Incidental prostate cancer experience of a tertiary unit in Sri Lanka

AUB Pethiyagoda*, K Pethiyagoda**

*Department of Surgery, Faculty of Medicine, University of Peradeniya, Sri Lanka
**Department of Community Medicine, Faculty of Medicine, University of Peradeniya, Sri Lanka

Abstract- Trans urethral resection of prostate (TURP) is the most frequently performed surgical treatment for patients diagnosed with benign prostate hyperplasia. This retrospective observational study was design to evaluate the occurrence and the characteristics of incidental prostate cancer (IPC), in patients underwent TURP for clinically benign disease. In histopathology of TURP specimens 14.9% showed incidental prostatic carcinoma concluding that TURP has additional benefit of early diagnosing of prostatic carcinoma.

Index Terms- Incidental prostate carcinoma, Trans urethral resection of prostate, Histopathology of prostate specimens, Gleason score.

I. Introduction

Prostate cancer is the most common cancer affecting men (1). Similarly, benign prostatic hyperplasia (BPH) is the most frequent benign tumor, and about 90% of the men are affected by the ninth decade of life.(2)No definitive causes of prostate cancer (PCa) have been identified but, increasing age, a positive family history and sub-Saharan African ancestry are strongly linked to its development (3-5)

Despite the recent introduction of minimally invasive surgical methods of treating BPH, Trans Urethral Resection of Prostate (TURP) has been recognized as the gold standard in treatment of BPH. TURP is safe and feasible even in a large prostate, and it can replace open prostectomy. However, the detection rate of prostate cancer after TURP has rarely been addressed in Asian publications.

The main preoperative diagnostic tools to confirm prostate cancer include serum concentration of prostate-specific antigen (PSA), digital rectal examination (DRE), and imaging modalities. PSA is considered a better predictor of cancer than DRE or Trans rectal ultrasound,(6) and it can be complemented with parameters, such as PSA velocity, PSA density, and free/total ratio which is considered to be the best of the available investigations.(7)

Clinical T1 or incidental prostate cancer is defined as clinically in apparent tumor that is neither palpable nor visible by imaging. Clinical T1a and T1b prostate cancer are diagnosed at the time of TURP for benign prostatic disease. T1a disease involves 5% or less of the resected tissue, whereas T1b disease involves more than 5% of the resected tissue.

Incidental carcinoma of the prostate (ICP) refers to well differentiated tumors that grow in a transitional zone and are eventually found during TURP and Open Prostectomy.(8) ICP was diagnosed in less than 10% of patients who undergo benign prostatic hyperplasia-related surgery. (9-11)

Carcinoma prostate exhibits wide range of clinico-pathological behavior and most to be symptomatic in advanced disease stage, hence detection of incidental prostate cancer might be able to forward more candidates for further curative therapy. Along with this shift in incidental prostate cancer distribution with the introduction of PSA, fewer traditional TURPs are being performed as newer techniques, such as laser vaporization, are being adopted (12). These new technologies do not always provide tissue for pathological examination leading to potentially missed cancers. Some incidental prostate cancers have been shown to be clinically relevant, specifically tumors with a higher Gleason score and stage pT1b (13).

Prostate cancer is also given a grade called a Gleason score, which is based on how much the cancer looks like healthy tissue when viewed under a microscope. Less dangerous tumors generally look more like healthy tissue, and more dangerous tumors that are likely to grow and spread to other parts of the body look less like healthy tissue. The Gleason Scoring System is the most common prostate cancer grading system used. The pathologist looks at how the cancer cells are arranged in the prostate and assigns a score on a scale of 1 to 5.

The objective was to evaluate the occurrence and the characteristics of incidental prostate cancer (IPC), in patients undergoing Trans Urethral Resection of Prostate for clinically benign disease.

II. PATIENTS AND METHOD

Retrospective observational study was conducted in histopathological examinations performed on biopsy specimens of TURPs from January 2005 to January 2010 in Teaching Hospital Peradeniya. The study sample included the patients with lower urinary tract symptoms and prostatomegaly who came to the genitourinary clinic. There were 444 males who underwent surgical treatment as TURP due to the PBH. Their histopathology records were collected from the Department of Pathology, Faculty of Medicine University of Peradeniya.

In the preoperative period, all patients were evaluated through Digital Rectal examination (DRE), serum PSA and Ultrasound abdomen to determine the prostate volume.

In our study, all patients were treated surgically through TURP and indications for surgery included the presence of severe lower urinary tract symptoms that was unresponsive to pharmacological treatment and Urinary retention.

Their demographic details, DRE finding (done by the consultant urological surgeon) and Prostate specific antigen (PSA) levels were collected according to the corresponding histology reports and Urology clinic number.

Patients with known prostate malignancy, a positive digital rectal examination for malignancy and those with high Prostate Specific Antigen (PSA > 4ng/ml) were excluded from the study. Then the pre operatively unsuspected, but the histologically positive prostate carcinomas data were statistically analyzed with SPSS 20.

III. RESULTS

The study sample composed of 444 patients with mean age of 64(SD=6.3) years.

Out of the sample 14.9 % (n=66) were found to have incidental prostate carcinoma, 83.8 % (n=372) were Benign Prostatic Hyperplasia, 61.5 % (n=273) exhibits intra prostatic inflammation, 1.6 % (n=7) were Prostatic Intraepithelial Neoplasia (PIN) and 10.4% (n=46) had squamous metaplasia.

In the cancer group with a mean age of 66.3(SD=8.9) years, 16.7% coexisted with chronic prostatitis, 4.5% and 3.1% coexisted with PIN and squamous metaplasia respectively.

Of the prostate cancer the Gleason grading was favorable (2-6) in 66.7% cases, 19.7% had intermediate Gleason grade (7) and 13.7% had unfavorable Gleason grade (8-9).

IV. DISCUSSION

In the recent past, several studies have shown that the rate of incidental prostate cancer discovery has decreased in the PSA era. Jones, et al. (13) reported that the incidence of incidental prostate cancer has significantly decreased in comparison to the rate from the pre-PSA era. In countries where PSA screening is done there has been an increase in the diagnosis of prostate cancer by prostate biopsy. Consequently, a large proportion of prostate cancers are being diagnosed in early stages and at younger ages, before patients exhibit lower urinary tract symptoms. In the pre-PSA era, there was a greater possibility that incidental prostate cancer would be locally advanced prostate cancer rather than 'true' incidental prostate cancer, since early detection of prostate cancer by PSA screening was not available.

Routine DRE and TRUS are also widely accepted in diagnosing prostate cancer. Several studies have reported rates of incidental prostate cancer among patients undergoing TURP, and indicated that such preoperative examinations have reduced the incidental finding of prostate cancer on TURP by detecting cancers on preoperative prostate biopsy.(14 -15)

Our study was carried using data of 5 years period. It revealed 66 prostate carcinomas from 444 patients and it showed 14.6% out of all patients. All diagnosed prostate carcinomas were incidental as TURPs conducted for benign diseases and clinically suspected carcinomas undergo surgical interventions other than TURP.

According to the research the prevalence of incidental carcinoma is 14.6% and is higher than the recently published literature. This may be due to the fact that PSA screening is not done in Sri Lanka and our patients present on when they have LUTS. Therefore in our population we have to educate regarding the LUTS and the prostate cancer.

The mean age was 64 years. The great majority of the patients presented as unsuspected digital rectal examination and PSA level also not favorable for prostate cancer.

The natural history of incidental prostate cancer has been studied. Early studies showed that T1a lesions were usually less aggressive than T1b lesions (16). In their long-term follow up of patients with incidental prostate cancer, Tombal et al. showed that T1b lesions are associated with a higher Gleason score and a higher risk of progression (17).

Several studies have compared incidental prostate cancer rates between pre-PSA era. First, Tombal et al. reported a decrease rate of incidental prostate cancer from 27% to 9% when comparing their pre PSA era to PSA era.

V. CONCLUSION

Considerable numbers of patients were found to have incidental prostate carcinoma and most of them were found to have favorable Gleason grade. In comparison incidence of IPC in Sri Lanka is higher than the other Asian countries and similar to the western countries. Identification of such cases and evaluating the characteristics that may aid in the earlier identification of IPC can improve the outcome of curative treatment for prostate carcinoma.

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AUTHORS

First Author – AUB Pethiyagoda, Consultant genito-urinary surgeon/ Senior lecturer, Department of Surgery, Faculty of Medicine, University of Peradeniya, Sri Lanka. Email: pethiya@yahoo.com. Telephone: 0094773079078
Second Author – K Pethiyagoda, MSc in community medicine & PhD in occupational health, Senior lecturer in community medicine, Department of Community Medicine, Faculty of medicine, University of Peradeniya, Sri Lanka.
Email: Kalyaniq33@gmail.com

Correspondence Author - AUB Pethiyagoda. Email: pethiya@yahoo.com, Alternate Email: aubp@pdn.ac.lk, Contact number: 0094773079078