



## TREATING URINARY TRACT INFECTIONS WITH BIOMAGNETISM

David Goiz Martínez<sup>1\*†</sup> and Mario Salinas Soto<sup>1,2</sup>

\*Correspondence:

drdavidgoiz@biomagnetismo.biz  
1Departamento de Bioenergética,  
CIBM, Insurgentes 1865, 07020  
México Distrito Federal,  
MX Full list of author information is  
available at the end of the article  
†Equal contributor

### Resumen

Las infecciones urinarias son las infecciones bacterianas más frecuentes en la población anciana. Su prevalencia aumenta con la edad, puesto que el envejecimiento produce una alteración de los mecanismos defensivos frente a la infección. A esto tenemos que unir el hecho de que este grupo de población tiene una elevada comorbilidad, siendo frecuente la instrumentación y la hospitalización, lo que aumenta la nosocomialidad. Las manifestaciones clínicas son a menudo menos específicas. Además, hay que destacar el creciente aumento de resistencias bacterianas a los antibióticos.

Palabras Clave: Resistencia Bacteriana, Escherichia Coli (E.Coli), Reinfección, Recidiva.

### Abstract

Urinary tract infections are the most common bacterial infections in the elderly population. Prevalence of these infections increases with age, since aging causes a change in the defense mechanisms against infection. In addition, the fact that this population has a high comorbidity, being frequent instrumentation and hospitalization, which increases the incidence of hospital-acquired infections. Clinical symptoms are often less specific. Furthermore, we must point out the increasing bacterial resistance to antibiotics.

Keywords: Bacterial Resistance, Escherichia coli (E. coli), reinfection, relapse.

### Introduction

Urinary tract infection (UTI) is defined as the presence of pathogenic microorganisms in the urinary tract which includes the urethra, bladder, kidney and prostate. The following terms are important when discussing UTI's:

- a) Bacteriuria: the presence of bacteria in urine.
- b) High concentration bacteriuria: high number of bacteria which means the presence of a UTI and not just some kind of contamination from taking the testing sample: 100,000CFU/ml (>100 in symptomatic young women; any count taken from suprapubic puncture; >1000 symptomatic men).
- c) Asymptomatic Bacteriuria: high concentration of bacteriuria (in women, two consecutive testing samples with a concentration higher than 100,000 CFU/ml; in men, a single testing sample with a concentration higher than 100,000 CFU/ml; in persons using a urinary catheter, one single testing sample showing a concentration greater than 100 CFU/ml) with or without pyuria with no urinary symptoms.
- d) Pyuria: presence of leukocytes in urine (10 leukocytes/mm<sup>3</sup> in a microscopic evaluation or more than one leukocytes/field in the sediment). These results indicate that there is swelling in the urinary tract.
- e) Sterile pyuria: pyuria without bacteriuria. It appears in UTI's caused by microorganisms that did not show up in the urine culture when using the traditional techniques, or in noninfectious swelling processes of the urinary tract.
- f) Acute urethral syndrome: dysuria, frequency and urge of urinating without the presence of high concentration of bacteriuria.

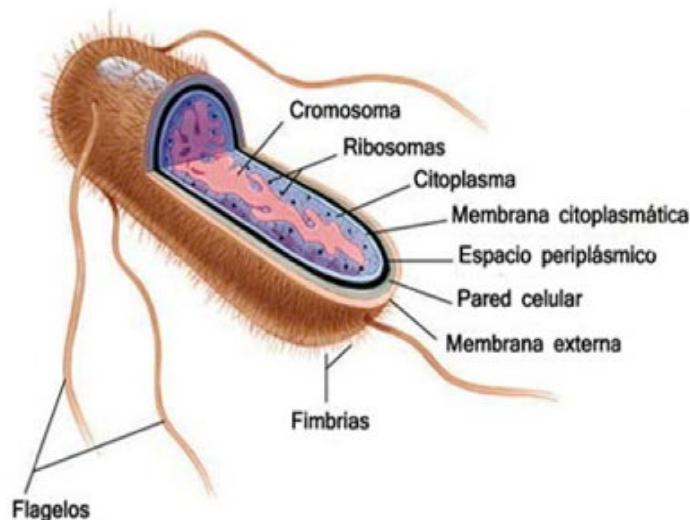
Bacteria are prokaryote microorganisms which are measured in microns (where a micron equals a thousandth of a millimeter), they do not have a nuclear membrane and can be different shapes, including spheres, canes and spirals. Since they do not have a nuclear membrane, their genetic material is organized in a single continuous strand, sometimes it's circular, and is located in the cytoplasm; have high metabolic activity and divide through binary fission.



David Goiz Martínez<sup>1\*†</sup> and Mario Salinas Soto<sup>1,2</sup>

**Escherichia Coli:** An anaerobic enteric bacteria located in the gram-negative bacilli of the Proteobacteria phylum, Escherichia genus, E. Coli species. Its main objective is to ferment glucose and lactose. It's transmitted through contaminated food and beverages; its incubation period lasts 24 to 72 hrs. and it can isolate itself in the feces of healthy and sick humans.

Image 1 Escherichia Coli



**Epidemiology:** The 2007 Epidemiology bulletin from the Mexico Ministry of Health reported a total of 3,076,468 cases of urinary tract infections, out of which 2,294,451 (74.5%) were amongst women and 749,755 (23%) were in men.

In 2013, UTI's were reported to be one of the main causes of death. In more than 90% of the cases, Escherichia Coli is said to be the main cause of these infections, followed by other types of bacteria. It is possible that the number of cases of urinary tract infections in Mexico is greater than those reported, so it is considered a public health problem.

The cases amongst adolescents is 1% - 3%, but the percentage increase as they become sexually active. UTI's are rare amongst men under 50 and common in women between 20 and 50 years of age.

**Relapse:** reoccurrence of a urinary tract infection by the same microorganism within a six week period. Causes include:

- 1.-Treatment that is too short.
- 2.-Inadequate antibiotic treatment.
- 3.-Underlying renal abnormality (lithiasis, obstruction, chronic Prostatitis).

**Reinfection:** reoccurring urinary tract infection by a different microorganism after six weeks. A urologic study is not necessary except in women who exhibit pyelonephritis or a *Proteus* caused infection (lithiasis must be ruled out).



## CLINICAL CASE

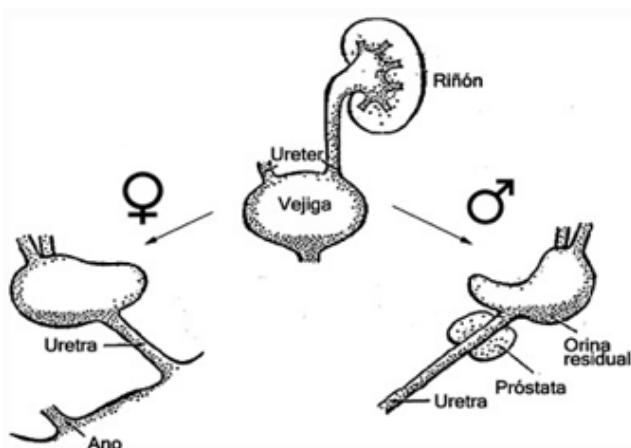
David Goiz Martínez<sup>1\*†</sup> and Mario Salinas Soto<sup>1,2</sup>

74 year old female client. History, a UTI complication due to the use of a urine catheter after undergoing an abdominal total hysterectomy, evolving in the course of 3 months, with secondary uterine fibroids and bouts of hypermenorrhea, with bilateral oophorectomy, in addition to a right side lymphadenectomy. Also reported histopathology that included an endometrial adenocarcinoma moderately undifferentiated. Client followed antibiotic treatment during hospital stay and underwent urine tests. Reported control of intermittent symptomatic urinary Escherichia Coli. At the Biomagnetism visit, the client was asymptomatic, conscious, alert and stable in all three areas, did not exhibit characteristic facies, had an adequate hydrolytic and nutritional level, there were no changes in her locomotion and no longer was using catheter. The client reported suffering from systemic arterial hypertension lasting 20 years for which she was taking a 50mg Metoprolol, 50mg Losartán and 5mg Felodipino pills, each dose every 24 hours. She is currently done with the 25 radiation therapy treatments.

During the physical check-up, client exhibited a bloated abdomen, normal peristalsis normal, without adenomegalies, dysuria, positive urethral points, negative Giordano but confirmed not having any urinary symptoms. Negative Mc Burney y Murphy points. A complete urine analysis (A) was requested which showed a positive urinary tract infection caused by pathogenic microorganisms affecting the urethra, bladder, kidney or prostate. These types of infections are the most common, second only to respiratory infections. They occur twice as frequently in women than in men.

Predisposing factors to UTI infections include a decrease in fluid intake, extended urination and change in quality of the vaginal flora. In women, the shortened length of the urethra and the introitus ending makes colonization easier; (Image 2) congenital malformations (especially in children), prostatic hyperplasia, incomplete bladder emptying, use of a urine catheter; vesicoureteral reflux, quantity and quality of local immunoglobulins, intercurrent diseases, especially diabetes mellitus, pregnancy and longevity. The most common etiology can be Escherichia coli (up to 80% of the cases)(Image 1), Proteus, Klebsiella, Enterobacter, Pseudomonas, Serratia, enterococci, Candida.

Image 2. Anatomical differences between the female and male urinary tract





David Goiz Martínez<sup>1\*†</sup> and Mario Salinas Soto<sup>1,2</sup>

The diagnosis is based upon seeing urinary sediment under the microscope or after the results from a urine culture (Image 4) are done from a sample provided by spontaneous and clean urination, and collected as urine stream. Some additional tests are requested, including:

- 1.- Complete blood count, which provides little information and sometimes shows leukocytosis.
- 2.- Excretory urography which is more useful in evaluating the changes of the vesicoureteral flow.
- 3.-General urine test (Image 3) with a presence of 20 or more leukocytes per high power field, in most cases is correlated to a bacteria colony of 100,000/ml. The presence of bacteria and Gram staining of non-centrifuged urine, will also be compared to the high concentration bacteriuria. The presence of Mucin in a young woman's urine, does not indicate a pathology. It such case it could be that cervical mucus has contaminated the urine during collection in the cup. When there are certain pathologic disorders present, these will enter other organs with their characteristic mark, such as is in the case of jaundice and appear in abundance in the urine. It can also be in the urine without coming from bile. Mucin is in most mucus excreting glands and acts as a lubricant that protects the body surfaces from friction or erosion. Mucin is in saliva, bile, synovia and all kinds of mucus excretions. Finding a small amount of mucus in urine is not a concern, however if the mucus is present in large quantities it might mean that the person has a severe bladder infection, cystitis, typhoid fever or, pneumonia, and in the pleurisy, where mucus abounds.

Image 3 Client's complete urine test

EXAMEN	RESULTADO	UNIDAD	VALOR DE REFERENCIA
<b>EXAMEN GRAL DE ORINA</b>			
<b>EXAMEN FISICO - QUIMICO</b>			
COLOR	<b>Amarillo</b>		
ASPECTO	<b>Ligeramente Turbio</b>		
GLUCOSA	<b>Negativo</b>		NEGATIVO
BILIRRUBINA	<b>Negativo</b>		NEGATIVO
CETONAS	<b>Negativo</b>		NEGATIVO
DENSIDAD	<b>1.015</b>		* 1010 - 1025
SANGRE	<b>Negativo</b>		NEGATIVO
PH	<b>5.50</b>		5.5 - 8
PROTEINAS	<b>Negativo</b>		NEGATIVO
UROBILINOGENO	<b>0.2 E.U./dL</b>		0.2 - 1
NITRITOS	<b>Negativo</b>		NEGATIVO
LEUCOCITOS	<b>Apr 70 Leu/uL</b>		NEGATIVO
<b>EXAMEN DEL SEDIMENTO</b>			
CELULAS	<b>Moderadas</b>		
LEUCOCITOS	<b>15-20</b>		2-6x CAMPO
BACTERIAS	<b>Moderadas</b>		
CRISTALES	<b>Urato Amorfo, Moderadas</b>		NEGATIVO
<b>OBSERVACIONES: Mucina Moderada</b>			
Libro: MARTIN CHAPARRO LOPEZ			
<b>QUIMICA SANGUINEA</b>			
GLUCOSA	<b>100.</b>	mg/dl	70 - 115
UREA	<b>27.20</b>	mg/dl	10 - 50
CREATININA	<b>0.70</b>	mg/dl	0.5 - 1.3
ACIDO URICO	<b>4.20</b>	mg/dl	3 - 7
COLESTEROL	<b>191.</b>	mg/dl	HASTA 200 mg/dl
TRIGLICERIDOS	<b>207.</b>	mg/dl	* 0 - 150



David Goiz Martínez<sup>1\*†</sup> and Mario Salinas Soto<sup>1,2</sup>

4.-Urine culture: A method used to observe the development, growth and multiplication of microorganisms such as bacteria, fungus, and parasites. The culture environments contain different nutrients from carbohydrates, blood, saline solutions, hemoglobin, Factor X, Factor V, glutamine and other related factors for bacteria to grow (Blood Agar, Schaeadler, etc) that may have an agar composition of 1.5 – 2 % (solid culture).

Figura 4 Urine culture



**Escherichia coli. Cultivo en agar MacConkey (Izquierda) y Agar EMB (Derecha)**

### Biomagnetic Pair Scan

The treatment consisted of a scan using Biomagnetism and Bioenergetics. The following biomagnetic pairs were found (table1):

#### Biomagnetic Pair Scanning Technique Scan 1 (Bioenergetics)

	Negative (-)	Positive (+)	Shortening
BP 1	Kidney	Kidney	2cm
BP 2	Descending Colon	Descending Colon	2cm
BP 3	Thymus	Rectum	2cm
BP 4	Fallopian tube	Fallopian tube	2cm

Table 1 Taken from office visit. (May 2013)



David Goiz Martínez<sup>1\*†</sup> and Mario Salinas Soto<sup>1,2</sup>

After the therapy the client was scheduled to return a month later to evaluate her progress and symptomology, a new scan was done and the results are as follows (table 2). She reported improvement in urinary symptoms.

#### **Biomagnetic Pair Scanning Technique Scan (Bioenergetics)**

	Negative (-)	Positive (+)	Shortening
BP 1	Temporoccipital	Temporoccipital	3cm
BP 2	Kidney	Kidney	3cm
BP 3	Vagina	Vagina	3cm
BP 4	Spleen	Spleen	3cm
BP 5	Lumbar abscess		3cm

Table 2 Taken from office visit (June 2013)

Client arrives for the scan and the results are shown in table 3. Client states she has no urinary symptoms.

#### **Biomagnetic Pair Technique Scan (Bioenergetics)**

	Negative (-)	Positive (+)	Shortening
BP 1	Thymus	Rectum	2cm
BP 2	Hip	Hip	2cm
BP 3	Ascending Colon	Ascending Colon	2cm
BP 4	Colon	Colon	2cm
BP 5	Left Iliac Crest	Left Iliac Crest.	2cm

Table 3 Taken from office visit (July 2013)

Progress is satisfactory, both in the dysuria and in not detecting positive urethral points during the scan. So a urine culture is requested (Image 5), the result is negative.

Image 5 Client's test

PROCEDENCIA MED : MEDICINA FAMILIAR PROCEDENCIA : OBSERVATORIO OBSERVACIONES :	FECHA DE ATENCION : 30/09/2013 SEXO : FEMENINO EDAD: 74 Años		
EXAMEN	RESULTADO	UNIDAD	VALOR DE REFERENCIA
<b>UROCULTIVO</b>			
DESARROLLO DE: Liben: BOL. SONIA SILVA FLORES	Negativo		



David Goiz Martínez<sup>1\*†</sup> and Mario Salinas Soto<sup>1,2</sup>

#### **Clinical diagnosis**

- 1.- Urine tract infection relapse
- 2.- Reinfestation of urinary tract

#### **Discussion of the clinical case**

It is common to find patients with this diagnosis while they are undergoing all kinds of medical treatments, it is however very important to detect these infections in their early stages and treat them accordingly. We provide this report to show the importance and benefits of providing Biomagnetism therapy in these cases to shorten the treatment length and avoid unfavorable results. This will not only benefit the patient, reduce costs but also help avoid adverse effects.

This clinical case will help research development of this new medical science, since it allows us to find an endless number of similar pathogens and/or specific ones, while providing great results and favorable outcomes.

#### **Information about the author**

1.-Bioenergetics Department, CIBM. 2.-Medical Biomagnetism Department, CIBM, Insurgentes 1865, Delegación Gustavo y Madero, México Distrito Federal CP 07020. Telephone number 57819995, dr-davidgoiz@biomagnetism.biz.

#### **Acknowledgements**

We would like to thank Dr. Isaac Goiz Durán for all the knowledge he has shared with humanity during the last 26 years, since his discovery of the Biomagnetic Pair in 1988.



## References:

David Goiz Martínez<sup>1\*†</sup> and Mario Salinas Soto<sup>1,2</sup>

- 1.- Goldfarb S, Ziyadeh F. Infección de Vías Urinarias (Urinary Tract Infections). En: NMS Medicina Interna. 4a edición. McGraw-Hill Interamericana. 2003. Pp 393-396
- 2.- Stamm WE. Urinary Tract Infections and Pyelonephritis. Harrison's. Principles of Internal Medicine. 15 th ed. McGraw - Hill. 2001. Pp 1620-1626
- 3.- Wood, MJ. The Urinary Tract. In: Atlas of Infectious Diseases. MOSBY CD PRODUCTIONS. Chapter 6.
- 4.- Vela, NR. Infecciones Específicas e Inespecíficas del Aparato Urinario (Specific and Non-specific Infections of Urinary Tract). In: Medicina Interna (Internal Medicine) Rodés y Guardia edit. Massón SA. 1997. Pp. 2459-2462.
- 5.- Stoller ML & Carroll PR. Genitourinary Tract Infections. In: Current Medical Diagnosis & Treatment 42nd edition. Lange Medical Books/McGraw-
- 6.-Grigoryan L, Trautner BW, Gupta K. Diagnosis and management of urinary tract infections in the outpatient setting: a review. JAMA. 2014 Oct 22-29;312(16):1677-84. doi:10.1001/jama.2014.12842.(Review) PMID25335150.
- 7.- Calderón-Jaimes, Ernesto, et al. Diagnóstico y tratamiento de las infecciones en vías urinarias: un enfoque multidisciplinario para casos no complicados (Diagnosis and treatment of urinary tract: a multidisciplinary view for complex cases). Bol Med Hosp Infant Mex 70.1 (2013): 3-10.
- 8.- Reyna-Flores F, Barrios H, Garza-Ramos U, Sánchez-Pérez A, Rojas-Moreno T, Uribe-Salas FJ, Fagundo-Sierra R, Silva-Sánchez J. Molecular epidemiology of Escherichia coli O25b-ST131 isolates causing community-acquired UTIs in Mexico. Diagnostic Microbiology and Infectious Disease, July2013;76(3):396-398.
- 9.- Ulett GC, Totsika M, Schaele K, Carey AJ, Sweet MJ, Schembri MA. Uropathogenic Escherichia coli virulence and innate immune responses during urinary tract infection. Curr Opin Microbiol. 2013 Feb;16(1):100-7. doi: 10.1016/j.mib.2013.01.005.
- 10.- Guías diagnósticas del hospital general de México (Diagnosis guides of Mexico's General Hospital). <http://www.hgm.salud.gob.mx/>
11. - <http://www.facmed.unam.mx/>