# FREQUENCY OF INCIDENTAL PROSTATE CANCER IN PATIENTS PRESENTING WITH PALPABLE ENLARGED PROSTATE GLAND

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## ABSTRACT

**Objective:** To find out the frequency of incidental prostate cancer in patients presenting with palpable enlarged prostate gland.

**Methodology:** This was a descriptive study conducted at Department of Urology, Lady Reading Hospital, Peshawar from January to December 2015. A total of 753 patients were observed and non-probability purposive sampling technique was used for sample collection. Patients with features of enlarged prostate i.e. bilateral symmetrical enlargement, palpable median sulcus and mobile rectal mucosa over the gland; PSA level of <10ng/ml and age >50 years were included. The chips of the resected prostate were collected in formalin and sent for histopathologist to detect the prostate cancer. All the quantitative and qualitative data were analyzed in SPSS version 22.

**Results:** The mean age of the patients was 65 years ±12.713. Majority (60%) of the patients were in the age group of 56-60 years. Prostatism was the commonest presenting complaint (73%). Post voiding residual urine between 90 and 150 ml was found in 60% of patients. Incidental carcinoma of the prostate was found in 18 (2.3%) patients.

**Conclusions:** Frequency of incidental carcinoma of prostate was 2.3% in patients with clinically palpable enlarged prostate gland.

**Key Words:** Incidental prostate cancer, clinically enlarged prostate gland, Prostate specific antigen

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## INTRODUCTION

Prostate, an organ of male genital system, gains importance as age advances, when the risk of its diseases and disorders are much increased. The common diseases of the prostate are prostatitis, benign prostatic hyperplasia and prostatic carcinoma[1,2]. Carcinoma of the prostate is the common cancer of old age and is one of the leading causes of death due to cancer and is on second number after lung cancer causing mortalities in >65 years old men[3]. It is estimated that 5 million men are living with histological cancer of prostate and 10% of male cancer deaths are due to carcinoma prostate[4]. Carcinoma prostate is rapidly becoming frequent cancer in men with variable incidence in different countries, with highest incidence in Sweden and lowest in Singapore[5]. This observation coupled with increased awareness of importance of carcinoma prostate has resulted in increased interest in early detection and screening programmes. But unfortunately, majority of cases of carcinoma prostate still present with advance stage and therefore incurable disease[6,7].

Carcinoma of the prostate (CaP) depends on the anatomical region of the prostate; common in the peripheral zone making 70% followed by 25% in the transition and 5% in the central zones. The usual presentations are with symptoms of prostatism or lower urinary tract symptoms. Others may be bone pain, spinal cord compression, hematuria; but majority presents with advanced disease[8-10].

The triad of clinical, biochemical and radiological investigations used for detection of carcinoma of the prostate in early stages are digital rectal examination (DRE), prostate specific antigen (PSA) and transrectal ultrasound respectively. The traditional method of evaluation and mainstay for the diagnosis of prostate gland is DRE. However, the effectiveness of DRE is limited by its subjective nature and its ability to palpate only the posterior portion of the gland. The diagnosis is based primarily on the ability of the index finger of surgeon/urologist to detect nodularity, asymmetry and degree of hardness in the gland. The accuracy of digital rectal examination in detecting cancer is about 20-40% as

shown in different studies[10-13]. The most widely used test for carcinoma of the prostate is prostatic acid phosphatase which was first used in 1972 as a tumor marker for carcinoma of the prostate. In 1993, both the DRE and the prostatic acid phosphates were added to the American Cancer Society guidelines for patients 50 years old or above for prostate cancer detection[14,15]. Transrectal ultrasound (TRUS) has been recently introduced as a technique that can more objectively and completely evaluate the prostate gland. The accuracy of TRUS in detecting carcinoma prostate is 37-76%[8,15]. The diagnostic work up of palpable enlarged nodule includes increased prostate specific antigen and transperineal needle or true cut biopsy. The morbidity associated with this procedure is minimal. Transurethral needle biopsy and ultrasonography of the prostate are other options for occult carcinoma prostate, located in transitional or central zone in patients with persistently elevated PSA level after multiple negative transrectal biopsies[8,16].

The choice of treatment is dictated by patients' age, overall health, PSA level, grade and stage of tumor[8,16]. The purpose of this study was to find out the frequency of carcinoma of the prostate in patients with clinically palpable enlarged prostate. It will help us in determining the local data and those patients found to have prostate cancer will be educated regarding treatment considerations.

## METHODOLOGY

This was a descriptive cross sectional study conducted at Department of Urology, Lady Reading Hospital, Peshawar, for the period of one year (from January 2015 to December 2015). In this study, a total of 753 patients were observed and non-probability purposive sampling technique was used for sample collection. Patients with features of enlarged prostate i.e. bilateral symmetrical enlargement, palpable median sulcus and mobile rectal mucosa over the gland; PSA level of <10ng/ml and age >50 years were included while patients with nodule or hardness of prostate on DRE, patients with known carcinoma of the prostate or previous history of surgery of prostate were excluded. Complete history was taken from the patients followed by complete general and systemic examination. Blood was taken for investigations like full blood count, blood sugar level, blood urea, serum creatinine, serum, electrolytes and PSA measurements. Transrectal ultrasounds are not done in Peshawar, so abdominal ultrasonography was used and for obstructive features post voiding residual urine >100 ml was used. Patients were prepared for surgery (trans urethral resection of prostate, TURP or transvesical prostectomy) and operated upon on the next OT day by a consultant surgeon. The sample was sent to histopathologist for detection of incidental carcinoma. Exclusion criteria were strictly followed to control confounders and exclude bias.

Demographic data as well as PSA level and incidental prostate carcinoma report were recorded in a standardized proforma. All the data, both quantitative and qualitative was analyzed in SPSS version 22. Frequency and percentages for categorical variables like incidental carcinoma prostate and gender were calculated whiles mean ± SD was used to express numerical variables like age and PSA levels. Results were presented in the form of tables and graphs.

## RESULTS

All 753 patients underwent prostatectomy, 25% by TURP and 75% by transvesical route. The age group of the patients ranged from 50 to 75 years in this study with the mean age of 65± 12.713. Majority (60%) of the patients were in the age group of 56-60 years (Table 1).

The most common presenting complaint in patients was prostatism (73%) followed by urinary retention. Many patients were already catheterized by local doctors and those who were not, were catheterized in our unit. Post voiding residual urine between 90 and 150 ml was found in the majority (60%) of the patients on ultrasonography. Serum PSA levels of 6-10 (ng/ml) were found in 87% of patients. Details are given in Table 2.

Out of 753 patients, who presented with palpable enlarged prostate gland, 18 (2.3%) patients had adenocarcinoma of the prostate (Figure 1).

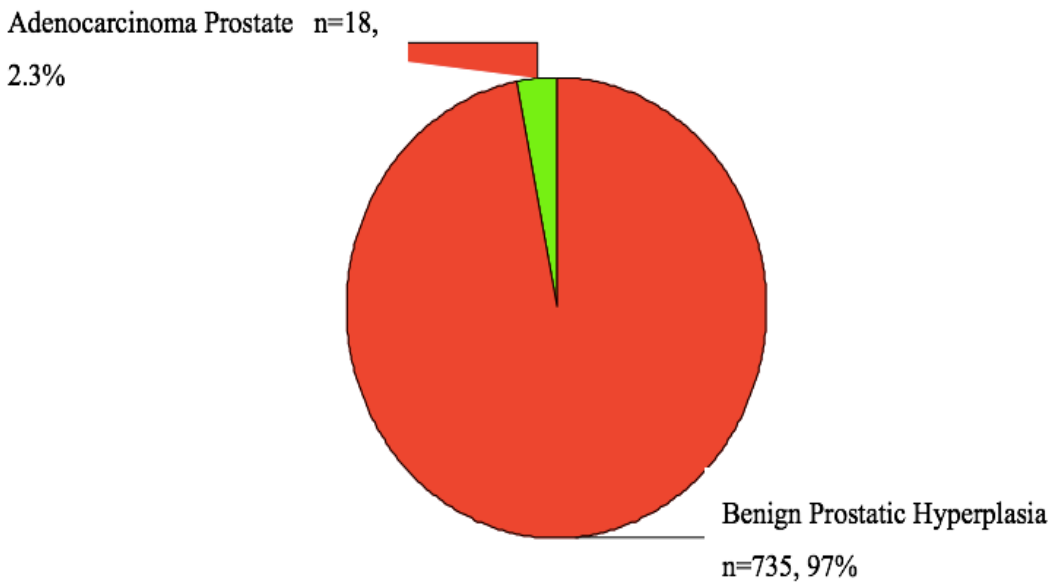
**Table 1: Age distribution of patients with palpable enlarged prostate gland**

| Age (Years) | Frequency | Percentage |
|---|---|---|
| 50-55 | 90 | 12% |
| 56-60 | 453 | 60% |
| 61-65 | 120 | 16% |
| 66-70 | 45 | 6% |
| 71-75 | 45 | 6% |
| Total | 753 | 100% |

**Table 2: Clinical presentation of patients with palpable enlarged prostate gland**

| Clinical Variable | | Frequency | Percentage |
|---|---|---|---|
| Clinical Features | Prostatism | 553 | 73% |
| | Urinary Retention | 257 | 34% |
| | Blood in Urine | 78 | 10% |
| Serum PSA Levels (ng/ml) | 4-5 ng/ml | 100 | 13% |
| | 6-10 ng/ml | 653 | 87% |
| | Total | 753 | 100% |
| Post Voiding Residual Urine Volume (ml) | 90-150 | 451 | 60% |
| | 151-200 | 196 | 26% |
| | 201-250 | 106 | 14% |
| | Total | 753 | 100% |

**Figure 1: Histopathology report of patients presented with palpable enlarged prostate gland**




## DISCUSSION

Carcinoma of the prostate kills about 41000 Americans each year[17]. Epidemiological data shows that carcinoma of the prostate varies among race, ethnicity and geography. Asian countries have low incidence i.e. 3-8 per 100,000 men/year while Africa and Eastern Europe has intermediate incidence. on the other hand, carcinoma of the prostate is highly prevalent in Western Europe and North America[18]. Similarly, High incidence of prostate cancer in African-American men has been observed as compared to native Americans in a study conducted in 1998[18,19].

Ageing is a risk factor for developing malignancy in males and carcinoma of the prostate is very common in age >65 years[20]. According to the data taken from the autopsies, the prevalence of histopathologically proven carcinoma of the prostate in men was 29% (age 30-40 years) and 64% in 60-70 years aged group[21]. According to other studies, 75% cases of carcinoma prostate are reported in old age with peak incidence occurring in age between 60 to 79% and only 1% occur below 50 years of age. As more people die before 60 years of age, so many people do not reach to the age where prostate cancer is more prevalent[1,22-24].

In developed countries, carcinoma of the prostate is the main culprit of mortality among elder men[25]. Prostate specific antigen is a sensitive test used as first line of investigation and screening test for the diagnosis of carcinoma of the prostate by many countries[26-29]. but sometime it is misused by practitioners leading to overdiagnosis (it may give false positive result in upto 65-83%) and overtreatment which might result in harms to the patients[30]. Therefore, this test should be repeated before goinig into some invasive tests or intervension[31]. Prostate specific antigen level should be used along with digital rectal examination as sometimes it gives false result and is increased in BPH as well[32]. Prostate specific antigen test though commonly used for diagnosis but it has more effect on disease management[33]. Sometimes prostate specific antigen level gets raised after radical prostatectomy due to local invasion or occult distant metastasis of carcinoma of the prostate[34]. Transrectal ultrasonography can be used to detect any prostatic lesion but it is less specific and less sensitive test. Color Doppler ultrasonography has revolutionalised the diagnostic field[34].

Carcinoma prostate are incidentally diagnosed in benign prostatic hyperplasia in 83.3% cases on biopsies obtained at TURP. About 3%[22] of the carcinoma of the prostate is seen in patients who are surgically treated for benign prostatic hyperplasia. Most of the cases remain without diagnosis for years. In our study, 2.3% patients had adenocarcinoma of the prostate. The incidence of stage A carcinoma of the prostate in simple prostatectomy was 10% while in transurethral resection enucleated specimens it was 6 to 18%[35]. In a series of 1000 cases by Gelmann[36], carcinoma of the prostate was seen in 10% patients. The sample size of this study was 10 times larger and that's why resulted into different results. Seaman et al[37] reported that the incidence of prostate cancer in BPH was 14% while Javaid et al[38] reported 6% Shah[39] 4% and Hamid[40] 4%. Iqbal et al[21] reported 8% incidence of prostate cancer in 126 BPH patients, however, they presumed their patients to have BPH and did not examine the patients clinically and prostatectomies were performed.

BPH is considered to be the precursor of carcinoma of the prostate. These two entities share some common risk factors like hormonal, environmental and age related[37]. Both BPH and prostate cancer present in old age and its co existence have been reported as well. Prostate cancer incidence also depends upon regions like Japan has low incidence of prostate cancer as compared to America but those Japanese who live in America have high incidence. This shows that diet and environment play some role in developing prostate cancer. Japanese use vegetables and Americans use fats rich food[41]. So a diet rich in fats especially saturated fats has high risk of developing prostate cancer[42,43]. The early diagnosis of prostate cancer and optimal treatment for each individual patient, still remain unanswered despite extensive research in the field of urology[44].

## CONCLUSION

Frequency of carcinoma prostate was 2.3% in patients with clinically palpable enlarged prostate gland.

## RECOMMENDATIONS

It is recommended that patients having age of 50 years or older should have DRE and PSA level estimation annually. Local availability of transrectal ultrasound will increase the diagnostic rate of detecting carcinoma prostate if it is not metastasized and will help in ultrasound guided needle biopsy.

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**CONTRIBUTORS**

GR conceived the idea, planned the study and drafted the manuscript. IK, TA, IUK, MA and MAJ helped acquisition of data, did statistical analysis and critically revised the manuscript. All authors contributed significantly to the submitted manuscript.