INCIDENTAL DIAGNOSIS OF CARCINOMA PROSTATE OF TURP CHIPS DONE FOR BPH : A STUDY OF CHITTAGONG MEDICAL COLLEGE HOSPITAL

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Abstract

Background: Prostate cancer awareness is increasing day by day, especially in the USA and western world. Before PSA period, up to 27% of prostate cancers were detected incidentally in the TURP chips done for BPH. The Incidental diagnosis of prostate cancer in patients treated for BPH by a transurethral prostate resection is seen in 1.4-16.7% of patients, but it's incidence is decreasing due to the use of Serum PSA testing. Nevertheless, some patients are still diagnosed with incidental prostate cancer. However, incidentally detected carcinoma prostate has been reported to vary across the globe since various factors can influence the identification of this malignancy in TURP specimens. In this study, we concentrated on rates of incidentally detected prostate cancer in TURP chips done for BPH in our hospital. **Materials and methods:** This retrospective study of histopathological findings of TURP chips was conducted for patients undergoing TURP from 2010. The inclusion criteria were patients diagnosed with BPH, DRE showing no abnormal hard areas and age adjusted PSA value is normal. Patients with elevated PSA, abnormal DRE, documented urinary tract infection and proved Adenocarcinoma Prostate (CaP) were excluded from the study. The age of the patients, clinical diagnosis, occurrence of carcinoma of prostate in the TURP chips and Gleason's scores were recorded. **Results:** A total of 263 patients who fulfilled the inclusion criteria were studied. The incidence of CaP in the study group was 5.3 % (14/263). 10 (71.4 %) patients were aged ≥65 years or older had maximum incidence of CaP. **Conclusions:** The rate of incidentally detected adenocarcinoma prostate in patients undergoing TURP for clinically diagnosed BPH was found to be only 5.3 % in our study, which is low when compared with similar studies done elsewhere in the world.

Key words

Incidental Cancer of Prostate (ICP); Benign Prostatic Hyperplasia (BPH); Transurethral Resection of Prostate (TURP); Adenocarcinoma of Prostate (CaP).

Introduction

Fourth leading cancer is Carcinoma prostate in both sexes and the second most common in male. The established risk factors for this disease are advancing age, race, positive family history of prostate cancer and western diet (Use of fat items). Several other risk factors, such as obesity, physical activity, sexual activity, smoking and occupation have been also associated with prostate cancer risk, but their roles in prostate cancer etiology remain uncertain. Incidence of carcinoma prostate is rising as a whole. Exact etiology for this rise is still unknown, may be increasing life expectancy in countries and available modified diagnostic techniques have been suggested as causes[1].

Incidental prostate cancer is clinically inapparent malignant tumor that is neither palpable by Digital Rectal Examination (DRE) nor visible by

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imaging. Before PSA era, up to 27% of prostate cancers were detected incidentally in the Transurethral Resection of Prostate (TURP) chips done for BPH The incidental diagnosis of prostate cancer in patients treated for Benign Prostatic Hyperplasia (BPH) by a transurethral prostate resection is seen in 1.4-16.7% of patients, but it is decreasing due to the use of Prostate Specific Antigen (PSA) testing[2]. Nevertheless, some patients are still diagnosed with incidental prostate cancer.

Within the last two decades, there has been a sudden increase of interest in diseases of prostate largely due to the perceived high incidence of prostate cancer in different geographical and ethnic groups globally[3]. Specially American Urological Association (AUA) and other Western Urological Societies giving very much emphasis on the diagnosis and the treatment of prostate cancer. As because of increasing knowledge of prostatic lesions, with increase in the incidence and mortality rates of prostate cancer, every effort should be made for improving the diagnosis. Efforts should be made to apply modified Gleason system so as to improve management facility[4].

The introduction of serum PSA and TRUS as standard tests to detect prostate cancer in asymptomatic men has improved the screening and early detection of potentially curable cancers. Whether this will lead to a significant reduction in cancer related mortality remains to be determined[5,6]. Stage T1a and T1b tumours are diagnosed incidentally at TURP or open enucleation of the prostate for what has been perceived before surgery to be BPH. Within the last few years several medical or 'minimally invasive' treatments for BPH have been developed which provide no surgical specimens for pathological examination and the patients treated with medication, laser therapy, thermotherapy, hyperthermia or microwaves, some will be followed for unsuspected prostate cancer. Urologists who advocate these treatments argue that the widespread use of new detection strategies for prostate cancer should reduce the incidence of stage T1 prostate to an insignificant level[7]. However,whether being unaware of an unsuspected prostate cancer compromises the safety of those patients with BPH who have been selected for a treatment that will not provide adequate pathological specimens remains in debate.

Prostate cancer isolated exclusively in the Transitional Zone (TZ) is uncommon, accounting for only 2-7% of all prostate cancers[8,9]. Several recent studies have reported that cancer arising from the TZ have a more favorable prognosis than tumors that arise in the Peripheral Zone (PZ)[8]. The prognosis of patients with incidental prostate cancer is good with disease-specific survival rates at ten and fifteen years of 100% and 91% respectively, while in patients with a Gleason score of 6 or lower these rates are above 95%[10,11]. In the context of current screening practices and changing practice patterns, we sought to identify the rates of incidentally detected prostate cancer in TURP specimens. In this study, we are egger to know the incidental prostate cancer rate in Chittagong Medical College Hospital, their types and Gleason's grading and also age variations.

Materials and methods

This was a retrospective study of the histo-pathological findings of TURP chips done for bladder outlet obstructions for BPH in Urology Department of Chittagong Medical College Hospital during a period of 7 years from 2010. The inclusion criteria were patients clinically diagnosed with Benign Prostatic Hyperplasia (BPH) Digital Rectal Examination (DRE) not showing any abnormally hard areas and normal age adjusted PSA values and patients underwent surgery for obstructive voiding symptoms or urinary retention. Patients with elevated PSA, abnormal DRE, documented urinary tract infection and proved Adenocarcinoma Prostate (CaP) were excluded from the study. Patients with a preoperative diagnosis of prostate cancer were excluded from the analysis. TURP was performed under spinal anesthesia by consultants not less than the rank of Assistant Professor of Urology Department, Chittagong Medical College Hospital and it was ensured that complete resection was done in all individuals in a single setting. TURP chips were processed and send to the Pathology Department, Chittagong Medical College with a requisition form for histopathological examination. The age, clinical diagnosis, histopathological diagnosis, types of cancer, Gleason's score in case of

adenocarcinoma etc. were recorded. The patients were divided into two groups i.e one group is consisting of patients < 65 years of age and the other group is ≥ 65 years or more.

Data were tabulated in Microsoft excel sheet and was analyzed in Statistical Package for Social Sciences (SPSS) 23. Frequencies and percentages were calculated for descriptive data meanwhile Pearson Chi-square test was used to compare the association between categorical data. p value less than 0.05 was considered significant.

Results

Table I : Age distribution of the study population (n=263)

Age category	Frequency (n)	Percent (%)
Age < 65 years	110	41.8
Age ≥ 65 years	153	58.2
Total	263	100

Table II : Histopathological findings of the sample (n=263)

Histopathological diagnosis	Frequency (n)	Percent (%)
BEP	249	94.7
Adenocarcinoma	14	5.3
Total	263	100

Table III : Gleason score of the prostatic adenocarcinoma (n=14)

Grade group	Gleason score	Frequency	Percentage (%)
Grade group 1	Gleason score ≤6	7	50.0
Grade group 2	Gleason score 3+4	3	21.4
Grade group 3	Gleason score 4+3	1	7.1
Grade group 4	Gleason score 8-9	3	21.5
Grade group 5	Gleason score 10	0	0.0
Total		14	100

Table IV : Tumour grading by Gleason score (n=14)

Tumour grading	Frequency (n)	Percentage (n)
Well differentiated / low grade (Gleason score ≤6)	7	50.0
Moderately differentiated (Gleason score 7)	4	28.5
Poorly differentiated / high grade (Gleason score ≥8)	3	21.5

Table V : Age distribution of the prostatic cancer patients by Gleason score

Age category		Gleason score				
		≤6	3+4	4+3	8-9	Total
<65 years	n	2	2	0	0	4
	%	28.6%	66.7%	0.0%	0.0%	28.6%
≥65 years	n	5	1	1	3	10
	%	71.4%	33.3%	100.0%	100.0%	71.4%
Total	n	7	3	1	3	14
	% of Total	50.0%	21.4%	7.1%	21.4%	100.0%

Chisquare (Exact) value=3.733, df=3, p=0.602

Table I shows age distribution of the patients. A total of 263 patients undergone TURP operations during this period for BPH. Majority of patients (n=153, 58.2%) were 65 years of age or older. Others (n=110, 41.8%) are below 65 years of age. This difference was statistically significant (χ^2[n=263, df=1] = 7.03, p=0.008).

The entire specimen of TURP was sent to Department of Pathology for histopathological examination.

Table II shows 249 (94.7%) patients were histologically diagnosed as having BPH. 14 (5.3%) had adenocarcinoma of prostate.

Table III shows Gleason score of the prostatic adenocarcinoma . Amongst the cases 7(50%) had Gleason sum 6, 3(21.4%) had 7(3+4), 1(7.1%) had 7(4+3), 3(21.5%) had Gleason score of 8-9 and no one had Gleason score 10.

Accoding to table IV, among the 14 patients who were diagnosed with prostate cancer, 7 (50%) of them had well differentiated adenocarcinoma with Gleason score ≤6, 4 (28.5%) of them had moderately differentiated adenocarcinoma with Gleason score of 7 [3 had Gleason's score (4+3) and 1 had (3+4)] and 3 had poorly differentiated adenocarcinoma] with Gleason score>7.

Of this 14 patients, 10 (71.4%) patients were aged 65 years or older and 4 (28.6%) were below 65 years of age which is shown in table V. Fisher exact test was applied to see the relation between age group and occurrence of incidental prostate cancer and there was no significant difference in cancer occurrence in those age group (p=.602).

Discussion

In our study it was showed that an incidence of prostate cancer rate of 5.3 %, the Gleason sum of which ranged from ≤6 to 9. This detection rate is lower than several other recently published series, however, it is consistent with the overall decrease in incidental prostate cancer in the PSA era. Mai et al. showed similar results in their review of almost 1000 TURP specimens. They found significant decreases in the overall detection rate from 12.9 to 8%[12]. More recently, Jones et al found a decrease of incidental prostate cancer from 14.9% to 5.2% (Pre versus post PSA era) in over 700 patients[13]. Dellavedova et al. found an incidental prostate cancer detection rate of 7% when they reviewed 100 patients who underwent bipolar TURP[14]. A recent multi-centric review by Yoo et al. showed an incidental prostate cancer rate of 4.8% in over 1600 patients[15]. The causes of this reduction may be due to Geographical variations, spreading of USG facilities to remote areas and also facilities of doing Serum PSA level. Other causes for reducing the incidence of prostate cancer may be the decreased number of BPH surgery due to successful use of medical therapy or increasing ablative therapies, which do not mostly provide tissues for pathological analysis of patients who ultimately require surgical management of their prostatic enlargement[14,16]. Besides this, the importance of diagnosis of prostate cancer in younger males is well established in contemporary urological practice[17]. Of this study incidental diagnosis of 14 patients, 4 (28.6%) were below the age of 65 years & 10 (71.4%) patients were aged 65 years or older. However in a study conducted by Marlon Perera, prostate cancer was diagnosed in 13.4% of the younger group and 28.7% in the older group. In our setting this incidence is much higher in older age may be due to our peoples don't want to do the surgery until they are compelled to do it due to complications or unbearable symptoms due to BPH. At 23 year follow up, men aged 65 years experienced the greatest oncological benefit, with a reduction in overall mortality of 25.5% and a prostate cancer death reduction of 15.8% following prostatectomy[18]. Furthermore, a study reported that in 65 years of age, the number needed to treat to avert one death was only four. In this study within the < 65 years age group, 2 were having Gleason's score of 6 and 2 had Gleason's score of 4+3. The prognosis of patients with incidental prostate cancer is good with disease-specific survival rates at ten and fifteen years of 100% and 91%, respectively; while in patients with a Gleason score of 6 or lower these rates are above 95%[10,11].

These findings suggest that early prostate cancer diagnosis and management is critical in this younger population.

Conclusions

The incidence of CaP in patients undergoing TURP for clinically diagnosed BPH was found to be only 5.3 % in our study which was found to be lower than similar studies done elsewhere. This incidence may further decreased due to availability of better diagnostic tools preoperatively like Transrectal Ultrasound (TRUS) newer forms of PSA and MR Spectroscopy. Dicision for treatment of incidental prostate cancer in early age may be beneficial. But The decision for further evidence-based treatment is difficult since most data in this patient population are from retrospective studies and no data of randomized trials are available.

Disclosure

All authors declare no competing interest.

References

1. Varghese J, Kuruvilla PM, Mehta N, Rathore RS, Babu M, Bansal D et al. Incidentally Detected Adenocarcinoma Prostate in Transurethral Resection of Prostate Specimens: A Hospital Based Study from India. Asian Pac J Cancer Prev. 2016; 17(4): 2255-2258.

2. Adolfsson J. The management of category T1a-T1b (Incidental) prostate cancer: Can we predict who needs treatment? Eur Urol. 2008;54(1):16-18.

3. Von Eschenback AC. The change of prostate cancer CA. Cancer J Clin. 1999; 49: 262.

4. Zeenath Begum, Abdul Hakeem Attar, Mandakini B. Tengli, Mohammed Mateen Ahmed. Study of Various Histopathological Patterns in Turp Specimens and Incidental Detection of Carcinoma Prostate. Indian Journal of Pathology and Oncology. 2015; 2(4); 303-308.

5. Brawer MK. Screening and early detection of PCa will decrease morbidity and mortality from PCa: The argument against. Eur Urol. J. 1996; 29: 19–23.

6. Holman C D, Wisniewski Z S, Semmens J B, Rouse I L, Bass A J. Mortality and prostate cancer risk in 19,598 men after surgery for benign prostatic hyperplasia. BJU Int. 1999; 84: 37-42.

7. Boccon-Gibot L. The management of localized prostate cancer. Eur Urol. 1996; 29: 62–68.

8. Augustin H, Erbersdobler A, Graefen M, Fernandez S, Palisaar J, Huland H et al. Biochemical recurrence following radical prostatectomy: A comparison between prostate cancers located in different anatomical zones of Prostate. 2003; 55: 48-54.

9. Erbersdobler A, Augustin H, Schlomm T, Henke RP. Prostate cancers in the transition zone: Part 1, pathological aspects. BJU Int. 2004; 94: 1221-1225.

10. Robinson D, Aus G, Bak J et al. Long-term follow-up of conservatively managed incidental carcinoma of the prostate: A multivariate analysis of prognostic factors. Scand J Urol Nephrol. 2007; 41: 103–109.

11. Ahmad S, O'Kelly F, Manecksha RP et al. Survival after incidental prostate cancer diagnosis at transurethral resection of prostate: 10-year outcomes. Ir JMed Sci. 2012; 181(1): 27-31.

12. Mai KT, Isotalo PA, Green J, Perkins DG, Morash C, Collins JP. Incidental prostatic adenocarcinomas and putative premalignant lesions in TURP specimens collected before and after the introduction of prostrate-specific antigen screening. Arch Pathol Lab Med. 2000; 124(10): 1454–1456.

13. Jones JS, Follis HW, Johnson JR. Probability of finding T1a and T1b (Incidental) prostate cancer during TURP has decreased in the PSA era. Prostate Cancer and Prostatic Diseases. 2009;12(1):57–60.

14. Dellavedova T, Ponzano R, Racca L, Minuzzi F, Domínguez M. Prostate cancer as incidental finding in transurethral resection. Arch Esp Urol. 2010;63(10):855–861.

15. Yoo C, Oh CY, Kim SJ, Kim SI, Kim YS, Park JY, et al. Preoperative Clinical Factors for Diagnosis of Incidental Prostate Cancer in the Era of Tissue-Ablative Surgery for Benign Prostatic Hyperplasia: A Korean Multi-Center Review. Korean Journal of Urology. 2012;53(6):391-395.

16. Yu X, Elliott SP, Wilt TJ, McBean AM. Practice Patterns in Benign Prostatic Hyperplasia Surgical Therapy: The Dramatic Increase in Minimally Invasive Technologies. The Journal of Urology. 2008;180(1):241–245

17. Otto B, Barbieri C, Lee R, Te AE, Kaplan SA, Robinson B et al. Incidental Prostate Cancer in Transurethral Resection of the Prostate Specimens in the Modern Era. Advances in Urology. 2014; 2014:1–4.

18. Bill-Axelson A, Holmberg L, Garmo H, Rider JR, Taari K, Busch C et al. Radical prostatectomy or watchful waiting in early prostate cancer. N Eng J Med. 2014; 370: 932-942.