Incidental prostate cancer detected in cystoprostatectomy specimens in patients treated with radical cystectomy for bladder cancer

Charalampos Fragkoulis, Georgios Katsagounos, Konstantinos Stasinopoulos, Georgios Stathouros, Georgios Papadopoulos, Konstantinos Ntoumas
Urology Department, General Hospital of Athens G.N.A. “G. Gennimatas”

Abstract

Introduction: Prostate cancer (PCa) is a major global health concern as it is the most frequently diagnosed malignancy in both Europe and USA with greater proportion in elder men. Bladder cancer is the second most common malignancy of the urinary system after PCa. The purpose of this article is to report the prevalence, the characteristics and the clinical significance of incidental PCa in bladder cancer patients treated with radical cystectomy in our department.

Methods: We reviewed data from 64 patients who underwent radical cystectomy during the years 2012 and 2013 in our department. Prostate cancer was described as clinical significant when there were positive surgical margins, extraprostatic extension, Gleason score > 6 or tumor volume $\geq 0.5 \text{ cm}^3$.

Results: Incidental PCa was diagnosed in 22 patients (34.3%), 16 were diagnosed with Gleason score 6 disease (72.7%), 5 with Gleason score 7 (22.7%) and 1 with Gleason score 8 (4.6%). The mean age of PCa patients was 70.1 years. Extraprostatic extension was present in 2 patients (9.2%) and positive surgical margins in one patient (4.6%). Moreover in 2 patients the PCa tumor volume was above 0.5 cm$^3$. As a result, 8 patients were diagnosed with clinical significant incidental PCa.

Key words
prostate cancer; bladder cancer; radical cystectomy

Citation

Corresponding author:
Charalampos Fragkoulis, Thessalias 24b street, Kato Halandri, Athens E - mail: harisfrag@yahoo.gr
Incidental prostate cancer detected in cystoprostatectomy specimens in patients treated with radical cystectomy for bladder cancer, p. 38-42

**Introduction**

Prostate cancer (PCa) has become a major global health concern as it is the most frequently diagnosed malignancy in both Europe and USA with greater proportion in older men. Established risk factors include increasing age, ethnic origin and heredity. Although the frequency of incidental detected cancers is the same among different parts of the world, the incidence of clinical PCa differs widely and exceeds the prevalence of the incidental PCa. In general, the vast majority of incidental prostate tumors are small, organ confined and considered to be clinically insignificant as the most of them will not affect the overall survival of the patient.

Bladder cancer is the second most common malignancy of the urinary system after PCa. It is estimated that 78% of bladder cancer cases are diagnosed in patients of age 55 years and older and 70% of patients present with non muscle invasive disease and have a fairly good prognosis. As far as it concerns treatment for non muscle invasive bladder cancer, in all T1 tumors at high risk of progression or when we come across failure of intravesical treatment radical cystectomy is a valid option. On the other hand, when muscle invasive bladder cancer is diagnosed, radical cystectomy is the gold standard treatment providing a 5 year survival of 50%. In men, standard radical cystectomy includes removal of the bladder, prostate, seminal vesicles, distal ureters, and regional lymph nodes.

The purpose of this article is to report the prevalence, the characteristics and the clinical significance of incidental PCa in bladder cancer patients treated with radical cystectomy in our department.

**Material and Methods**

We reviewed in a retrospective way the data from 64 male patients who underwent radical cystectomy as treatment for bladder cancer during the years 2012 and 2013 in our department. No patients with known history of PCa were excluded. Moreover, all patients where the bladder and the prostate were not fully removed were also excluded. Incidentally detected prostate cancer in the cystoprostatectomy specimens was classified into two groups according to clinical significance of the disease as clinical significant or insignificant. Prostate cancer was described as clinical significant when there were positive surgical margins, extraprostatic extension, Gleason score more than 6 or tumor volume bigger than 0.5 cm³ (Table 1). A typical pathological examination was performed in each cystoprostatectomy sample with the prostate being separated from the bladder, weighed separately, inked and fixed in 10% formalin. All patients were regularly followed up in order to detect primary bladder cancer recurrence or metastasis by computer tomography scan (CT) every six months for the first year after the operation and then annually. Moreover, patients where incidental PCa was also diagnosed were scheduled for serum PSA evaluation at every six months for the first postoperative year and thereafter twice each year. Biochemical recurrence was defined as two consecutive PSA values above 0.2 ng/dl.

**Results**

The mean age of patients who underwent radical cystectomy as treatment for bladder cancer was 69.2 years. As far as it concerns histopathological characteristics, 5 patients presented with stage pT1 bladder cancer, 28 with pT2, 19 with pT3 and 12 with pT4 (Table 2). Incidental PCa was diagnosed in 22 patients...
More specifically, from the total of 22 PCa patients, 16 were diagnosed with Gleason score 6 disease (72.7%), 5 with Gleason score 7 (22.7%) and 1 with Gleason score 8 (4.6%). The mean age of patients where PCa was detected was 70.1 years. Extraprostatic extension was present in 2 patients (9.2%) and positive surgical margins in one patient (4.6%). Moreover in 2 patients the PCa tumor volume was above 0.5 cm³. As a result, 8 patients were diagnosed with clinical significant incidental PCa (36.8%)

### TABLE 3

<table>
<thead>
<tr>
<th>Number of patients</th>
<th>22 (34.3%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>70.1 years (range 58-82)</td>
</tr>
<tr>
<td><strong>Pathologic stage</strong></td>
<td></td>
</tr>
<tr>
<td>pT2a</td>
<td>15 patients (68.1%)</td>
</tr>
<tr>
<td>pT2b</td>
<td>3 patients (13.5%)</td>
</tr>
<tr>
<td>pT2c</td>
<td>2 patients (9.2%)</td>
</tr>
<tr>
<td>pT3</td>
<td>2 patients (9.2%)</td>
</tr>
<tr>
<td><strong>Gleason score</strong></td>
<td></td>
</tr>
<tr>
<td>Gleason 6</td>
<td>16 patients (72.7%)</td>
</tr>
<tr>
<td>Gleason 7</td>
<td>5 patients (22.7%)</td>
</tr>
<tr>
<td>Gleason 8</td>
<td>1 patient (4.6%)</td>
</tr>
<tr>
<td><strong>Surgical margins</strong></td>
<td></td>
</tr>
<tr>
<td>positive</td>
<td>1 patient (4.6%)</td>
</tr>
<tr>
<td>negative</td>
<td>21 patients (95.4%)</td>
</tr>
<tr>
<td>Tumor volume &gt; 0.5 cm³</td>
<td>2 patients (9.2%)</td>
</tr>
<tr>
<td>Clinical significant prostate cancer</td>
<td>8 patients (36.8%)</td>
</tr>
</tbody>
</table>

Histologic criteria where used to describe incidental PCa as clinical significant including positive surgical margins, extraprostatic extension, Gleason score more than 6 or tumor volume bigger than 0.5cm³ (Table 3). No death related to PCa was recorded during follow up until the present day although 2 patients received adjuvant hormonal therapy.

**Discussion**

Incidental PCa is diagnosed in patients without prior symptoms related to the disease or suspicion after PSA tests or physical examination. Several studies have reported incidental PCa detection rates in radical cystectomy specimens ranging from 14%–60%¹⁰,¹¹. These variable detection rates among studies may be probably explained by the differences among sampled populations as well as the different methods of pathologic evaluation. For example, a lower incidence is reported in studies using 5 mm or 4 mm thick slices during the examination of prostate specimens¹²,¹³. On the other hand, the highest prevalence was recorded by Winkler et al who reported a rate of 60% using 2 mm thick slices¹⁴. In our study the detection rate of incidental PCa was 34.3% using a typical pathologic examination using 4-5 mm slices, results comparable with the data of many European studies¹⁴,¹⁵.

Histologic criteria where used to describe incidental PCa as clinical significant including positive surgical margins, extraprostatic extension, Gleason score more than 6 or tumor volume bigger than 0.5cm³ (Table 1). All tumors that do not meet the above criteria are thought to be clinically insignificant with low biological tumor risk and thus unlikely to cause any risk to the patients’ health and survival. As a result, we discovered 8 patients with clinical significant PCa (36.8%). The rate of clinically significant PCa in similar studies is from 14% to 53% also influenced by sampled populations and histopathology protocols¹⁰,¹⁶.

The possible relation of PCa and bladder cancer is described in several studies and may be explained by genetic factors as p53 and Rb genes pathology³,¹⁷. During the median follow up time of 28 months, prostate cancer specific survival was 100%. On the other hand, 13 patients (20.3%) died from bladder cancer without any implication of PCa. In general, the combination of prostate and bladder cancer does not influence patients’ survival and prognosis³. Moreover, patients with bladder cancer and incidentally discovered PCa
are not in a higher risk of death than patients suffering only from bladder cancer\(^1\)\(^8\). On the other hand, Buse et al reported that concomitant PCa is an independent prognostic factor for mortality after radical cystectomy for bladder cancer\(^1\)\(^9\). Our study shows no influence of incidental PCa in overall survival but detection rates of PCa are high (36.8%). As a result, these patients should be placed in a close follow up with PSA test as they may need adjuvant therapy in the future.

**Conclusion**

In conclusion, incidental clinical significant PCa is often discovered in radical cystectomy specimens. As a result, all patients with concomitant PCa should be regularly monitored by PSA tests even if there are no strong evidence suggesting that their overall survival or their cancer specific survival is negatively affected. Moreover, it would be of great interest to perform a study in which the features of incidentally detected PCa are compared with those of PCa found in currently applied screening programs.

**Conflicts of interest**

The authors declared no conflicts of interest.
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References