

CARCINOMA OF PROSTATE IN CLINICALLY BENIGN ENLARGED GLAND

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Background: Carcinoma of the prostate is one of the common tumours of old age in men. This cross sectional study was conducted to detect carcinoma of prostate in clinically benign enlarged gland and to evaluate the efficacy of Digital rectal Examination in detection of prostatic cancer in patients presented at Khyber Teaching Hospital, Peshawar from July 1998 to July 1999. **Methods:** Patients presenting with lower urinary tract symptoms over the age of 50 years were evaluated on English version of International Prostate Symptoms Score (IPSS), clinically examined and post-voiding residual urine determined on abdominal sonography. The selection criteria were; Severe IPSS, absence of signs of malignancy on Digital Rectal Examination (DRE) and post-voiding residual urine more than 100 ml. Thus a total 100 patients were selected for further study. Four ml blood was taken to assess Prostate Specific Antigen (PSA) level pre-operatively. All these patients underwent either transvesical prostatectomy or transurethral resection of prostate (TURP) and enucleated prostatic tissues were sent to histopathology. **Results:** Eighty-five percent patients had PSA level up to 10 ng/ml. PSA level of 15 (15%) patients were above 10 ng/ml out of which 13 (13%) patients were having PSA in range of 11–12 ng/ml and two (2%) had PSA level between 20–25 ng/ml. Histopathology report of 2% patients turned out as adenocarcinoma of the prostate. **Conclusion:** Out of 100 patients who were having clinically benign DRE findings, 2 turned out as Carcinoma of the prostate histologically.

Keywords: Digital Rectal Examination, Prostate Specific Antigen, Carcinoma of the prostate, Benign prostatic hypertrophy.

INTRODUCTION

Carcinoma of the prostate is the most common malignant tumour in men over the age of 65 years¹, with an estimated 41,000 Americans dying from prostate cancer annually². Currently it is the most common male malignancy in the United States of America and the majority of cases are diagnosed at a time when tumour has extended beyond the confines of the gland, making it incurable.³ In the European Union 13% of malignancies diagnosed in men comprise prostate cancer. The magnitude of this problem in Pakistan is unknown.⁴

Diagnostics techniques used in prostate cancer have been evolved greatly with technological developments but the classical digital rectal examination is still the mainstay for the diagnosis of any prostatic disease. The accuracy rate of digital rectal examination in detecting malignancy is 20–40% in different series.⁵⁻⁷

Prostatic Acid Phosphatase has been used extensively in the last 50 years as marker to diagnose prostate cancer. PSA was identified 1972. DRE and PSA have been recommended test in guidelines of the American cancer society since 1993 for annual check up of men aged 50 years or above.^{5,6}

In patients with clinically detected nodules, raised PSA, transperineal needle biopsy/trucut needle biopsy is an established tool to confirm diagnosis.⁶

With improvement in morbidity from radical prostatectomy and radical radiotherapy, the importance of early detection of prostatic carcinoma is increasingly emphasized.

The purpose of study is to evaluate the efficacy of DRE in detection of prostatic cancer, to detect the prostate cancer with increasingly age group and to find out carcinoma in clinically benign enlarged prostate.

PATIENTS AND METHODS

Patients presenting with symptoms suggestive of prostatism were collected from surgical out patient department. They were interviewed on IPSS proforma. The IPSS developed by the WHO has been widely used in assessing Lower Urinary Tract Symptoms (LUTS) in many countries. The IPSS is easy to administer, simple, short and only requires 10 minutes for completion by the respondents⁸. This questionnaire was designed to be self-administered by patients who were able to read. In our study most of the patients were incapable of reading and therefore were taught to understand the questionnaire without appreciably changing the validity of questions.

Patients with severe IPSS were included in the study. Patients with hard nodule on DRE or suspicion of prostate cancer were excluded. These patients then underwent pelvic ultra sonography for measuring post voiding residual urine. Those who had post voiding residual urine less than 100 ml were again excluded from the study. Apart from a preoperative work up, 4ml of blood was taken from all these selected 100 patients for preoperative serum PSA assay. Thus the selection criteria were; Severe IPSS; normal DRE and post voiding residual urine more than 100 ml on sonography. A total 100 patients were selected for further study. Most of them underwent transvesical prostatectomy and few were operated through transurethral route (TURP). Prostatectomy and enucleated prostate tissues were subjected to histopathology.

RESULTS

Out of 100, 2 patients were found to have carcinoma of the prostate. The age of all patients was, in the range of, 50 to 70 years. Mean age was 64 years.

Prostatism was commonest complaint at presentation followed by retention of urine and haematuria (Table-1).

DRE findings in all were; enlarged lateral lobes, firm consistency of prostate with palpable lateral margins, median groove, and freely mobile rectal mucosa over the prostate and no modularity in the prostate.

Post voiding residual urine between 100 and 150 ml on ultrasonography was the commonest finding. PSA level of two patients was in the range of 21–25 ng/ml and these two patients had carcinoma of prostate. Thirteen (13%) patients had PSA level between 11–20 ng/ml.

Most of the patients (85%) had PSA in the range of 4–10 ng/ml as shown in the Table-2. On histopathology the biopsy report of two out 100 patients turned out as adenocarcinoma of the prostate, rest of the biopsies reported as benign hypertrophic prostatic tissues. Four patients had wound infection and two developed supra-pubic leak.

No treatment was given to the patients who turned out adenocarcinoma because both of them were elderly, growth was well differentiated and the findings in them were incidental.

Table-1: Clinical feature of patients presented with BPH

| Symptoms | No. of Patients | Percentage |
|------------------------------------|-----------------|------------|
| Prostatism, i.e., Dysurea, Urgency | 64 | 64 |
| Dribbling, Retention of urine | 29 | 29 |
| Haematuria | 7 | 7 |

Table-2: Serum PSA levels of Patients presented with BPH.

| PSA Level | No. of Patients | Percentage |
|------------|-----------------|------------|
| 4–10 ng/ml | 85 | 85 |
| 11–14 | 13 | 13 |
| 15–20 | Nil | 0 |
| 21–25 | 2 | 2 |
| Total | 100 | 100 |

DISCUSSION

Carcinoma of prostate is common cancer in Pakistan due to increasing elderly population and relatively better diagnostic method.⁹ The gold standard triad for diagnosing prostate cancer comprised DRE, PSA level and transrectal ultrasonography.¹⁰ The DRE has always been the primary method for evaluating the prostate. It is easy to conduct and cause little discomfort to the patient but Smith and Catalona showed that the DRE depends on the investigator and has great inter-examiner variability.¹¹ DRE is neither specific nor sensitive enough to detect prostate cancer and is unlikely to be improved.¹² More recent investigators have found that the positive predictive value of DRE is approximately 21–53%. These low values are the one reason that DRE may not be satisfactory for prostate cancer screening. Another problem is that the ability of DRE to detect localized

potentially curable cancer may be limited.⁹ To improve the detection rate of the prostate cancer, the DRE should be followed by a test with high sensitivity. PSA testing provides such a method, being very sensitive.¹² The frequency of the diagnosis of prostate cancer has increased substantially since the introduction of PSA screening.^{13,14} Various methods to improve the performance of PSA screening in early cancer detection have been developed. However, the proportion of men who have ‘abnormal’ PSA testing that revert to ‘normal’ after one year is high (65–83%). This is likely because of a substantial biological variability in PSA level in individual men. Therefore, an elevated PSA should be confirmed on repeat testing before more invasive diagnostic tests are performed.¹⁵ The routine use of PSA testing has had a profound effect on the management of the disease.¹⁶

In our study 13 (13%) men with BPH had serum PSA greater than 10 ng/ml. PSA falls short being the ideal tumour marker. Therefore, it must be considered an adjunct but not replacement for DRE.¹⁷ Rising PSA levels after radical prostatectomy may be due to a local recurrence in the prostatic bed, occult distant metastases or a combination of both.¹⁸

Transrectal ultrasonography (TRUS) can detect hypoechoic lesions in prostate. But these ultrasonography appearances are not characteristic finding of prostatic malignancy. Only 21% of hypoechoic areas on TRUS were confirmed as prostate cancer. This diagnostic limitation was overcome with the development of new techniques such as Colour Doppler Ultrasonography.¹⁰

Facility of TRUS was unavailable at Peshawar. Only abdominal ultrasonography was performed and post voiding residual urine (>100 ml) were considered to indicate some obstructive element and all these 100 selected patients then underwent either transvesical prostatectomy 95 (95%) or transurethral resection of the prostate 5 (5%). The prostatic tissue then subjected to histopathology. The most frequently quoted statistics regarding the incidence of stage A disease is 10 percent of simple prostatectomies but more recently, 6 to 18 percent of transurethral resection or enucleated specimens have been proved to be stage A cancer.¹⁹

Low and Listrum⁹ reported 10% incidence of carcinoma of the prostate in a series of 1000 cases. Size of their study sample was 10 times larger and this difference may be one of the reasons for difference in results. Similarly incidence of carcinoma prostate in the study of Cooner *et al*²⁰ was 14%. Shah²¹ reported 4% incidence in his study. Javaid *et al*²² and Hamid A²³ reported 6% and 4% incidence of carcinoma of prostate respectively in their studies. The incidence of 2% in current study is inconsistent with the results of Iqbal Sial K⁹, who reported 8% incidence of prostate cancer in a study

conducted on 126 patients. They did not mention any selection criteria and the patients were presumed to have BPH on clinical assessment and prostatectomies were performed.

Benign prostate hyperplasia and carcinoma of the prostate are reported to co-exist in old age but whether patients with benign prostatic hyperplasia have increased risk of carcinoma is still controversial.

Lowest incidence of carcinoma was reported in Japanese but those who were living in America were having greater incidence than their native countrymen. This fact depicts the importance of environmental factor and the role of diet. The diet of Japanese men has much less fat than of US men.²⁴ A significant body of evidence suggests that a diet high in fat, especially saturated fats and fats of animal origin, is associated with high risk of prostate cancer.^{25,26}

Despite intensive research over the last several decades, many questions particularly those concerning early diagnosis and the choice of optimal treatment for each individual patient, still remain unanswered.²⁷

CONCLUSION

Signs of benign prostatic hypertrophy on DRE do not rule out the possibility of prostate cancer. Prostate cancer was detected in 2% of those patients having signs of benign prostatic hypertrophy on DRE. Therefore, DRE is not sensitive enough to detect early prostatic malignancy and PSA must be taken into consideration along with DRE to establish diagnosis of prostate cancer.

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