



Surgical and oncological results of radical prostatectomy: experience of 7 years at the *Hospital General de Occidente*

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■ ABSTRACT

Background: Prostate cancer is the principal cancer diagnosis in men and the second cause of death by cancer in men in the United States. It is in 4th place worldwide in frequency but corresponds to only 9% of all cancer-specific deaths in men. Radical prostatectomy is the most widely used therapy for the treatment of organ-confined disease and in select cases of nodular disease or its possibility. It is considered to be the criterion standard in relation to other alternatives such as radiotherapy, brachytherapy, high-intensity focused ultrasound, and watchful waiting.

Objective: To demonstrate the experience in the authors' hospital department in prostate cancer treatment and to report the similarity of results with published standards in relation to surgical outcome and oncological disease follow-up.

Resul A total of 80 patients that underwent radical prostate surgery were evaluated. Mean age was 61.5 years (46-74 year range), mean surgery duration was 250 minutes, patients requiring transfusion was 40%, patients requiring 1 transfusion bag was 80%, 2 transfusion bags

■ RESUMEN

Antecedentes: El cáncer de próstata es el principal diagnóstico de cáncer en el hombre y la segunda causa de muerte por cáncer en varones en los Estados Unidos. A nivel mundial, ocupa el cuarto lugar de frecuencia en los hombres, pero sólo corresponde a 9% de todas las muertes cáncer específicas en el hombre. La prostatectomía radical es la terapia más utilizada en todo el mundo para el tratamiento de la enfermedad órgano-confinada y, en casos particulares, con enfermedad nodular o la posibilidad de ésta, tan es así que se considera el *estándar de oro*, por encima de las otras alternativas como radioterapia, braquiterapia, HiFU o el mismo *watchful waiting*.

Objetivo: Mostrar la experiencia de nuestro centro, en el tratamiento del cáncer de próstata, así como reportar la equiparabilidad de nuestros resultados con los estándares publicados ya sean resultados quirúrgicos o en el seguimiento oncológico de la enfermedad.

Resultados: Se evaluaron 80 pacientes sometidos a la cirugía radical de la próstata con una edad media de 61.5 años (46 a 74). El tiempo quirúrgico promedio fue

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20%, mean hospital stay was 72 hours, intraoperative hemorrhage was 280-1500 cc, deep vein thrombosis incidence was 3%, pulmonary thromboembolism was 1.25% and there was 1 death. The most prevalent preoperative or diagnostic prostate specific antigen was 6.2 ng/mL. Transrectal biopsy of the prostate Gleason score was 3+3, positive lymph node suspicion was 7.5% in patients according to Partin, predominant Gleason score in surgical specimen was 3+2, and 5% of specimens had positive margins. There was correlation between transrectal biopsy of the prostate and final specimen Gleason scores in only 27% of cases. Postoperative prostate specific antigen was underestimated in 31% of patients and overestimated in 42%. In the first year 92% of patients had postoperative prostate specific antigen under 0.4 ng/mL and 8% did not reach that nadir. During the first year 92% of patients continued to have prostate specific antigen values under the nadir and 8% had biochemical recurrence. The second year the change was slight in which prostate specific antigen value in 90% of patients did not go above the nadir and 10% continued in biochemical failure but under 1.5 ng/mL. In the third year of follow-up, prostate specific antigen of 90% of patients continued under the nadir but of the 10% in biochemical failure, two patients had prostate specific antigen above 1.5 ng/mL and bone metastases was seen with scintigram in one patient. In the fourth year of follow-up 80% of patients had prostate specific antigen values under 0.4 ng/mL and 20% were over that figure. At five years, 75% of patients had unchanged prostate specific antigen, 25% reached biochemical failure, but only 2 patients continued to have prostate specific antigen above 1.5 ng/mL. The death of one of those patients was related specifically to prostate cancer.

Conclusions: Radical prostate surgery at the authors' hospital is the most widely used treatment for organ-confined disease. Reproducibility and perfection of this technique have resulted in tangible improvements in surgical results (shorter hospital stay, intraoperative and perioperative complication reduction, improved vascular control and thus lower blood transfusion rate and a reduction in intraoperative hemorrhage) as well as in oncological results that are reflected in better patient selection, positive margin reduction, and early identification of high risk patients for metastatic progression or nodular disease.

Key words: Prostate cancer, treatment, complications.

(250 minutos), pacientes transfundidos, 40%; número de paquetes: uno (80%), dos (20%); tiempo de estancia intrahospitalaria promedio: 72 horas; hemorragia transoperatoria (280 mL a 1500 mL), incidencia de TVP en nuestro grupo: 3%. Tromboembolia pulmonar, 1.25% muerte una. El APE pre-quirúrgico o al momento del diagnóstico más prevalente fue de 6.2 ng/mL. Gleason en BTRP (3 + 3) sospecha de ganglios positivos (7.5% pacientes según Partin), Gleason predominante en pieza quirúrgica (3 + 2); cuatro piezas con márgenes positivos: 5%. Sólo en 27% de los casos, se correlacionó el Gleason de BTRP y la pieza final; 31% se subestimó y 42% se sobrestimó APE pos-cirugía el primer año, 92 pacientes estuvieron abajo de 0.4 ng/mL, 8% no llegaron a este nadir. Al primer año continuó en 92% para el grupo de debajo del nadir y 8% en recidiva bioquímica, al segundo año, se modificó de manera mínima; 90% de los pacientes no sobrepasaron el nadir; 10% continuaron en falla bioquímica pero bajó 1.5 ng/mL para el tercer año de seguimiento, y la sobrevida continuó 90% debajo de nadir pero de 10%, dos pacientes elevaron su APE por encima de 1.5 ng/mL y en uno se demostró metástasis óseas por gammagrafía. Para el cuarto año de seguimiento, 80% de los sujetos mostraron cifras inferiores al 0.4 ng/mL y 20% rebasaban ésta cifra. A los cinco años, 75% (60) de los pacientes permanecieron sin alterar su APE, 25% llegó a la falla bioquímica pero sólo dos casos continuaron con APE por arriba de 1.5 ng/mL y finalmente, uno de estos dos casos falleció con relación específica al cáncer prostático.

Conclusiones: La cirugía radical de la próstata ha demostrado en nuestro centro ser la terapia más utilizada en el tratamiento de la enfermedad órgano confinado. La reproducibilidad de esta técnica y el perfeccionamiento de la misma, ha permitido mejoras tangibles tanto en los resultados quirúrgicos (menor estancia intrahospitalaria, reducción de la tasa de complicaciones trans y perioperatorias, mejor control vascular y por lo tanto, menor tasa hemotransfusional y disminución de la hemorragia transoperatoria), así como en los resultados oncológicos, que se reflejan en: una mejor selección de los pacientes, reducción de los márgenes positivos, identificación temprana de los pacientes de alto riesgo para la progresión metastásica o de enfermedad nodular de los pacientes.

Palabras clave: Cáncer de próstata, tratamiento, complicaciones, México.



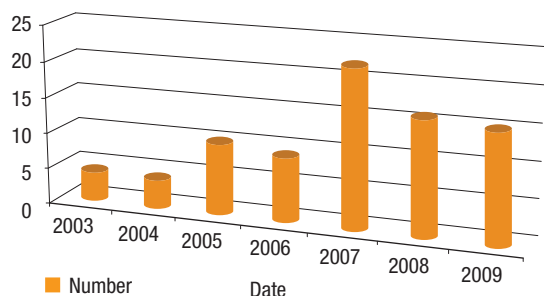


Image 1. Number of radical prostatectomies per year.

■ BACKGROUND

There is no clinical evidence and there are no randomized, double-blind studies that compare surgical treatment with other therapeutic alternatives for prostate cancer (CaP). The guidelines put out by the American Urological Association (AUA) and the European Urological Association (EUA) suggest that radical prostatectomy, in any of its modalities, is the alternative that offers the most surgical tumor control by removing the entire prostate, and when necessary, the lymphatic chains involved in local disease extension.¹⁻³ In addition to eliminating symptoms of benign prostatic hyperplasia (BPH), there is better molecular and cellular study of disease behavior, external conformational radiotherapy complications are avoided, and oncological control varies from 75-90% for the first 5 years, and 65-70% at 15 years.^{4,5} Several series have also demonstrated that the psychosocial impact from knowing that the tumor was completely extirpated has improved patient confidence and in turn, quality of life.⁶ It is most relevant to know how these parameters, in regard to knowledge of the disease and procedure and disease monitoring in Mexico, compare on an international scale.

The objective of the present article is to share the experience in the authors' medical center with CaP treatment and to report on the comparability of these results with published standards of surgical results as well as oncological disease follow-up.

■ METHODS

A retrospective study of case records of 87 patients having undergone radical prostatectomy (RP) at the authors' institution from April 2003 to August 2009 was carried out. The demographic results analyzed were: age, comorbidities, and pathological variables.

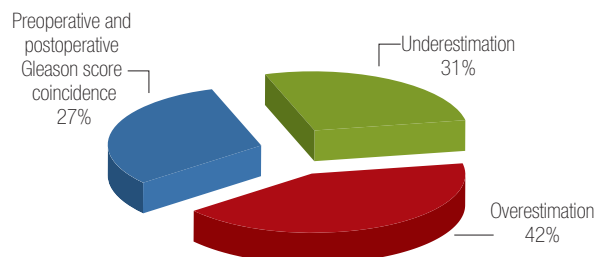


Image 2. Gleason score correlation in percentage; red: 42%, overestimation; green: 31%, underestimation; blue: 27%, preoperative and postoperative Gleason score coincidence.

Diagnosis was based on prostate specific antigen (PSA), Gleason score determination from transrectal biopsy of the prostate (TRBP) and preoperative positive lymph node probability. Variables of intraoperative and postoperative complications, surgery duration, transfusions, deep vein thrombosis, pulmonary thromboembolism episodes, and oncological follow-up were analyzed. The follow-up variables analyzed were disease stage, Gleason score of surgical specimen, positive margins, postoperative PSA, nadir, PSA doubling time, corroboration of positive lymph node suspicion, and biochemical failure development and management. Micturition parameters of incontinence index and bladder neck contracture were also analyzed.

■ RESULTS

Eighty cases of patients having undergone radical prostatectomy (RP) were evaluated. Mean age was 61.5 years (46-74 year range). In 2003, four patients underwent repeat surgery and in 2007 this figure increased five-fold (**Image 1**).

The most frequent comorbidity was systemic arterial hypertension with a prevalence of 28%, followed by diabetes mellitus with a prevalence of 21.5%, and a 5% prevalence of others.⁷⁻⁹

Surgery duration was a mean 250 minutes. Forty percent of patients required transfusion, 80% of them needed one bag and 20% two bags. Mean hospital stay was 72 hours. Intraoperative hemorrhage was from 280-1500 mL. Deep vein thrombosis presented in 3%, pulmonary thromboembolism in 1.25% and death in one case.^{1,7,9-13}

The most frequent PSA value before surgery or at the moment of diagnosis was 6.2 ng/mL (75%).^{11,14-16} Gleason value in TRBP was (3 + 3) and there was

suspicion of positive lymph nodes in 7.5% of patients (according to Partin table). Predominant Gleason score in surgical specimen was 3 + 2. Four specimens (5%) had positive margins. There was correlation between Gleason TRBP value and final specimen in only 27%; 31% were underestimated and 42% were overestimated^{11,17,18} (**Image 2**).

Postoperative PSA was under 0.4 ng/mL in 92% of patients during the first year. 8% of them did not reach this nadir. At the end of the first year 92% of patients continued under the nadir and 8% continued in biochemical recurrence. There were a minimum of modifications in the second year with 90% of patients not going over the nadir and 10% in biochemical failure but under 1.5 ng/mL. In the third year of follow-up, PSA values of 90% of patients continued under the nadir but of the 10% in biochemical failure, two patients had PSA values above 1.5 ng/mL and scintigram revealed bone metastases in one patient. In the fourth year of follow-up 80% of patients had PSA values under 0.4 ng/mL and 20% were over that figure.

At five years, 75% of patients (60 patients) had unchanged PSA, 25% reached biochemical failure, but only 2 patients continued to have PSA above 1.5 ng/mL. The death of one of those patients was related specifically to prostate cancer^{17,20-25} (**Image 3**).

For the cases classified as biochemical failure and with positive bone scintigram, one patient was treated with docetaxel and the other with intermittent androgen block with analgesics. There were positive lymph nodes after lymphadenectomy in 5% of the total sample. In the authors' group there was 1 cancer specific death and 5 deaths in patients with cancer but who died from other causes. There was one intraoperative complication due to acute myocardial infarction and another due to pulmonary thromboembolism. Urethrosical catheter was left in place for a mean 11.38 days. There was incontinence in 10% of patients and the mean interval of time for returning to continence was 4-6 months. Bladder neck contracture incidence was 22%.^{1,4,7,8}

■ DISCUSSION

Radical prostatectomy is the most commonly performed treatment for organ-confined disease in the authors' hospital. In some individualized cases it is rescue and tumor load reduction procedure. The authors' results showed it to be a feasible procedure because only 4 procedures were performed during the first year, whereas this figure had tripled by the fourth year, and half the total number of cases were operated on in the last two years. Thorough evaluation of each patient continues to be the best diagnostic resource and includes PSA, DRE and TRBP which are clinical and diagnostic elements for

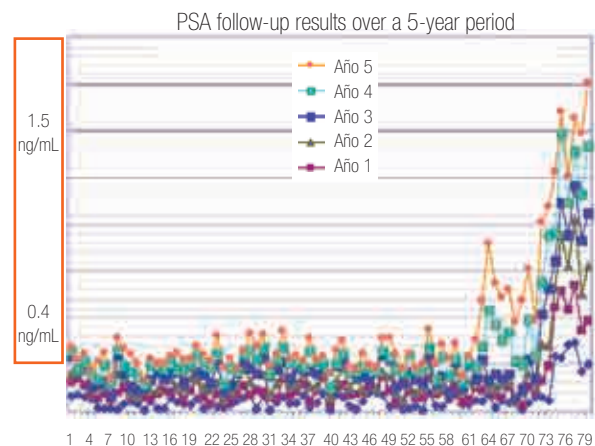


Image 3. PSA follow-up results over a 5-year period.

opportunistic disease detection^{14,16} so that the possibility of cure can be attained through radical prostate surgery. Hospital stay is not lengthy, allowing patients to return to their normal activities more quickly.

Unfortunately, blood loss continues to be one of the biggest disadvantages in retropubic surgery, along with resulting blood transfusion consequences.^{7,10}

Intraoperative and postoperative complications are the same complications that can occur in any pelvic surgery and in the authors' series they presented at a low percentage. Systemic arterial hypertension and diabetes mellitus are the two most frequent comorbidities associated with CaP.⁹

Variations in Gleason scores in TRBP and final specimen lead to questions about the technique and thoroughness with which the pathology specimen should be analyzed, given that the correlation percentage is minimal.¹⁸

Correlation was nearly 100% in patients that underwent lymphadenectomy because of suspicion of positive lymph nodes; these cases are patients that presented with recurrence or positive margins and biochemical failure as well as Gleason grade of poorly differentiated tumor. The more aggressive the tumor the less possibility of cure and prognosis is aggravated and disease-free survival is reduced. Clearly, the principal objectives and benefits of radical prostate surgery are to attempt to cure and to increase disease-free survival.⁴

Biochemical failure can be defined as PSA greater than 0.4 ng/mL immediately after surgery or two consecutive PSA elevations in relation to the nadir in less than six months (defining nadir as postoperative

PSA value that is low but present in at least two samples within a one-year interval). However, evaluation of patients with biochemical recurrence is very complex and is a great challenge for the urologist.^{14-19, 23-26}

Finally, incontinence rate is dramatically reduced when the technique is perfected and disease is slight or moderate. Bladder neck contracture continues to be the most frequent postoperative consequence but it does not represent a technical challenge for the surgeon and fortunately is a low surgical risk for the patient.^{1,5,7,8,11}

■ CONCLUSIONS

Radical surgery of the prostate is the most widely used therapy in the authors' medical center for treating organ-confined CaP. Reproducibility and the perfecting of this technique have provided tangible surgical results (shorter hospital stay, reduction of intraoperative and perioperative complication rate, better vascular control and thus lower blood transfusion rate and reduction of intraoperative hemorrhage). The attained oncological results are reflected in better patient selection, reduction of positive margins,²² and early identification of high risk patients for metastatic progression or nodular disease.

The European Association of Urology guidelines state that all patients presenting with biochemical failure, whose PSA level is not above 1.5 ng/mL and who present with negative bone scintigram, can be conservatively managed with surveillance and have a disease-free life comparable to that of low-risk patients. Therefore the authors believe that the oncological results of their series are very satisfactory and offer their treatment group a disease-free life similar to that reported in experienced centers in the United States and Europe.

In addition bladder function is respected in the large majority of patients.

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