

FREQUENCY OF PROSTATE CANCER IN PATIENTS UNDERGOING TRANS-URETHRAL RESECTION OF PROSTATE (TURP) FOR CLINICALLY BENIGN SYMPTOMATIC ENLARGED PROSTATE

Farid Anwar¹, Qazi Nazim Mohayuddin², Muhammad Islam³,
Muhammad Aasim⁴, Muhammad Riaz⁵, Asad Khan⁶

ABSTRACT

Objective: To determine the frequency of carcinoma prostate in patients undergoing trans-urethral resection of prostate (TURP) for clinically benign symptomatic enlarged prostate.

Methodology: A descriptive study including all patients who had the clinical symptoms of BPH and operated with TURP in the RMI was designed. The study spanned from June 2009 to June 2010. Patients' data, clinical history, examination and operation notes were saved in a file. All the patients were properly evaluated by the team comprising of the authors pre-operatively. On the basis of these evaluations, a malignancy was not anticipated. All the patients were operated using TURP by the same team under spinal anesthesia. Prostate chippings collected at TURP from each patient were sent as routine, for histopathological evaluation and reporting.

Results: Majority of patients (n=44, 66.7%) were older than 60 years. Patients' ages ranged from 48 to 100 years with a mean of 69.5 years. Out of all the patients in this study, 9 patients (13.6%) presented with acute urinary retention and 57 patients (86.4%) presented with Lower Urinary Tract Symptoms (LUTS) and chronic urinary retention. In 9 patients (13.6%) malignancy of the prostate on histopathological examination was confirmed with 8/9 having definitive adeno-carcinoma. Two patients had Gleason score 6/10 and 6 patients had Gleason score 8/10) of the prostate while 1/9 had carcinoma in situ. Out of the 9 patients with malignancy 8 patients (88.9%) were more than 60 years of age while 1 patient (11.11%) was aged 56 years.

Conclusion: The substantial proportion of patients with confirmed PCA in patients undergoing TURP for clinically symptomatic benign enlarged prostate emphasizes the need for early diagnosis through histopathological examination.

Key Words: Carcinoma prostate, Trans-Urethral Resection of Prostate(TURP), Benign Prostatic Hyperplasia (BPH).

This article may be cited as: Anwar F, Mohayuddin QN, Islam M, Aasim M, Riaz M, Khan A. Frequency of Prostate Cancer in Patients Undergoing Trans Urethral Resection of Prostate (TURP) for clinically benign Symptomatic Enlarged Prostate. J Postgrad Med Inst 2012; 26(4): 428-31.

^{1,2,4-6}Department of Urology and General Surgery, Rehman Medical Institute Hayatabad, Peshawar - Pakistan

²Department of Urology, Lady Reading Hospital, Peshawar - Pakistan

Address for Correspondence:

Dr. Farid Anwar,

Flat 17-F, Askari – II, Near Qayyum Stadium, Bara Road, Peshawar Cantt, Peshawar - Pakistan

E-mail: farid.anwar@btinternet.com

Date Received: January 04, 2012

Date Revised: August 08, 2012

Date Accepted: August 16, 2012

INTRODUCTION

Prostatic adeno-carcinoma (PAC) is often a multi-centric malignant process¹. On the basis of its origin, PAC is typed as either non-transitional zone prostatic adeno-carcinoma (NTZ-PAC) or non-transitional zone prostatic adenocarcinoma (NTZ-PAC)^{2,3}. With the use of traditional and latest modern screening methods and techniques for PAC, including digital rectal examination (DRE), measurement of prostate-specific antigen (PSA), and trans-rectal ultrasound (TURS) and prostate biopsy, several earlier investigations, from USA, have not only reported better diagnosis of PAC but also an increase in the incidence of PAC^{4,5,6}. Most clinicians think that most patients, with clinical signs and symptoms related to prostate

pathologies, are those suffering from the rather less harmful condition well known as benign prostate hyperplasia (BPH).

They normally continue to treat them conservatively till a surgical intervention proves too late for those not having a benign origin from the very beginning. Therefore, it is of paramount importance to proceed for its accurate and early diagnosis so as to proceed with the appropriate course of action. This will considerably help improve the prognosis of the condition, reduce relevant mortality and recovery of quality of life of those suffering from the condition.

The aim of the present study is to share the authors' clinical experiences related to the incidence of PAC obtained through histopathological examinations of the biopsy specimens of prostate of those patients who underwent TURP in Rehman Medical Institute (RMI) Peshawar (Pakistan) for having clinical symptoms related to BPH.

METHODOLOGY

A descriptive study including all patients who had the clinical symptoms of BPH and received TURP in the RMI was designed. The study spanned from June 2009 to June 2010. Patients' data, clinical history, examination and operation notes were saved in a file. All the patients were properly evaluated by the members of the investigators' team including a trainee medical officer and two consultant urologists pre-operatively. On the basis of clinical evaluations, in none of the patients a malignancy was anticipated. All the patients were operated, under spinal anesthesia, for trans-urethral resection of prostate (TURP) by consultant urologists as members of the present study investigating team. Prostatic chippings collected at TURP from each patient were sent as routine, for histo-pathological evaluation. Biopsy reports were traced in all the patients.

RESULTS

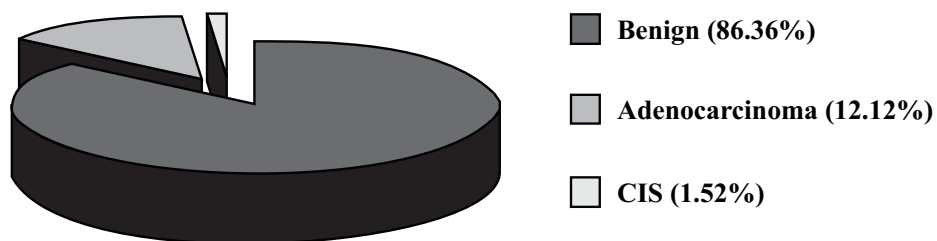
A total of 66 patients were included in this study. Out of these, 44 patients (66.67%) of the patients were more than 60 years of age and 22 patients (33.33%) were of age 60 years or less at the time of TURP. The Age range was 48-100 years with a mean of 69.47 years. Out of all the patients in this study, 9 patients (13.6%) presented with acute urinary retention and 57 patients (86.4%) presented with Lower Urinary Tract Symptoms (LUTS) and chronic urinary retention. In 9 patients (13.6%) malignancy of the prostate on histo-pathological examination was confirmed. 8/9 had definitive adeno-carcinoma (2 patients had Gleason score 6/10 and 6 patients had Gleason score 8/10) of the prostate while 1/9 had carcinoma in situ. Out of the 9 patients with malignancy 8 patients (88.89%) were more than 60 years of age while 1 patient (11.11%) was aged 56 years.

Figure 1 is showing the percent distribution of the histopathology result of patients.

DISCUSSION

NTZ-PAC is characterized by a tumor that is accessible to digital rectal exam (DRE) and trans-rectal ultrasound (TRUS) and is associated with high-grade carcinoma, Prostatic intraepithelial neoplasia (PIN), and a high incidence of tumoral invasion into the prostatic capsule, peri-neural spaces, and seminal vesicles. In contrast, TZ-PAC is characterized by a low-grade, acinar pattern of carcinoma that is rarely associated with capsular invasion and seminal vesicle involvement. This latter type of carcinoma likely arises from prostatic epithelium, often in association with AAH (Atypical Adenomatous Hyperplasia), whereas the NTZ-PAC arises from PIN. Furthermore, AAH is more commonly identified in the TZ than in the peripheral zone (PZ), whereas PIN is more prevalent in the PZ^{7,8,9,10,11}.

Figure 1: Percent distribution of the Histopathology result of patients



The importance of the use of biopsy for diagnosis of prostate cancer can be judged from the findings of several studies¹²⁻¹⁷. It has been pointed out that few data are available to describe the clinical and pathologic characteristics of prostate cancers detected through early detection programs¹². It is however, agreed that at the time of diagnosis, the likelihood of cases to be of advanced level cancers would always exist¹². The clinical and economic effects of screening for prostate cancer with PSA, TRUS DRE showed that screening with PSA or TRUS prolonged unadjusted life expectancy but diminished quality-adjusted life expectancy (QALE). Screening with DRE alone yielded no reduction in mortality at any age. All the three screening programs increased costs¹³. A prospective, comparative study of 2,999 men older than 55 years not suspected of having prostate cancer, DRE, TRUS and PSA were performed for each subject on an annual basis for as long as 5 years. Biopsies were performed on the basis of recommendations from DRE or TRUS results. Although elevated PSA alone was not typically a basis for biopsy, in some instances biopsies were recommended because of the degree of elevation in PSA. It was interesting to note that several advanced level prostate cancers had PSA levels in the normal range, thus limiting the usefulness of these measures including PSA for staging¹⁴.

A study was conducted to evaluate the potential benefits, harms, and economic consequences of DRE and PSA for the early detection of prostate cancer. As a result, a lack of direct evidence was seen that showed a net benefit of screening for prostate cancer but stressed on more clinician-patient discussion for regarding the need for early detection and management¹⁵.

In 1997, a study was conducted to estimate the prevalence of clinically important prostate cancer and to evaluate the effectiveness of DRE and PSA as methods for early detection of prostate cancer. Larger-volume tumors of the prostate are common among older men. Available tests for the early detection of cancer have limited specificity, which necessitates a relatively high biopsy rate. The positive predictive value of combined DRE and PSA measurement has been defined, but the negative predictive value is less clear. Measurement of PSA is the most sensitive noninvasive test for prostate cancer. However, digital rectal examination detects cancer that would otherwise be missed by PSA measurement¹⁶.

A most recent study investigated the association between the use of statin (to reduce the risk of advanced prostate cancer) and the likelihood of having a PSA or DRE test, blood PSA levels, prostate volume, and the severity of

lower urinary tract symptoms. The results of this study suggested selective referral for biopsy associated with statin use as an essential element to address in further understanding the potential for statins to prevent prostate cancer¹⁷.

Due to the respective locations of these 2 types of carcinoma, a large proportion of incidental adeno-carcinoma identified on TURP is of TZ-PAC type. Findings on post-TURP radical prostatectomy for incidental carcinoma confirm this pattern. Transition zone (TZ) and peripheral zone (PZ) residual carcinoma is present in 70% of radical prostatectomies for incidental PAC, whereas, PAC in other radical prostatectomy specimens usually consists of carcinoma localized to the PZ^{18,19}.

CONCLUSION

A significantly higher incidence of prostatic carcinoma was seen in patients undergoing TURP for clinically benign symptomatic enlarged prostate. This shows the importance of keeping a high index of suspicion of malignancy even in apparently clinically benign prostates and importance and need for histopathological examination of biopsy specimens in all cases.

REFERENCES

1. Villers A, McNeal JE, Freiha FS, Stamey TA. Multiple cancers in the prostate. Morphologic features of clinically recognized versus incidental tumors. *Cancer* 1992;70:2313-2318.
2. McNeal JE, Redwine EA, Freiha FS, Stamey TA. Zonal distribution of prostatic adenocarcinoma: correlation with histologic pattern and direction of spread. *Am J Surg Pathol* 1988;12:897-906.
3. Erbersdobler A, Hammerer P, Huland H, Henke RP. Numerical chromosomal aberrations in transition-zone carcinomas of the prostate. *J Urol* 1997;158:1594-8.
4. Stephenson RA, Smart CR, Mineau GP, James BC, Janerich DT, Dibble RL. The fall in incidence of prostate carcinoma. On the down side of a prostate specific antigen induced peak in incidence- data from the Utah Cancer Registry. *Cancer* 1996;77:1342-8.
5. Stephenson RA, Stanford JL. Population-based prostate cancer trends in the United States: patterns of change in the era of prostate-specific antigen. *World J Urol* 1997;15:331-5.
6. Levy IG, Gibbons L, Collins JP, Perkins DG, Mao Y. Prostate cancer trends in Canada: rising incidence or increased detection? *Can*

- Med Assoc J 1993;149:617-24.
7. Sakr WA, Grignon DJ. Prostatic intraepithelial neoplasia and atypical adenomatous hyperplasia. Relationship to pathologic parameters, volume and spatial distribution of carcinoma of the prostate. *Anal Quant Cytol Histol* 1998;20:417-23.
 8. Qian J, Bostwick DG. The extent and zonal location of prostatic intraepithelial neoplasia and atypical adenomatous hyperplasia: relationship with carcinoma in radical prostatectomy specimens. *Pathol Res Pract* 1995;191:860-7.
 9. Bostwick DG, Qian J. A typical adenomatous hyperplasia of the prostate. Relationship with carcinoma in 217 whole-mount radical prostatectomies. *Am J Surg Pathol* 1995;19:506-18.
 10. Helpap BG, Bostwick DG, Montironi R. The significance of atypical adenomatous hyperplasia and prostatic intraepithelial neoplasia for the development of prostate carcinoma. An update. *Virchows Arch* 1995;426:425-34.
 11. Pacelli A, Bostwick DG. Clinical significance of high-grade prostatic intraepithelial neoplasia in transurethral resection specimens. *Urology* 1997;50:328-9.
 12. Mettlin C, Murphy GP, Lee F, Littrup PJ, Chesley A, Babaian R, et al. Characteristics of prostate cancers detected in a multimodality early detection program. The Investigators of the American Cancer Society-National Prostate Cancer Detection Project. *Cancer* 1993;72:1701-8.
 13. Mettlin C, Murphy GP, Babaian RJ, Chesley A, Kane RA, Littrup PJ, et al. The results of a five-year early prostate cancer detection intervention. Investigators of the American Cancer Society National Prostate Cancer Detection Project. *Cancer* 1996;77:150-9.
 14. Krahn MD, Mahoney JE, Eckman MH, Trachtenberg J, Pauker SG, Detsky AS. Screening for prostate cancer; decision analytic view. *JAMA* 1994;272:773-80.
 15. Coley CM, Barry MJ, Fleming C, Fahs MC, Mulley AG. Early detection of prostate cancer. Part II: Estimating the risks, benefits, and costs. *American College of Physicians. Ann Intern Med* 1997;126:468-79.
 16. Coley CM, Barry MJ, Fleming C, Mulley AG. Early detection of prostate cancer. Part I: Prior probability and effectiveness of tests. *The American College of Physicians. Ann Intern Med* 1997;126:394-406.
 17. Fowke JH, Motley SS, Barocas DA, Cookson MS, Concepcion R, Byerly S, et al. The associations between statin use and prostate cancer screening, prostate size, high-grade prostatic intraepithelial neoplasia (PIN), and prostate cancer. *Cancer Causes Control* 2011;22:417-26.
 18. Greene DR, Egawa S, Neerhut G, Flanagan W, Wheeler TM, Scardino PT. The distribution of residual cancer in radical prostatectomy specimens in stage: a prostate cancer. *J Urol* 1991;145:324-8.
 19. Voges GE, McNeal JE, Stamey TA. Incidental prostate cancer: volume, location and degree of differentiation of the tumor in the radical prostatectomy specimen and value of subclassification to stage A1 and A2. *Urology*

CONTRIBUTORS

FA conceived the idea and planned the study. QNM, MI, MA, MR & AK did the data collection and analyzed the study. All the authors contributed significantly to the research that resulted in the submitted manuscript.