Incidental prostate cancer prevalence in the Dr. Manuel Gea González General Hospital: a twenty-year review


ABSTRACT

There are 185,000 new prostate cancer (CaP) cases reported annually and of those, depending on the series reviewed, 4-20% are incidental carcinomas. Prostate-specific antigen (PSA) is the most sensitive diagnostic method for identifying those patients with CaP probability. However, PSA levels can also be elevated in 16-86% of patients with benign prostatic hyperplasia (BPH).

Incidental prostate cancer (ICaP) is that which is unexpectedly found when examining, under microscope, resected tissue that has been diagnosed as benign.

The present study evaluated ICaP prevalence and identifiable risk factors in patients at our institution.

In a cross-sectional study, histopathology department case records of BPH patients having undergone either transurethral resection of the prostate (TURP) or open prostatectomy (OP) within the time frame of January 1988 to June 2008 were reviewed in order to identify ICaP cases.

There were a total of 953 BPH surgeries, 819 of which were TURP and 134 were OP. Mean age was 71 years and mean PSA was 5.8ng/dl. ICaP was found in 21 patients, resulting in a 2.20% prevalence.

RESUMEN

Existen reportados 185,000 nuevos casos de cáncer de próstata anualmente y de éstos, entre 4% a 20%, dependiendo de la serie revisada, son carcinomas increntales.

El antígeno prostático específico es el método diagnóstico más sensible para identificar aquellos pacientes con probabilidad de cáncer de próstata, sin embargo, puede encontrarse elevado en 16% a 86% de los pacientes con hiperplasia prostática benigna.

El cáncer incidental de próstata es aquel que es descubierto casualmente en el examen microscópico del tejido resecado bajo el diagnóstico de benignidad.

En este estudio valoramos la prevalencia del cáncer incidental de próstata en nuestra institución, y los factores de riesgo que pudieran ser identificables.

Se trata de un estudio descriptivo, en el que se revisaron los registros históricos del departamento de histopatología, de pacientes con hiperplasia prostática benigna sometidos a cirugía en el periodo de enero de 1988 a junio de 2008, por resección transebral de próstata o por prostatectomía abierta para identificar los casos con cáncer incidental de próstata.
In conclusion, ICaP is not a worldwide public health problem and it is reduced by adequate biopsy patient selection.

**Key words:** Incidental prostate cancer, prostate cancer, Mexico.

**INTRODUCTION**

Today prostate cancer (CaP) is being more frequently diagnosed in asymptomatic patients with localized disease. Thanks to early diagnosis, it is becoming more common to discover focal or incidental prostate cancer. In effect, a population group has been formed by patients with obstructive lower urinary tract symptoms that are apparently a consequence of benign prostatic hyperplasia (BPH). These patients do not present with clinical suspicion upon digital rectal examination (DRE) and even have normal prostate-specific antigen (PSA) values. On the other hand, there may be cases of patients who have undergone one or more series of transrectal biopsy because they have presented with changes in DRE or PSA levels, but histological biopsy studies do not identify neoplastic alterations.

Significant change in CaP presentation has come about in recent years with the introduction of PSA as a tumor marker. Despite the fact that PSA is the most sensitive diagnostic method for identifying CaP, it may also be elevated in 16-86% in BPH patients.

Incidental prostate cancer (ICaP) can be defined as cancer which lacks apparent neoplastic symptoms and that, after prostate surgery, is unexpectedly discovered under microscopic examination of resected tissue that had been previously diagnosed as benign.

According to reports in the international literature, ICaP is detected in histopathological studies of 4-20% (10% average) of patients operated on for BPH. It has also been reported that patients having undergone radical cystoprostatectomy have an ICaP presentation frequency of 28-61%.

In a study published in early 2008, ICaP prevalence in healthy deceased donor population was reported to be 12%.

According to the American Joint Committee on Cancer (AJCC 2002) TMN staging, incidental prostate adenocarcinoma may be classified as T1a in neoplasms with a tumor volume lower than 5% of the resected tissue and as T1b in neoplasms with a volume greater than 5%.

It is worth mentioning that even though these tumors are classically considered to be low volume, low grade and low progression potential tumors, 33% of these patients may present with stage T1b tumor progression at 4 years and from 16% to 27% with stage T1a at 8 and 10 years.

When ICaP is confined to the prostate, it is potentially curable with radical prostatectomy or radiotherapy in the majority of cases. In certain cases, other management may be indicated.

**OBJECTIVE**

The objective of the present study was to determine ICaP prevalence in patients treated at the Dr. Manuel Gea González General Hospital from January 1988 to June 2008 and to find out if presentation frequency was similar to that reported in the literature as well as to identify risk factors.
MATERIALS AND METHODS

A cross-sectional study was carried out.

A total of 953 case reports were reviewed from the hospital histopathological archive of preoperatively diagnosed BPH patients who underwent either transurethral resection of the prostate (TURP) or open prostatectomy (OP) from January 1988 to June 2008.

Sample size \( n=68 \) was established inferring a 20% \( \text{ICaP} \) frequency with a 0.90 test potency and type I error below 0.05%. The sample was divided into 2 groups according to surgical treatment \( n=68, 34 \text{ for TURP and 34 for OP} \) in order to establish comparisons.

Final \( \text{ICaP} \) diagnosis was based on the histopathological report.

General archive case records were reviewed to complete information and data was classified as follows:

1. **Preoperative data**: Age at time of surgery and obstructive irritative lower urinary tract symptom (LUTS) progression time expressed in months were established. When there was no acute urinary retention (AUR) at time of diagnosis, results from International Prostatic Symptom Score (IPSS) and maximum flow rate (QMax), taken at hospital admittance, were identified. DRE, preoperative PSA and free PSA in ranges of 4–10 ng/dl were obtained. PSA density and ultrasound-determined prostatic volume were identified in patients that had undergone transrectal prostate biopsy.

2. **Histopathological ICaP group data**: Gleason scale, grams of surgical specimen or resected tissue and percentage of referred tumor were identified.

3. **Postoperative ICaP group data**: TNM 2002 staging for T1a or T1b and indicated oncological management were identified.

**Inclusion criteria** were: Histopathological report for patients with supposed BPH diagnosis who responded unfavorably to pharmacological treatment and required surgical treatment at our institution between January 1988 and June 2008 and who had not had previous prostate surgery.

**Exclusion criteria** included: TURP patients previously diagnosed with CaP, patients treated with other surgical techniques or who had non-analyzable prostate tissuesample, functional/palliative TURP patients highly suspected of presenting with CaP but with no histopathological confirmation, histopathological studies of surgeries not performed at our institution, case records lacking preoperative data in both groups and lack of previously mentioned postoperative and histopathological data in the ICaP group.

Data validation was carried out with descriptive statistics using measures of central tendency and dispersion and chi-square test.

RESULTS

A total of 953 reports were evaluated. TURP was performed in 819 cases (85.9%) and OP in 134 (14.1%). A total of 21 ICaP cases were registered resulting in a 2.20% frequency over a period of 20 years with a mean 1.05 cases/year. Of the 21 ICaP cases, 4 were eliminated for lack of complete information with which to carry out statistical analysis.

Each ICaP case was paired with 3 controls \( n=68 \) in order to compare both groups.

Control group mean age was 71.57 years (SD ± 9 years) and mean PSA was 5.8 ng/dl (SD ± 3.6). PSA was >4 ng/dl in 61.7% of cases and free PSA <25% in 36.7%. There was preoperative AUR in 59% of patients and mean LUTS progression was 40 months (SD ± 29 months).

Mean IPSS was 22 points (SD ± 4.6 points) in patients not presenting with AUR and 82% of them obtained a score above 19.

Mean maximum urinary flow (QMax) was 7.6 ml/sec (SD ± 2.4 ml/sec) and DRE was not suspicious in any of the patients.

Ultrasound-guided prostatic biopsy was carried out in 45.6% of patients with PSA>4 ng/dl and free PSA<25%. Mean prostatic volume determined by transrectal ultrasound was 69 g (SD ± 26.4).

PSA density was >0.15 in 19.12% of patients. Mean overall grams resected after surgery was 58 g (SD ± 18). Mean resected grams with OP was 90 g (SD ± 51) compared with 26 g with TURP (SD ± 32).

DESCRIPTION OF INCIDENTAL PROSTATE CANCER CASES

Characteristics of ICaP group were: mean age of 76 years (94–51 year range), mean LUTS progression of 29 months (2–120 month range), 76% of patients presented with AUR and remaining patients had mean 20 point IPSS (19–22 point range). Mean Qmax was 6.3 ml/sec and DRE was unsuspicous in all patients. Mean PSA was 5.7 ng/dl (2.1–9.4 ng/dl) and PSA was >4 ng/dl in 70%. Mean free PSA <25% was identified in 59% of cases. Biopsy was not performed in 41% of ICaP cases because they did not meet procedure criteria, but was carried out on the remaining 59%. Seventy percent of those patients underwent one biopsy series and 30% underwent two series.

Mean prostatic volume reported by transrectal ultrasound was 63 g (39–120 g range), and mean PSA...
density was 0.14 (0.05-0.19 range). Mean grams resected was 40 g (10-80 g range) and mean surgical technique distribution was 29 g for TURP and 50 g for OP.

Mean Gleason scale histological data was 5 (4-10 range). Tumor staging by percentage was 59% for T1a and 41.1% for T1b (Image 1).

Established oncological management distribution for this group was as follows: 17.6% of patients underwent radical prostatectomy, 30% were kept under strict surveillance, 46.4% were treated with maximum androgen blockade and 6% were managed with external radiotherapy (Image 2).

Mean Gleason sum distribution in relation to established oncological management type was 4.6 for radical prostatectomy (r= 4-6), 4.4 for strict surveillance (r= 4-6), 7.5 for maximum androgen blockade (5-10) and 4 for external radiotherapy (Image 3).

Of the 17.6% patients that underwent radical prostatectomy, Gleason sum reported at the time of ICaP diagnosis was different from that of the surgical specimen in 66%. The final Gleason grade result was higher. Tumor stage was modified from T1a in 100% of cases to definitive stage T2b in 34% and to T2c in the remaining 66%.

Logistic regression analysis was carried out to search for factors associated with ICaP. For patients with no urinary catheter at the time of surgery, relative risk (RR) was 2.88 with a 95% CI (0.7447– 13.6297, P=0.08).

RR was 3.08, 95% CI (0.8624–11.7544, P=0.04) for patients ≥ 75 years of age.

RR was 1.68, 95% CI (0.4584– 6.9771, P=0.38) for PSA>4ng/dl, RR was 1.28, 95% CI (0.3488– 4.5048, P=0.66) for free PSA<25% and RR was 2.04, 95% CI (0.5840– 7.3665, P=0.20) for PSA density >0.15 (Table 1 and Image 4).

Table 2 shows general characteristics of both the case and control groups.

## DISCUSSION AND CONCLUSIONS

According to the Mexican National Register of Malignant Neoplasms, prostate cancer is the second cause of death from cancer in men, surpassed only by lung cancer, with 3,766 deaths per year and a rate of 11.9 per 100,000 inhabitants.22 The most affected group is men over 65 years of age and they are usually diagnosed in advanced stages.

Incidental prostate cancer has not been identified as a public health problem in Mexico. However, because it can go undetected due to patient clinical characteristics and biological characteristics of this type of neoplasm, it has important repercussions in the correct and opportune medical attention given to the patient with this pathology. Adequate selection of patients that require prostatic biopsy reduces ICaP incidence. The present study showed a lower incidence than that reported in the international literature.
The possibility of presenting with ICaP should be considered in patients over 75 years of age that have undergone biopsy, have a PSA density >0.15 and have preoperative BPH diagnosis. Patients that have undergone one series of prostatic biopsies with negative results, but with suspicion of CaP, should undergo new biopsies taken at the transition zone.

In conclusion, in the present study mean incidental prostate cancer rate in patients that had undergone prostate surgery was 2.20%. There was no significant difference in ICaP prevalence between groups in relation to the two surgical techniques employed (TURP and OP). Gleason grade was well-differentiated and tumor stage was T1a in the majority of tumors detected.

**BIBLIOGRAPHY**


12. Ferreira A, Harve S, Skjøtt. Follow-up of localized prostate cancer, with emphasis on previous undiagnosed incidental cancer. BJU International 1999; 83:47-52.

