ORIGINAL ARTICLE

Frequency of various histopathological types of prostatic diseases in a Tertiary Care Hospital at Karachi.

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ABSTRACT… Objective: To assess the frequencies of various histopathological pattern of prostatic diseases in a tertiary care hospital at Karachi. **Study Design:** Cross Sectional Observational. **Setting:** Department of Pathology, Pakistan Navy Station Shifa Hospital, Karachi. **Period:** January 2018 to February 2019. **Material & Methods:** Our study comprised of 160 Prostatic specimen including prostatectomies and Transurethral resection of prostate (TURP). All malignancies were graded according to Modified Gleason score for diagnostics and to calculate the frequency. Data was evaluated by using SPSS version 23. All frequencies were determined in terms of percentages. **Results:** A total of 160 prostatic samples comprised of 123 (76.87%) benign and 37(23.12%) malignant cases. Both transuretheral prostatectomies (84.4%) and radical prostatectomies specimens (15.6%) were included in the study Benign cases were diagnosed as only benign prostatic hyperplasia (BPH) 93.49%. Moreover, additional findings observed in the benign cases alongside benign prostatic hyperplasia were Acute/chronic prostatitis in 4% samples, granulomatous prostatitis in 1.6% cases and eosinophilic prostatitis in 0.8% case. In the malignant cases, majority of the cases were of prostatic acinar adenocarcinoma n=35(94.6%) while 2(5.4%) cases exhibited transitional cell carcinoma, perineural invasion was seen in 10 cases. **Conclusion:** Hyperplasia of prostate was reported in majority of the cases in our set up the most individuals were in the age group was 61-70 years. Adenocarcinoma of the prostate, was less commonly diagnosed in the age group of 51-60 years.

Key words: Benign Prostate Hyperplasia (BPH), Prostatectomies, Prostate Adenocarcinoma, Transurethral Resection of Rostate (TURP).

INTRODUCTION

The human prostate is situated between the bladder neck and the urogenital diaphragm, just anterior to the rectum; it is about 3 centimeters in length and weighs approximately 20 grams. It is composed of branched tubular acinar glands with double cell layer, a flat basal cell layer and an overlying columnar cell layer which is secretory in nature. Epithelium of prostate consists of three different types of cells, namely the luminal epithelial cells, basal epithelial cells and neuroendocrine cells.[1]

Prostatic disease contribute to a notable number of the patients seen by urologists in males that result in death of adult male population across the globe. Three diseased phenomena predominantly affect the prostate gland: inflammatory processes (prostatitis), hyperplastic lesions (Benign Prostate Hyperplasia), and certain tumors (premalignant and malignant lesions). Prostatitis can be classified as acute or chronic bacterial prostatitis, chronic abacterial prostatitis, eosinophilic prostatitis and granulomatous prostatitis.[2,3]

Benign prostatic hyperplasia (BPH) is a non-malignant enlargement of the prostate caused by cellular hyperplasia. It is a common age-related pathology affecting 70% of men aged 70 years or over.[4] Prostate, lung and colorectal carcinoma comprise 42% of all cases reported in men with one in every 5 case being that of prostate cancer.[5] The occurrence is greatest in advanced European and American countries.[11]

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Various researches have indicated that there is a proportionate relationship between the Human Development Index (HDI) of a country and the prevalence of prostate cancer. As a consequence of which the frequency of prostate cancer in emergent nations of Asia is now rising rapidly in the last ten years.[6,7] There is comparatively less variation in mortality rates globally (10-fold variation from approximately 3 to 30 per 100,000). This tendency has been growing even in Asian countries, where the incidence had previously been low.[8] This surge has been accredited to a greater extent to the adoption of western lifestyle and consumption of immoderate fatty food.[9]

According to the cancer registry report, carried out by the Shaukat Khanum Memorial Cancer Hospital and Research Centre, prostate carcinoma is the second most commonly occurring malignancy among Pakistani men.[10]

The objective of our research was to assess the frequencies of various histopathological pattern of prostatic diseases at a tertiary care hospital in Karachi.

MATERIAL & METHODS
A total of 160 specimens received at the Pathology Department of PNS Shifa hospital, Karachi during the period January 01, 2018 till February 28th, 2019 were included in this study. Non probability convenience sampling technique was used. Ethical approval was obtained from the Ethical Review Committee of Bahria University Medical and Dental College before commencing the study (ERC44/2018). Informed consent was signed by every patient before enrollment in the study.

All prostatic samples obtained after transurethral resection and radical prostatectomies were included in the study. Inappropriately processed, stained and inadequate specimens were not included in this study. The samples were received in 10% buffered formalin and processed in automatic tissue processor. Formalin fixed paraffin embedded sections were stained with Hematoxylin and eosin method. The cases were categorized as benign or malignant and then further sub classified. All malignant cases were graded according to the Modified Gleason Score. Data was analysed by using SPSS version 23.0.

RESULTS
A total of 160 prostate specimens were received at the Pathology department of PNS Shifa hospital during the period of January 01, 2018 till February 28th, 2019. Out of these 160 cases, there were 123 (76.8%) benign cases were as the remaining 37 (23.2%) cases were malignant. The ages of patients were in the range of 50 to 85 years. (Table-I).

Majority of the benign cases were reported in the ages between 61 to 65 years, while most malignant cases were found in the age group 66 to 71 years. All benign cases were diagnosed as benign prostate hyperplasia; additionally 5 cases (4%) were diagnosed as acute/chronic prostatitis. 2 cases (1.6%) as granulamtous prostatitis, while 1(0.81%) case was diagnosed as eosinophilic prostatitis. In the malignant cases, majority of the cases were of prostatic acinar adenocarcinoma n=35 (94.6%) while 2(5.4%) cases showed transitional cell carcinoma, perineural invasion was seen in 10 cases.

All malignant cases were graded according to the Modified Gleason scoring. 7 cases were found to have Gleason score of 3+3 (18.9%), 7 cases were found to have Gleason score of 3+4 (18.9%). 8 cases had a score of 4+3 (21.6%). 3 cases showed Gleason score of 4+4 (8.1%). 2 cases exhibited Gleason score of 4+5 (5.4%). 8 cases had Gleason score of 5+4 (21.6%), while 2 cases had a Gleason score of 5+5 (5.5%).

Type of Histological	No. of Cases (%)
Benign prostate hyperplasia	115 (93.49%)
BPH +Acute/chronic prostatitis	5 (4.0%)
BPH+ granulamatous prostatitis	2 (1.6%)
BPH+ eosinophillic prostatitis	1 (0.81%)

Table-I. Frequency of the benign prostatic diseases (n=123)

Type of Specimen	Total Number (%)	BPH n (%)	Malignant Cases n (%)
TURP	135(84.4%)	115(85.2%)	20(14,8%)
Radical prostatectomies	25(15.6)	12(48%)	13(52%)

Table-II. Distribution of benign and malignant cases according to the type of specimen (n=160)

Age Group	No of Cases	Benign n=123	Malignant n=37
50-54 Years	13	11	2
55-60 Years	30	25	5
61-65 Years	44	36	8
66-71 Years	28	13	15
72-76 Years	18	14	4
77-81 Years	19	17	2
82-85 Years	8	7	1

Table-III. Age wise distribution of patients having benign and malignant lesions

Gleason Score	Frequency (n) (%)
3+3	7 (18.9%)
3+4	7 (18.9%)
4+3	8 (21.6%)
4+4	3 (8.1%)
4+5	2 (5.4%)
5+4	8 (21.6%)
5+5	2 (5.5%)
Total	37 (100.0%)

Table-IV. Distribution of malignant cases according to gleasons score

DISCUSSION

Prostatic diseases are leading cause of mortality and morbidity around the globe. Most common conditions affecting the prostate are benign prostate hyperplasia, prostatitis and prostate cancer. Both benign and malignant lesions become common with the advancing age. A greater number of the cases in our study comprised of benign prostate hyperplasias (n=123). These findings are similar to both local and international data.[11,12]

A study conducted at Basic Medical Sciences Institute (BMSI) at Jinnah Postgraduate Medical Centre, Karachi calculated the frequency of benign prostatic hyperplasia to be 60.1%.[13] In addition, a study organized at Lahore, reported the frequency to be 77.0%[14] Most commonly affected age group affected was 61-70 years, which is quiet identical to our research.[13,14] The agreement in the above findings could be elucidated by the fact that the pathogenesis of benign lesions is seen with increasing duration of lifetime and normal part of our ageing process.[15]

Prostatitis has a bimodal distribution in young to middle-aged men with a higher prevalence rate in older males; however, it is observed that only 5% to 10% cases are bacterial in origin.[16,17] The National Institute of Health has formulated four classifications for prostatitis namely acute bacterial prostatitis (category I) chronic bacterial prostatitis (category II), chronic prostatitis/ chronic pelvic pain syndrome (category III), and asymptomatic inflammatory prostatitis (category IV),. In our study we found 6.51% (n=8) prostatitis cases, all of which had coexistent finding of BPH. Shabbir et al have reported higher frequency 26.4% (43). A study conducted by Albasri et al in Saudi Arabia showed 42.9% (179) cases of benign prostatic hyperplasia (BPH), BPH with inflammation was present in 37.4% (156) cases and inflammation alone in 1.9% (8) cases.[18]

Our study reported 37 malignant cases, majority of the cases were of prostatic acinar adenocarcinoma n=35 (94.6%) while 2(5.4%) cases showed transitional cell carcinoma, majority of the malignant cases were found in the age group 66 to 71 years. This is in agreement with Aslam et al, their study reported that majority malignant cases were prevalent in the age group of 60-70 years.[19] Similar findings have been reported in other national studies [20,21]

The Gleason score is an important parameter for clinical outcome in prostate cancer patients and is an important prognostic tool for the pathologists.[22] Most of the cases in our study were reported to have Gleason score of 7 (Table-III and IV) Studies carried out in the western countries have suggested that as the age increases the chances of being diagnosed with higher Gleason score also rises.[23]

LIMITATIONS

One limitation of our study was that the study was carried out in one hospital; the data was not prototypal of the whole population. Additionally, according to the recent study carried out in Karachi, there is dearth of understanding about prostatic diseases in 64% of men in the age group of 45 years and above and nearly 85% of them were never screened.[24]

CONCLUSION
Our study revealed that majority of the prostatic diseases diagnosed comprised of benign prostatic hyperplasia (88.9%) and the most commonly affected age group was 61-70 years. Adenocarcinoma of the prostate, was less frequently diagnosed and majority of the cases had higher (Gleason score 8-10) and in the age group of 51-60 years. A rising progression in the pathologies of prostate reported every year has been noted, especially hyperplasia of the prostate.

RECOMMENDATIONS
Unfortunately, cancer registry centers are not viable in Sindh; therefore it is difficult to evaluate the accurate prevalence of prostate cancer in our region. For this reason, it is an essential requirement to shape provincial and nationwide cancer registry centers so that the overall cases can be assessed and co related with the data of various countries. Screening protocols and awareness programs of prostatic diseases need to be established and screening programs should emphasize more on the level of androgens and molecular pathogenesis.

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
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3	Mubina Qayyum	Data collection, Statistical analysis, Proof reading.	
4	Syeda Naveera Raza	Data collection & Proof reading of manuscript.	
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6	Saman Nadeem	Proof reading of manuscript.	