



TREATING PROSTATE ADENOCARCINOMA WITH BIOMAGNETISM

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Resumen

El cáncer de próstata es reconocido como el tumor maligno más frecuente del varón mayor de 50 años. El promedio de vida del mexicano en el año 2008 fue de 75 años, con lo que aumenta la incidencia y la mortalidad por cáncer de próstata.

Al realizar una revisión de la literatura sobre la génesis, evolución y características del Adenocarcinoma de Próstata, se puede mejorar la atención, detección y seguimiento. Entre las técnicas de atención puede ser el Biomagnetismo y el seguimiento oncológico pertinente.

Actualmente persiste la controversia sobre la técnica más adecuada de abordaje y la atención con Biomagnetismo.

Palabras Clave: Próstata, Biopsia, Tacto rectal o examen digital del recto, Gleason, Antígeno Prostático.

Abstract

Prostate cancer is recognized as the most frequently found malignant tumor in males over 50 years of age. In 2008 the average lifespan in Mexico for men was 75 years of age, which accounts for the increase in cases and mortality rate from prostate cancer in this group. Reviewing and studying the available literature on the origins, evolution and characteristics of Prostate Adenocarcinoma, can improve care, detection and monitoring. Among the techniques used to provide care are Biomagnetism and the appropriate oncology monitoring procedures for cancer. There is still controversy over which is the best technical approach for the ailment and the care that can be provided through Biomagnetism.

Keywords: Prostate biopsy, DRE or digital rectal exam, Gleason, PSA test.

Introduction

Cancer originates when the cells from a part of the body start growing out of control. There are many types of cancer, but they all begin with abnormal cells growing out of control.¹⁰

The growth of cancerous cells is different than the growth of normal cells, cancerous cells continue growing, instead of dying off and form new abnormal cells.¹²

Cancerous cells are also invaders or spread to other tissues, something normal cells can't do. The fact that they grow uncontrollably and invade other tissues is what makes a cell a cancerous cell.¹⁴

Cells become cancerous cells due to an alteration in the DNA. Every cell contains DNA which controls all of its activities. When there is an alteration in the DNA in a normal cell, the cell either repairs the damage or dies off. On the other hand, cancerous cells do not repair their damaged DNA and do not die off as they should. Instead of following this process, the cancerous cell produces more cells than are needed by the body. All the new cells will contain the same damaged DNA that the first cell.^{14,15,16}

People can inherit damaged DNA, but most DNA alterations are caused by errors that happen during the normal cell's reproduction or due to some other environmental factor. Sometimes the damage to the DNA is the result of something obvious, such as smoking cigarettes. However it is not always easy to find a clear cause.^{9,11,13,15,16}

Prostate cancer is known to be the most frequently seen malignant tumor in men over 50 years of age. In Mexico, average life expectancy of a man is 75 years, increasing the incidence and mortality due to prostate cancer.



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Risk Factors

In addition to age, the main risk factors are hereditary, race and diet high in fat. Statistically, prostate cancer is the main cause of death amongst men, in Mexico 13 out of 100,000 inhabitants (0.0132) die from prostate cancer.¹⁸

The group most affected are men over 65 years. 70% of these patients pass away at home. One of the most frequent complications seen in these cases are bone metastases. 25% of cases are asymptomatic. Beginning in the decade of the 80's, diagnosis in the early stages of the disease was possible due to the introduction of the Prostate-specific antigen. Thanks to early detection it is now possible to offer potentially healing treatment.¹⁸

Diagnosis^{1,2}

The presence of high levels of prostate antigen does not mean it is prostate cancer, since neoplasia can be present with a normal antigen. The digital rectal exam continues to be an essential test, because in most cases the cancer is present in the peripheral area (there is irregularity, asymmetry and changes in the prostate).

Indications for an ultrasound guided transrectal prostate biopsy are:

Disruptions in sense of touch or prostate antigen.

Confirmation of the diagnosis with the histopathological result of the biopsy.

It is recommended that at least 10 to 12 samples are taken while the patient is under local anesthesia or intravenous sedation.

Presence of high grade intraepithelial neoplasia or proliferation of atypical acinar cell makes it necessary to repeat the procedure (in 3 or 6 months).

There are other signs and symptoms that can result from prostate cancer or other ailments:

- +Weak or interrupted flow of urine ("stops and flows")
- + Frequent urge to urinate
- +Increased urinary frequency (especially at night)
- +Difficulty initiating the flow of urine
- +Difficulty in emptying the bladder completely
- +Pain or burning during urination
- +Presence of blood in the urine or semen
- +Back, hip or pelvis pain that doesn't subside

Indications for bone scintigraphy:

- Prostate specific antigen equal or greater than 20 ng/ml
- Undifferentiated Gleason >7
- Bone pain
- Clinical phases T3 and T4

Indications for MRI or Magnetic Resonance Imaging are:

- T3 and T4 or T1 and T2 with high probability of lymph node (Gleason greater than 8 and antigen greater than 20).

Risk Factors (D'amico Classification)^{3,4}:

Low risk

- Antigen equal or under 0 ng/ml



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- Gleason equal or under 6
 - Clinical stage T1C or T2a
- Moderate Risk
- Antigen of 10 to 20 ng/ml.
 - Gleason total 7
 - Clinical stage T2b
- High Risk
- Antigen greater than 20 ng/ml.
 - Gleason total from 8 to 10
 - Clinical stage equal or greater than T2C

Treatment

In refractory cancer cases, when they have hormonal blocking⁵ after a period of 18 to 24, the patient may become refractory to it, and may present:

1. Serum levels of castration in testosterone
2. Two consecutive increases of PSA in by-weekly intervals
3. Suspension of the anti-androgenic for a period of four weeks
4. Progression of measurable lesions (of bone and soft tissues)

Chemotherapy^{5,6,7}

Antineoplastic chemotherapy is prescribed for patients with metastatic disease and refractory to the androgenic blocking. First line. Docetaxel has shown to help with survival (Recommendation Level C).

Second line. Cabazitaxel has shown to be beneficial as second treatment for those patients who later receive Docetaxel.



CLINICAL CASE

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Male client, age 52 yrs. Medical history includes, mother deceased from non-specific abdominal malignancy, father deceased due to complications of Diabetes Mellitus type 2. Important factors in medical history include: smoking of 4 cigarettes per day for 20 yrs., no alcohol consumption, no allergies, surgery and transfusions. Client reports urinary symptoms evolving during a 7 month period which include dysuria, urinary incontinence, frequent urination and urinary tenesmus. Also during that period reports abnormal prostate specific antigen with value of 20ng/dl, undergoing rectal exam and being reexamined for prostate specific antigen on April 3rd, 2013 (figure 1). Biopsy in April shows Acinar Cell Carcinoma (figure 2) and a second examination dated May 27, 2013 provides the same result (figure 3). Treatment prescribed by specialist begins with 50 mg of bicalutamide orally once a day, plus 3.8 mg goserelin administered intramuscularly once every 3 months. 0.4 mg Tamsulosin orally once a day.

Figura 1 Estudio APE proporcionado por el paciente.

paciente: C L R	Sexo: Masculino					
Fecha: 03-abr-2013 8:06 am	Edad: 52 Años					
Dirigido a:	Hoja: 1 de 1					
<table><tr><td>Proeba</td><td>Bajo (LR)</td><td>Dentro (LR)</td><td>Sobre (LR)</td><td>Limites de refer</td></tr></table>		Proeba	Bajo (LR)	Dentro (LR)	Sobre (LR)	Limites de refer
Proeba	Bajo (LR)	Dentro (LR)	Sobre (LR)	Limites de refer		
ANTÍGENO PROSTÁTICO ESPECÍFICO TOTAL EN SUERO						
Antígeno Prostático Específico Total		64.8	< 4.0	ng/mL		
Método: Quimioluminiscencia						

Figura 2 Biopsia proporcionada por el paciente.

MEXICO, D.F., a 30 de abril del 2013		
Paciente: R	C	L
Registro:		
Edad: 52 años		
Sexo: Masculino		
Especimen: Biopsias por aguja transrectales de próstata		
Quirúrgico:		
Dr.		
Presente:		
DESCRIPCION MACROSCOPICA. Se reciben ocho fragmentos alargados de tejido que oscilan de 1x0.1 cm a 1.8x0.1 cm. Son café claros, granulares y blandos. Se incluyen totalmente en capsula 1 y 2.		
DESCRIPCION MICROSCOPICA. Los cortes histológicos analizados muestran tejido prostático en la cual, los ocho fragmentos tienen una proliferación de glándulas pequeñas revestidas por una capa de células con citoplasma moderado, núcleos grandes con nucléolos aparentes. Las glándulas se disponen de manera individual, en cadenas fusionadas y en patrón cribiforme, con infiltración perineural extensa.		
DIAGNOSTICO		
BIOPSIAS TRANSRECTALES DE PROSTATA (8):		
ADENOCARCINOMA ACINAR CON SUMA DE GLEASON 9 (4+5) EL CUAL AFECTA EL 80% DE LA SUPERFICIE DE LOS OCHO FRAGMENTOS ENVIADOS. CON INFILTRACIÓN PERINEURAL EXTENSA		



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Figura 3 Biopsia proporcionada por el paciente.

Biopsia No. SJ13-35

Nombre:	C	L	R
Edad:	52 años		
Sexo:	masculino		
Médico solicitante:	Dr.		
Especimen:	Laminillas de Revisión		

DESCRIPCIÓN DEL MATERIAL

Se reciben dos laminillas en buen estado etiquetadas como Biopsias por aguja transrectales de próstata. Están etiquetadas como TJ-13 645 uno y dos. Cada una muestra tres niveles de corte teñidos con HE, correspondientes a cuatro cilindros de 1.5 x 0.1 cm cada uno de ellos.

DESCRIPCIÓN MICROSCÓPICA

En todos los fragmentos de ambas laminillas se observa una neoplasia glandular con áreas de patrón cribiforme y áreas de luces espalda con espalda. Las células que las revisten son de citoplasma moderado, núcleo grande y nucléolo muy evidente. Se observan cortes transversales de nervio, los cuales tienen infiltración neoplásica perineural.

DIAGNÓSTICO

REVISIÓN DE LAMINILLAS correspondientes a biopsias transrectales prostáticas mostrando:

- Adenocarcinoma prostático poco diferenciado con suma de Gleason 4+5 (nueve), en los ocho fragmentos observados.
- Infiltración perineural positiva

Biomagnetic Pair Scan

During the scan done following Dr. Isaac Goiz Durán's Biomagnetic Pair technique on June 24th, 2013, the following biomagnetic pairs are discovered (Table 1). There are no adverse reactions during the therapy, so a follow-up visit is scheduled one month later to reevaluate evolution. Copies of test results are requested as a point of reference upon which the following diagnosis is given (Image 2).

Table 1	Negative (-)	Positive (+)	Diameter
Pair 1	Coccyx	Coccyx	2cm
Pair 2	Kidney	Kidney	2cm
Pair 3	Thymus	Rectum	2cm
Pair 4	Stomach	Thymus	2cm
Pair 5	Temporo- occipital	Temporo- occipital	2cm
Pair 6	Sacrum Cyst	Left Kidney	2cm

Table 1 Taken from office visit



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During the next scan done July 8th, 2013, the following pairs are discovered: Kidney-Kidney, Thymus-Rectum, Transverse Colon-Liver, Temporo-occipital-Temporo-occipital and Sacrum abscess.

On the third scan done August 19, 2013 the following pairs were found: Urethra-Urethra, Scapula-Scapula, Pospineal-Bladder, Thymus-Rectum and Pancreatic Ligament-Spleen. The person reports improvement in urinary related symptoms so a Prostate Ultrasound is requested.

At the fourth scan done October 30th, 2013, the following pairs were discovered: Pospineal-Bladder, Prostate-Prostate, Armpit-Armpit, Deltoid-Deltoid and Testicle-Testicle. Client provided test results and again mentioned not having any urinary related symptoms (Image 4). It is recommended that a new prostate specific antigen test and prostate ultrasound are scheduled two months out.

Image 4 Test provided by client

Paciente: R C L
Edad: 53 años Sexo: M
Fecha: 27/10/2013 08:37
Dirigido a: Dr(a):

ULTRASONIDO
Hoja: 1 de 2

ULTRASONIDO PROSTÁTICO

Se efectuó estudio ecográfico sobre la región pélvica empleando sistema computarizado en tiempo real, con lo siguientes hallazgos:

Vejiga urinaria en repleción funcional, de paredes regulares y delgadas, en su interior se observan múltiples imágenes sólidas ecogénicas, no móviles que dependen de la pared posterior y laterales, miden 9.9 y 10.4 mm, ambas imágenes sugestivas de pólipos. Con un volumen premiccional de 329.4 cc y postmiccional de 97.6 cc y un porcentaje de retención del 29.6 %.

Próstata en situación habitual, de tamaño normal, de bordes regulares, con dimensiones aproximadas de 26.4 x 35.5 x 22.3 mm, en sus diámetros longitudinal, transversal y anteroposterior respectivamente, con un peso aproximado de 10.9 g.

Presenta una ecotextura parenquimatosa homogénea y sin patología focal o difusa demostrable por este método diagnóstico (Convencional).

Vesículas seminales de morfología y dimensiones dentro de parámetros normales, sin alteraciones en su estroma.

IMPRESIÓN DIAGNÓSTICA:

- Próstata de tamaño normal con un peso aproximado de 10.9 g, ecográficamente sin alteraciones detectables por este medio diagnóstico
- Vejiga urinaria con múltiples pólipos, con volumen de orina residual anormal de 29.6 %
- Vesículas seminales ecográficamente sin alteraciones

Comentarios: Durante el estudio se observó la presencia de abundante gas intestinal a este nivel.



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During the fifth scan on January 28, 2014 the following pairs were found: Supraespinatus-Supraespinatus, Right Shoulder-Right Shoulder, Testicle-Testicle, Kidney-Kidney and Carina-Carina. The test results from December 12, 2013 were as follows: normal sized prostate and no detectable changes in ultrasound. Other findings, the prostate specific antigen is 0.38 ng/dl. (Image 5)

Image 5 Test provided by client

Fecha:	12-dic-2013 11:13 am	Sexo:	Masculino	Edad:	53 Años	Analisis Clinicos
ANTIGENO PROSTATICO ESPECIFICO (PROMOCION)						
Antígeno Prostático Específico Total		0.38		< 4.0 ng/mL		
Método: Quimioluminiscencia						

Diagnosis:

Acinar Cell Adenocarcinoma of the Prostate Perineural Invasion

Discussion of the clinical case:

Patients with this condition may take a long time, even years before its signs and symptoms appear. Usually, after some time, the cancer may appear as an alteration in urinary function (difficulty and frequent urination, pain when urinating or incontinence) such as the case of this article. Along with these symptoms, the patient may suffer from pain in the lower back, have problems with his sex life and even expel blood in the urine or in semen. However, these physical disruptions don't always imply the presence of cancer. It is important to remember the fact that men's probabilities of suffering the disease increase with age and periodic monitoring is important (digital rectal exam or rectal exam, blood analysis or test for prostate specific antigen, urine test, ultrasound scan, prostate biopsy)^{17,18}

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Glossary:

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The Gleason Grading System is the most common system for prostate adenocarcinoma. It measures the most frequent patterns on a scale of 1 to 5 according to the degree of differentiation. The measurement ranges from 2 to 10, with the latter being the most aggressive and has the worst resulting diagnosis.^{19,21}

The prostate is the male sexual gland in charge of semen production. It is the size of a walnut and is located under the urinary bladder, surrounding the urethra. Unlike other types of cancer, prostate cancer is characterized by its slow evolution. Prostate cancer is extremely frequent, even though its exact etiology is unknown. When prostate tissue is obtained through surgery or an autopsy and analyzed with a microscopic, this type of cancer is found in 50 % of men older than 70 years and practically in all men older than 90.¹⁹

Prostate Specific Antigen Test (PSA): laboratory test that measures the concentration of PSA in blood. PSA is a substance produced by the prostate that may be found in larger amounts in the blood of men that have prostate cancer. PSA concentration may also be high in men that suffer prostate infection or inflammation or that have BPH (Benign Prostatic Hyperplasia) (enlarged prostate, but not cancerous).²²

Biopsy: extracción de células o tejidos realizada por un patólogo para observarlos al microscopio. El patólogo observa la muestra de tejido para ver si hay células cancerosas y determinar el puntaje de Gleason. El puntaje de Gleason varía entre 2 y 10, y determina la probabilidad de que el tumor se disemine. Cuanto más bajo es el puntaje, menor la probabilidad de diseminación del tumor.^{19,21,26}

Biopsy: extraction of cells or tissues performed by a pathologist so they can be observe under a microscope. The pathologist observes the tissue to check for cancerous cells and determine the Gleason grade. The Gleason grading system varies between 2 and 10, and determines the probability of the tumor spreading. The lower the score, the less the probability the tumor will spread.^{19,21,26}

The prostate transrectal biopsy is used to diagnose prostate cancer. A prostate transrectal biopsy consists of the removal of prostate tissue through the insertion of a fine needle through the rectum to the prostate. Usually, this procedure is performed with the aid of an ultrasound to help guide the needle to the site of tissue sampling. A pathologist observes the tissue under the microscope to determine the presence of cancerous cells.

Rectal Digital Exam (RDE): Also known as rectal exam. The physician or nurse , using gloves, inserts a finger covered with lubricant into the rectum and touches the prostate through the rectal wall in search of lumps or abnormal areas.²³

T Staging: The first level consists of an evaluation of the local tumor stage, during which a comparison is made between an intra-capsular disease (T1-T2) and extra-capsular disease (T3-T4) and is the most influential regarding treatment decisions. The TR frequently underestimates the extent of the tumor. A positive correlation was observed between the TR and the anatomic-pathological stage of the tumor in less than 50 % of the cases. However, the most in depth studies are only recommended in selected cases to achieve an adequate T staging and in cases in which a precise staging directly affects the decisions regarding treatment, i.e. when remedial treatment is an option.²⁴



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N Staging: N staging should only be performed when the results directly influence a decision on treatment. It usually happens in patients in which potentially curative treatments are foreseen. Such in the cases where there are high levels of PSA, when the disease is in stage T2b-T3, when there is limited differentiation of the tumor and when perineural invasion of the tumor has been associated to a greater risk of lymph node metastases. The determination of PSA grading is not useful by itself to predict the presence of lymph node metastases on a specific patient.²⁵

M Staging: In 85 % of cases where the patients die due to prostate cancer, the axial skeleton is affected. The presence and extent of bone metastases show the preciseness of the diagnoses of a given patient. A high elevation of bone alkaline phosphatase may indicate the presence of bone metastases in 70 % of affected patients. In addition, clinical effectiveness increases up to 89% when bone alkaline phosphatase and a PSA are discovered at the same time. In a prospective study, multiple regression analysis showed that the extent of the bone disease was the only variable affecting serum concentrations of bone alkaline phosphatase and PSA. However, unlike serum PSA, a statistical correlation was observed between the bone alkaline phosphatase and the extent of the bone disease.^{25,26}

Perineural Invasion: Is a frequently seen factor in cases of prostate cancer, as well as head and neck carcinoma, amongst others. Its presence in histopathological samples overshadows the prognosis for patients with these pathologies.²⁶



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