenocarcinoma

INTRODUCTION:

Introduction

There are three diseases most often discussed when considering prostate health: benign prostatic hyperplasia (BPH), Infections and inflammation of the prostate (prostatitis), and prostate cancer.

Benign prostatic hyperplasia (BPH) assigns most of men after the age of fifty and represents the most common urologic disease among elderly males (1). BPH is histologically defined as an overgrowth of the epithelial and stromal cells from the transition zone and periurethral area. stromal and epithelial elements, either alone or in combination, can give rise to hypertrophic nodule (3).

Incidence of histological BPH could be over 70% at 60 years old and over 90% at 70 years old (2). But histological BPH doesn't systematically lead to clinical manifestations. BPH symptoms can range over a wide scale from minimal bother to urinary retention and renal failure (4-6).

Minimal procedure such as transurethral resection of the prostate (TURP) is a Gold standard treatments method to relieve the lower urinary tract obstruction and avoid BPH complications. TURP is a common procedure and about 20% of the male population is likely to undergo this operation in their life time (7). But the facility of TURP is not freely available in Yemen, only available in major

health care facilities of some main cities, as in Sana'a. Alternative to TURP is open prostatic surgery such as transvesical or retropubic enucleation.

There are some evidences that prostatic inflammation could be a key component in prostate enlargement and BPH progression. Two of the major clinical studies on BPH (MTOPS and Reduce study) recently demonstrated a link between histological prostatic inflammation and prostate enlargement or symptoms scores (8,9). However, immune cells are also releasing numerous cytokines and growth factors that recruit other cells that promote the growth of epithelial and stromal prostatic cells. This process finally results in prostate enlargement.

Prostate cancer is the most common cancer in United States and European men and the second leading cause of cancer related deaths. In USA 2009 was estimated that about 240,890 men were diagnosed with, and 33,720 men died of prostate cancer (10). The life time risk for a man in the United States to be diagnosed with prostate cancer is 1 in 6. All men can get prostate cancer but those with a family history and/ or old age are at a substantially greater risk.

In large part, changes in incidence rates of prostate cancer over the past 20 years reflect changes in prostate cancer detection, most importantly, the introduction of screening with the PSA blood test. PSA is a protein secreted by the prostate and normally present at low levels in blood. Elevated levels of PSA in blood can be a sign of prostate cancer, but can also be a sign of other conditions, such as non-cancerous enlargement of the prostate (BPH) or inflammation of the prostate (prostatitis).

When prostate cancer is suspected, a biopsy is performed. A biopsy is a procedure in which a sample of body tissue is removed and examined under a microscope. A core needle biopsy is the main method used to diagnose prostate cancer.

This study was performed to give a base line description of the pattern of prostate enlargement specific for malignancies recorded in Sana'a through Histopathological

information reported in the Section of Histopathology, Department of Pathology, University Sana'a in Sana'a, Yemen. These registries are not population-based cancer registries, but are the only sources of information available to give us a basic idea about the picture of prostate enlargement. The magnitude of this problem in Sana'a, Yemen is unknown and this work according to my knowledge is the first evaluation. Many difficulties were faced in the interpretation of the results due to undetailed patient history and clinical diagnosis which limited the study.

Materials and Methods

This was a retrospective study confined to biopsy specimens received from different hospitals in Sana'a at one histopathology center in Sana'a the capital city of Republic Yemen. Out of the total collected cases (24,456), 861 prostate enlargement cases were included. To avoid case duplication, if repetition found, we fixed one histopathology source and the other was removed (22 cases).

We review the final number of 839 consecutive patients who presented with lower urinary tract obstructive symptoms and an enlarged prostate gland on digital rectal examination and suprapubic ultrasonography (US) and or elevated PSA serum level. The period of study was 5 years from January 2005 to end of September 2009.

Clinical notes and personal data were obtained from the histopathological reports of the patients including type of biopsy. All prostate specimens obtained from surgery were previously fixed in 10% buffered formalin and embedded in paraffin by standard histological procedures. For TURP every chip and for open operation all adenomas enucleated at surgery were processed and analyzed. The prostate tissue are then cut into slices and stained with hematoxylin and eosin dyes (standard stain). The slides were examined by the same consultant and any prostatic disease detected microscopically is documented.

Risk group assessment and statistical analysis

Patients age subdivided into six groups (group1 ≤ 20 , group2 $>20-40$, group3 $>40-60$, group4 $>60-70$, group5 $>70-80$ and group 6 >80 years).

PSA level divided into the following subgroups: $PSA \leq 4$, $PSA >4-10$, $PSA >10-40$, $PSA >40-80$

The prostate enlargement divided into:

- Benign prostate hyperplasia and this is subdivided into: stromale (60% of the bits comprising of predominantly stromal component with presence of stromal nodules), epitheliale ($>60\%$ of the bits comprising of predominantly epithelial component), mixed ($>40\%$ but $<60\%$ bits comprising of predominantly stromal component), with prostatitis, smooth muscle hyperplasia and with infarction
- Prostatic intraepithelial neoplasia (PIN), which includes, Low-grade PIN (LGPIN) and High-grade PIN (HGPIN).
- Prostate Malignancy subdivided in prostatic origin, metastatic and associated with inflammation.

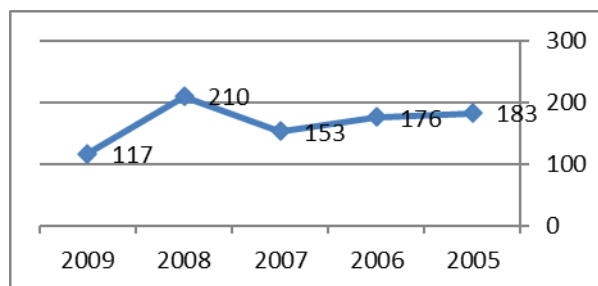
Statistical methods

All relevant data was recorded and analyzed using commercially available SPSS 16.0 software package. Fisher exact and chi square tests were used to calculate p-values for different variables. P-value equal to or less than 0.05 was considered significant.

Result

During the period of study a total of 24.456 biopsy specimens were examined in the histopathology center. Out of these 839 (3%) cases were diagnosed prostate enlargement.

Graphic1: Distribution of the prostate enlargement cases (839) during the 5 Year period



Surgical procedures were open prostatectomy in 224 (25.7%) patients and transurethral resection of the prostate (TURP) in 497 (59.7%) patients. In 118 (14.1%) cases, the procedure was Needle biopsies for persistent and bothersome BPH symptoms and suspect physical examination and/or they had a suspicion of prostate cancer on the basis of prostate specific antigen (PSA) serum level (Table 1)

Table 1. Breakup of Prostate Specimens According to Type of Specimen (n=839)

Types of specimens	Total No	%	BPH	%	Carcinoma	%
open	224	25.7	195	30	29	20
TURP	497	59.2	443	69	54	36
Biopsy	118*	14.1	5	1	66	44
Total	839	100	643	100	149	100

*Specemnts negative of malignancy (47 cases)

It was noted that the prostate enlargement in 643 cases (76.6%) was benign and in 149 of the cases (17.8%) was malignant. 47 cases (5.6%) with clinically suspects of cancer did not show any evidence of malignancy.

Majority of the cases of both BPH and PCa were in the age group of 61-70 years, accounting for 49% and 41% respectively. Approximately 1% cases of BPH occurred in third decade, while there was no case of PCa below the age of 40 years. [Table 2, 3].

Table 2. Decade Wise Breakup of Cases of BPH (n=643)

Age group (Years)	Benign Prostatic Hyperplasia No. of cases	Percentage (%)
$>20-40$	7	1
$>40-60$	159	25
$>60-70$	318	49
$>70-80$	123	19
>80	36	6

Table 3. Decade Wise Breakup of Cases of Carcinoma (n=149)

Age group (Years)	Prostate Malignancy No. of cases	Percentage (%)
1-20	3*	2
>20-40	3**	2
>40-60	42	28
>60-70	61	41
>70-80	27	18
>80	13	9

*Embryonal Rhabdomyosarcoma, ** Squamous cell cancer (2), Transitional cell cancer

The peak age for the prostate enlargement was between 60-70 years. The average age for benign tumors was 67.4 years (std. deviation 10.3) and for malign tumors was 66.4 years (std. deviation 14.3). It was seen that most patients belonged to an older age group [51-80 years (87.7%)]. Only 13 (2%) of the patients were under the age of 40 years. Seven of these patients had benign prostate enlargement (4 cases with chronic prostatitis, their age ranged from 35 to 40 years and two patients with smooth muscle hyperplasia). Six patients of the same age category had malignant tumors. Among these three had rhabdomyosarcoma with age variation from 1, 2 to 16 years. Two patients (38 and 40 years) represented with squamous cell carcinoma, one patient (38 years) had transitional cell cancer, that originated from the prostate tissues and not from the urinary bladder.

The prostate specific antigen (PSA) was estimated only in 89 cases (10.5% out of 843 patients). The presence of a high PSA value in 53 cases (60%) with BPH and in 11 cases (12%) with negative prostate biopsy was not related with the finding of prostate cancer (Table 4).

Table 4: Correlation of PSA According to Diagnose of Specimen (n=89)

Histopathology	Total No.	≤4	> 4 –10	>10-40	>40-80	>80
BPH	53	2 (4%)	16 (30%)	26 (49%)	3 (6%)	6 (11%)
Negative biopsy	11	0	1 (9%)	5 (46%)	3 (27%)	2 (18%)
Malignant	25	1 (4%)	4 (16%)	9 (36%)	7 (28%)	4 (16%)

In 25 cases (28%) with prostate cancer, the PSA value in 24 cases (96%) was elevated and in one case (4%) it was within the normal range (3.3 ng/mL).

Out of 53 patients with benign prostate enlargement the PSA serum level altered in 18 cases (34%) with PSA value >4-10 (ng/ml), in 26 cases (49%) with PSA value >10-40 (ng/ml), in 3 cases (6%) >40-80 (ng/ml) and in 6 cases (11%) >80 (ng/ml).

The diagnosis of prostatic intraepithelial neoplasia (PIN) appeared in 15 cases (8%) {Table 5}.

Histopathology	No	(%)	Mean (Age)	Min.	Max .	Std. Deviation
Perimalignant: HPIN	15	100	67.5	50	80	10.3252
Malignant: Suspicious for PCa	14	10	64.5	45	80	9.5495
with sign of chronic inflammation	5	36 %				
PCa	109	73	68.2	34	100	10.9958
with sign of chronic inflammation	23	21 %				
Metastatic PCa: Bone spinal	13	9	68.7	60	75	7.6715
Sacral	7	(54)				
Anorectal	3	(23)				
Perineal	2	(15)				
	1	(8)				
Other malignant: Transitional cell cancer	5	3	67.6	40	90	24.4183
Squamous cell cancer	5	3	57.5	38	70	13.2288
Rhabdomyosarcoma	3	2	6.3	1	16	6.0828

(HPIN) high prostatic Intraepithelial neoplasia, (Pca)

Prostate Adenocarcinoma,

The most frequent finding of malignant tumor in 136 cases (92%) is the Adenocarcinoma of the prostate gland. In 14

cases (10%) of these fall the histological findings of biopsy specimen uncertainty with the diagnosis suspect of prostatic adenocarcinoma. In 5 cases (36%) of these associated the finding with chronic inflammation of the prostate.

Metastasis of PCa appeared in 13 cases (9%). Bone metastasis is the most common in 10 cases (77%) while 3 cases (23%) were anorectal and perineal.

The mean age of the prostate adenocarcinoma cases was 68.2 years (Std dev. 10.99582). 23 cases (21%) of this tumor associated with chronic inflammation of the prostate.

Other malignant of the prostate are squamous cell carcinoma and transitional cell carcinoma, which comprises each 5 cases (3%) of all prostate neoplastic lesions, and Rhabdomyosarcoma. One case of squamous cell cancer is associated with the presence of multiple eggs of schistozomiasis haematobium. In this case the age of patient at the time of diagnosis was 38 years.

Out of 497 TURP specimens 443 (89%) cases were BPH and 54 cases proved to be incidental malignancy which constituted 11% (Table 1).

On the other hand when looking at this percentage in comparison with the total number of malignancy cases (149) it comprises 36% of the cases.

The specimens in open prostatectomy was in 29 cases (13%) malignant and 195 cases (87%) had benign enlargement, one case of them had history of open prostatectomy 3 years ago. This patient had developmental lower urinary tract obstruction. A hard lesion at the peripheral zone was found during the control physical and image examination. The histopathological diagnosis of the biopsy is negative for malignancy.

According to Gleason score low to moderate differentiated PCa are the most common malignancy comprising 79 cases (81%). While 19 cases (19%) were poorly differentiated adenocarcinoma (Table 6).

Table 6: Breakup of PCas Detected on biopsy, open Enucleation and TUR Specimens According to cell differentiation (n=98)

Types of specimens	Low grade Gleason score 2-4	Moderated Gleason score 5-6	Moderated poorly Gleason score 7 Patter 3-4 and 4-3	Poor differentiated	
Biopsy	10	8	4	3	5
open	7	10	2	0	6
TUR	25	10	3	0	5
Total (%)	42 (43%)	28 (29%)	9 (9%)	3 (3%)	16 (16%)

Table 7: age distribution of the of the benign prostate hyperplasia (BPH)

In the histopathological differentiations of the BPH tissues more than half of the cases (53%) showed epithelial predominance type of hyperplasia, followed by mixed

Histopathology	Case No.	Mean (Age)	Min.	Max.	Std. Deviation
BPH	643	67.486	35	100	10.30522

pattern of hyperplasia (8%). Prostatic hyperplasia with stromal predominance was seen in only (3%). The association of the BPH with smooth muscle hyperplasia was in 61 cases (9%).

Out of 643 BPH cases 143 (22%) had chronic inflammation of the prostate, 23 cases (4%) with severe sign of inflammation and 8 cases (1%) had infarction.

The association of low grade intraepithelial prostatic neoplasia occurred in 23 cases of the benign tissues, which constitute 4% (Table 8).

Table 8: histologic differentiations of the benign prostate hyperplasia

Histologic differentiations	Cases	Precent	With LGPIN
• Mainly epithelial	340	(53%)	18 (5%)
• mainly stromal	18	(3%)	0
• with smooth muscle hyperplasia	61	(9%)	0
• mixed	50	(8%)	0
• with chronic inflammation	143	(22%)	5 (3%)
• with severe acute inflammation	23	(4%)	0
• with infarction	8	(1%)	0
Total	643	100%	23 (4%)

(LGPIN) low grad prostatic interepithelial neoplasia

Discussion

Prostate cancer (PCa) and benign prostatic hyperplasia (BPH) are significantly a major health problem that may become increasingly prevalent in the coming years in relation to the gradual aging of the population [1–3]. They should be considered chronic diseases that require a long time for initiation and progression. BPH needs a long period for its evolution from a simple micronodular hyperplasia to a macroscopic volume enlargement, and then to clinical expression (3). The final stage of BPH is the development of clinical symptoms, although prostatic enlargement alone is not enough to cause this, other factors such as prostatic infarction, the response of the prostatic capsule or incidental adenocarcinomas may determine the point at which BPH becomes clinically evident [11, 12]. Clinical BPH refers to the lower urinary tract symptoms (LUTS) associated with benign prostatic enlargement causing bladder outlet obstruction (11).

BPH represents the most common urologic disease that occurs in over 25% of men aged 50+, increasing to 50% amongst those over 80 (12-14)

It is estimated that approximately 50% of pathological BPH develops into clinical BPH (15).

In addition, inflammation seems to play an important role in the initiation, development as well as evolution of BPH, suggesting that BPH is an inflammatory disease (16-18,11). Histologically, nodules of BPH patients contain infiltrates of T lymphocytes, macrophages and B-lymphocytes that are chronically activated. These infiltrating cells are responsible for the production of cytokines which may support fibromuscular growth in BPH (17).

In our study, 643 BPH cases (83%) was the most common lesion in specimens obtained at surgical pathology, followed by PCa (17%).

The association of histological chronic inflammation was found in 22% of BPH cases and in 21% of PCa. Only 4% of the BPH were associated with High grade prostatic intraepithelial neoplasia (PIN). Our findings are similar to the study of Brawn et al.(23) in which out of 2842 prostatic specimens 14% cases were of adenocarcinoma where as BPH was diagnosed in 79% of cases. Epidemiologic data in role of inflammation reveal that men with BPH were 7.7 times more likely to have a history of prostatitis than men without BPH, and that men with a history of prostatitis were 3.3-fold more likely to have BPH than those without prostatitis (18). Emerging evidence also suggests a role for inflammation in the pathogenesis of PCa. Repeated biopsies after 5 year detected new cases of PCa in 20% of men with inflammation at baseline, compared with just 6% of men without inflammation (19).

Intraprostatic infection reported in 38.9-42% in resected specimen obtained from TURP or transvesical prostatectomy (21,20).

TURP chips formed bulk of the specimens in our study, accounting for 59% of total specimens (Table 1). This can be explained by the fact that TURP is the treatment of choice of BPH, as it is a simple procedure with fewer complications as compared to open prostatectomy. TURP was performed for the first time in 1932, using a

resectoscope. In Germany TURP is the most commonly used surgical treatment, at about 90% (52, 53).

Also, BPH is much more common prostatic lesion than adenocarcinoma, and our study included 83% cases of BPH.

PCa and BPH are most commonly presented in the 7th decade (age group 61-70 years). The mean age of presentation for BPH and PCa was 67.4 years and 68.2 years respectively.

There were 643 cases of BPH, which were diagnosed on about 60% TURP chips, 25.7% prostatectomy and 14% on biopsy specimens (Table 1).

Out of the 643 cases, 340 (55%) cases showed predominantly epithelial hyperplasia with presence of glandular nodules, 50 (8%) cases showed mixed glandular-stromal pattern of hyperplasia, 61 (10%) cases showed glandular-stromal pattern and smooth muscle hyperplasia while only 18 (3%) cases showed predominantly stromal hyperplasia (Table 8). Predominant epithelial hyperplasia usually occurs within the transition zone and peri-urethral area.

High graded PIN is characterized by definitive increase in cellularity, nuclear pseudostratification, hyperchromasia and the presence of large nucleoli. Various normal structures, benign, metaplastic, reactive and neoplastic conditions can be confused with PIN. The clinical importance of recognizing HGPIN is based on its strong association with prostatic carcinoma (22). The incidence, extent and grade of PIN increase with age. The average incidence has been reported ranging from 4 to 16 % (22). In our study, there were 23 cases of PIN which were found in BPH giving the incidence of 4%. This can be attributed to the fact that cases of carcinoma in our study were predominantly TURP biopsies providing limited material. Prostate specific antigen (PSA): PSA is the best marker for prostatic carcinoma. Serum PSA is usually advised to the patients who come with obstructive urinary tract symptoms and in whom hard nodule is palpable on digital rectal examination. Normal serum PSA is 0-4ng/ml. There

are few theoretical limitations to the use of this serum marker. A normal PSA level does not exclude the diagnosis of carcinoma. About 33% of cancers were detected in men who had PSA levels within normal limits. Moreover false positive results are also common; since PSA levels are often elevated in men with common benign conditions such as BPH or acute prostatitis (31, 32). In our study, serum PSA was available in 89 cases. Out of these cases, 60% of cases were BPH specimens, 28% of the cases were malignant specimens, while in 11 (12%) cases were negative for malignancy in biopsy specimen (Table 4).

The indication of prostatic biopsy almost always is to rule out prostate carcinoma. In 44% of the biopsy specimens carcinoma was found, while 47 cases with no evidence of malignancy. Reasons may be that usually single core biopsies are done, so the chances of missing focus of malignancy are high.

In 51 cases of BPH had high PSA. The reasons for this false positivity can be attributed to chronic inflammation and increasing age.

According to studies done by Brawer et al. positive predictive value for serum PSA >10ng/ml was 60-70%, while it was 20-30% for serum PSA 4-10ng/ml (23).

In our study 10% was reported as 'Suspicious of carcinoma. Pathologists experience this uncertainty when histologic findings of biopsy specimens fall just short of providing the diagnostic criteria needed to establish definitive diagnoses (54-56).

Most common factors responsible include dense inflammation obscuring morphology of glands and relatively scanty amount of tissue with few atypical glands.

These rates of diagnostic uncertainty can range from between 1 to 23% of "atypical" or "suspicious" prostatic neoplasma (24-26).

About 1 in 6 men will be diagnosed with the prostate cancer during their lifetime (27). Prostate cancer develops most often in men over the age of fifty and generally

produces slow growing tumors (27). With an estimated 186,000 new cases of prostate cancer diagnosed in 2008, prostate cancer is the most widely diagnosed cancer and the second leading cause of cancer deaths in men in the United States (28).

The most common type of prostatic carcinomas are malignant tumours of glandular epithelium; adenocarcinomas (29). Prostatic adenocarcinoma arising in the peripheral zone PZ (70-75%) and in the transition zone TZ (20-25%), while only about 10% arise in the central zone. It has also been suggested that cancers in the TZ are less aggressive, smaller, better differentiated and have a lower biochemical recurrence rate than cancers that develop in the PZ (30,31).

In our study there were 149 cases malignant, which accounts for 17,8% of total cases. Out of these 149 cases, 44% of cases were detected on needle biopsies, 36% of cases were detected on TURP chips and 20% of cases were detected on prostatectomy. When prostatic tissue removed for clinically benign hyperplasia of the prostate and histological examinations reveals carcinoma, it is called incidental prostatic carcinoma. In the pre-PSA era, incidental PCa was found in a significant proportion (>15%) of men undergoing TURP for symptomatic BPH (32).

With the widespread use of PSA as a tumor marker for screening of prostate cancer, the incidence of ICP ranges between 4.3% and 14.9% of the surgical procedures for BPH (32-36).

A study comparing the cases of prostate found through prostate biopsy with the ICP cases diagnosed by TURP showed organ-confined rates of 81.6% versus 95.9%, respectively. Similarly, the well or moderately differentiated tumor rates were greater among the ICP cases when compared to tumors found through prostate biopsy (89.7% against 80.7% respectively) (33).

In our study, 54 (11%) out of 497 TURP chips showed presence of carcinoma, representing ICP. Malignancy

diagnosed at the time of TURP decreased from 14.9 to 5.2% of patients in the pre-PSA and PSA eras, respectively. Identification of many men with occult prostate cancer before TURP through screening and early detection is the most likely cause of this finding (36).

For grading of prostate cancer Gleason grading system is used which is most popular worldwide (37, 38). The important features of different pattern are Well-differentiated (Score 2-4), Moderately differentiated (Score 5-6), Moderately differentiated / poorly differentiated (Score 7), Poorly differentiated (Score 8-10) (38).

In pattern 7, 3+4 tumor has been found to have better prognosis than 4+3 tumor. This grading system has been used in classifying carcinoma in this study.

Gleason score 2-4 was the most common in 42 cases (44.3%) followed by Gleason score 5-6 in 32 cases (29.5%). The Gleason score 7 was in 12 (12.6%) cases. Out of these 12 cases, 9 (75%) cases had the moderately differentiated Gleason score 3+4. Only 3 (25%) cases showed the poorly 4+3 pattern. In 13 cases (13.7%) were the tumors poorly differentiated (Gleason score 8-10). Most men identified by needle biopsy today present with Gleason 5, 6, or 7 cancer while about 8% harbor high grade cancer (8, 9, or 10) (27). Lower Gleason scores are typically associated with organ-confined, localized disease, whereas higher grade cancers often present once cancer cells have metastasized to regional lymph nodes, seminal vesicles or other tissues.

Out of 305 cancers in a study conducted in 2002, 22% had a Gleason score of 4-5, 29% of 6, 18% of 7 and 32% of 8-10 (39). This findings are almost similar with Our study.

Once the cancer cells become metastatic, cells disseminate throughout the body via the blood vasculature and lymphatics. While less than 0.01% of circulating tumor cells establish a lesion of cancer, millions of tumor cells are shed daily into the circulation and almost 30% of patients have clinically detectable metastasis at the time of initial diagnosis (40).

The presence of metastasis of PCa leads to a poor prognosis with a five-year survival rate of 30% (41,28).

In our study the metastatic PCa appeared in 13 cases (7%), in 10 cases of these (77%) the metastasis was in bone. In one autopsy study, approximately 80% of the men who had died from prostate cancer possessed bone metastases (42).

Lacking education and awareness of the severity of this deadly disease as well as inadequate delivery of healthcare, inadequate diagnostic facilities, absence of routine screening programmes including PSA estimation can be cited as the few leading reasons, as the cancer can be silent for a long time before presentation, and the presenting symptoms seen are largely due to metastasis to the bone.

Rhabdomyosarcoma (RMS) is a highly malignant mesenchymal tumor representing 15–20% of malignancies of childhood and is the most common childhood soft-tissue sarcoma. Genitourinary RMS makes up about 24% of all RMS (43,44). Of that number, about half involve the bladder, prostate or both (45). For Bladder/Prostate RMS, the mean age of presentation is about 5 year (46). It presents across all ages with peak incidences between the age 2 and 6 year and at adolescence (47). This is similar to our findings.

Primary transitional cell carcinoma (TCC) of the prostate is an infrequent male malignancy with a dismal prognosis, that originates in the periurethral prostatic gland. The frequency of primary TCC ranges from 0.7 to 2.8% of prostatic tumors in adults (48,49).

squamous cell carcinoma (SCC) of the prostate is a rare malignant epithelial neoplasm arising in the prostate, with squamous differentiation of the neoplastic cells and accounts for fewer than 1% of all prostate carcinomas and it has been reported in the setting of Schistosomiasis infections (50,51).

CONCLUSION

Thus our study concluded that benign prostatic hyperplasia was the predominant lesion. The most

common pattern of inflammation associated with BPH was chronic inflammation and the common age group of presentation for both carcinoma and BPH was the seventh decade. The percentage of positivity of biopsy material was satisfactory. Low-moderated Gleason score was the most common pattern seen.

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