Histopathological Patterns of Prostate Specimens in Mymensingh

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Histopathological examination of prostate biopsy specimen is required to role out the benign or malignant enlargement of prostate gland in older men. This study was carried out to find out the histological patterns of disease in the surgical specimens of prostate examined in one Government approved laboratory of District town Mymensingh, Bangladesh. A total of 93 cases was found in the one year period of 2007. Benign prostatic hyperplasia (BPH) was the most common lesion accounting 77.4% and the 22.6% was malignant lesion. Of 21 cases of prostate cancer 19 (90.5%) were adenocarcinoma and 2 (9.5%) were transitional cell carcinoma. Majority of adenocarcinoma were in Gleason score 6 (52.6%). The mean age of carcinoma of prostate cases was 65.5 years (95% CI; 61.2 – 69.8 years) ranging from 40 to 80 years. The mean age of BPH cases was 67.7 years (95% CI; 65.5 – 70.1 years) ranging from 42 to 85 years. Age group 61-70 years was the common peak age group for both BPH and prostatic adenocarcinoma.

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Introduction

Enlargement of prostate in aged male is the major cause of dysurea and retention of urine leading to prostactomy. Benign hyperplasia and cancer are main cause of prostate enlargement. Benign prostatic hyperplasia (BPH) of is the most common disease affecting health of the aging males.[1] It has been shown that vegetable-rich diet may reduce the occurrence of BPH.[2] Prostate cancer is the leading cause of mortality and morbidity worldwide.[3] It is the second most common cause of cancer-death in men in the most developed countries and its incidence is increasing significantly.[4, 5] In the US men it is the most common cancer.[6] Prostate cancer accounts for 33% of all cancer diagnosed in American men .[4] It has been estimated that 15% to 30% of males over the age of 50 years and as many as 80% of males over 80 years harbor microscopic undiagnosed prostate cancer.[7] Approximately 95% of all prostate cancers are adenocarcinomas. Roughly 4% of all prostatic malignancy arise from the transitional

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epithelium of the urethra or ducts as transitional cell carcinoma. Primary carcinoid tumour, sarcoma and small cell carcinomas are rare. Cancers of other organs may spread into the prostate.[8] Age is the most important risk factor of prostate cancer. It is rare under the age of 40 years and its incidence increases exponentially with age.[9] To our knowledge, the patterns of disease causing enlargement of prostate and its histological patterns is not yet published in Mymensingh Districts of Bangladesh. We examined the surgical specimen of prostate to role out the underlying cause. This study was carried out to find out the histological disease patterns of prostate examined in a specialized Government approved laboratory in district town of Mymensingh.

Methods

All the cases of surgical specimens of prostate examined and diagnosed by first author of this article histologically in a private laboratory of Mymensingh town in 2007 was sorted out from the histopathology record register. A total of 93 cases was found in the one year period. Paraffin-fixed haematoxylin-eosin stained tissue section slides were retrieved from the laboratory archive and reviewed by three histopathologists to make a consensus diagnosis. Patients' age and histological diagnosis of prostate biopsy was recorded in a tabulated form. Carcinoma of prostate cases were further classified into different grades. Grading was based on glandular differentiation and the most commonly used Gleason method was applied. The grades were as follows.[8]

- Grade 1. Well differentiated carcinoma with uniform glandular patterns.
- Grade 2. Well differentiated carcinoma with gland varying in size and shapes.
- Grade 3. Moderately differentiated carcinoma with either (a) irregular acini often widely separated or (b) well defined papillary cribriform structures.
- Grade 4. Poorly differentiated carcinoma with fused glands widely infiltrating the prostatic stroma.
- Grade 5. Very poorly differentiated carcinoma with no or minimal gland formation. Tumour cell masses may have central necrosis.

Gleason score were lastly calculated by combining the two most predominant forms of glandular differentiation separately. Thus Gleason score system divided prostate cancer into five histological patterns, ranging from 1 to 5. Gleason pattern 1 and 2 represent a well-differentiated prostate adenocarcinoma; Gleason pattern 3 represents a moderately differentiated carcinoma and Gleason pattern 4 and 5 represents a poorly differentiated or anaplastic carcinoma.[10] A primary score and a secondary score were given to each prostatic adenocarcinoma specimen. Thus, if a biopsy lesion consisted of 70% pattern 3 and 30% pattern 4, the primary plus secondary pattern would be a 3+4 or Gleason score 7. Thus, most well-differentiated cancer would consists entirely of a Gleason pattern 1 (primary + secondary = 1 + 1 or Gleason 2), and the most poorly differentiated cancer would be a 5+5 or Gleason 10. Gleason score of prostate cancer predicts overall survival.[10] Data were analyzed with computer program SPSS.

Results

A total of 93 cases of prostate cancer was found in one year period of 2007 in the laboratory register. The patterns of histological lesion in the total cases is shown in the Table I. Majority of the cases (77.4%) were benign lesion i.e. benign prostatic hyperplasia (BPH). Among 21 malignant lesion adenocarcinoma was 19 (90.5%) and transitional cell carcinoma was 2 (9.5%). The

frequency of adenocarcinoma in different Gleason score grade is shows in the Table II. Majority were found in the Gleason score 6 (52.6%). Frequency of BPH cases in different age group is shown in the Table III. The mean age of carcinoma of prostate cases was 65.5 years (95% CI; 61.2 – 69.8 years) ranging from 40 to 80 years. The mean age of BPH cases was 67.7 years (95% CI; 65.5 – 70.1 years) ranging from 42 to 85 years. The highest number of BPH and prostatic adenocarcinoma was in age group of 61-70 years (Table II & IV).

Table I: Histological diagnosis of prostate lesions in 93 cases

Diagnosis	Frequency	Percent
Adenocarcinoma	19	20.4
Transitional cell carcinoma	02	02.2
Hyperplasia	72	77.4

Table II: Distribution of 19 prostatic adenocarcinoma in different Gleason score

Gleason Score	Frequency	Percent
4	3	15.8
5	5	26.3
6	10	52.6
7	1	5.3

Table III: Distribution of 72 cases of benign prostatic hyperplasia in different age groups.

Age Groups	Frequency	Percent
41-50	07	9.7
51-60	13	18.1
61-70	26	36.1
71-80	21	29.2
81-90	05	6.9

Table IV: distribution of 19 cases of prostatic adenocarcinoma in different age groups

Age group	Frequency	Percent
31-40	1	5.3
51-60	6	31.6
61-70	8	42.1
71-80	4	21.1

Discussion

It has been studied that majority of men in older population may have enlarged prostate and lower urinary symptoms, usually one-third of them intend to discuss their symptoms with their primary care physician.[11] Fewer than 10% of patients with prostate cancers are diagnosed at screening assessment in the UK and vast majority are diagnosed because of their presentation with symptoms. Histopathological examination prostatic tissue required to confirm the clinical diagnosis.[8] It is estimated that less than 5% of all prostate cancers is hereditary.[12] Age is the most important risk factor of prostate cancer. It is rare under 40, and its incidence increases exponentially with age.[9] In our study only one case of prostate cancer was under the age of 40 years. Majority were in 7th decade.

There is no evidence that any of the occupation are risk factor for either prostate cancer or BPH.[13] Consumption of tomatoes and tomato products has been found associated with a reduced risk of prostate cancer.[14] There seems not any causative genitical or topographical relation between prostate cancer mentioned in one study.[15] Complex interaction among environmental and genetic factors may contribute to the pathogenesis of prostate cancers.

Our study reflects that in the Mymensingh region about three-fourth (77.4%) of prostate biopsies are of benign lesion i.e. benign prostatic hyperplasia. Of the malignant lesions adenocarcinoma is the most common accounting 90.5%. The rest 9.5% are transitional carcinoma. Majority of the adenocarcinoma are in Gleason score 6 (52.6%). Benign and malignant lesion are in the same age group i.e. in the 7th decade.

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