

PAINFUL BLADDER SYNDROME (PBS)/ **INTERSTITIAL CYSTITIS (IC)** THE MYTH

Essay

Submitted in The Actual fulfillment of the requirements For the Degree of M.Sc. in

Urology

By **Amr Mahmoud Essam Eldine Riad** M.B.B.Ch

Supervised by

Prof. Dr./ Ismail Osman Abdel Hafeez

Professor of Urology. Faculty of Medicine, Ain Shams University

Prof. Dr./ Ahmed Aziz Mihena

Professor of Urology, Theodor Bilharz Research Institute

Dr./ Khaled Mokhtar Kamal

Lecturer of Urology. Faculty of Medicine, Ain Shams University

> Faculty of Medicine Ain Shams University

> > 2011

متلازمة المثانة المؤلمة/إلتهاب المثانة الخلالي الأسطورة

رسالة توطئة للحصول على درجة الماجستير في جراحة المسالك البولية

مقدمة من

الطبيب/ عمرو محمود عصام الدين رياض بكالوريوس الطب والجراحة العامة كلية الطب - جامعة عين شمس

تحت إشر اف

الأستاذ الدكتور/ إسماعيل عثمان عبد الحفيظ أستاذ جراحة المسالك البولية - كلية الطب - جامعة عين شمس

الأستاذ الدكتور/ أحمد عزيز مهينة أستاذ جراحة المسالك البولية - معهد تيودور بلهارس للأبحاث

الدكتور/خالد مختار كمال مدرس جراحة المسالك البولية - كلية الطب - جامعة عين شمس

كلية الطب جامعة عين شمس

7.11

List Of Abbreviations

AMP : Adenosine monophosphate

APF : Antiproliferative factor

CP: Chronic prostatitis

DIGs : Detergint-insoluble glycosphingolopid complexes

DMSO : Dimethylsulfoxide

DTPA : Diethylenetriamine penta acetic acid

EMDA : Electromotive drug administration

EMG : Electromyogram

ESSIC : European society for the study of interstitial

cystits

GABA : Gammaaminobutyric acid

GAG : Glycosaminoglycans

GP-51 : Glycoprotein-51

HA : Hyaloronic acid

HB-EGF : Heparin binding epithelial growth factor

IBS : Irritable bowel syndrome

IC : Interstitial cystitis

ICA : Interstitial cystitis association

ICS : International continence society

 Π : Interleukin

MAPP : Multidisciplinary Approach to the study of pelvic

pain

MC : Mast cells

MHC : Major histocompatability complex

NIDDK : National institute of diabetes, digestive and kid-

ney diseases



NPY : Neuropeptide Y

: Non steroidal anti- inflammatory drugs **NSAID**

OAB : Overactive bladder syndrome

PAG : Periaqueductal gray area PBS : Painful bladder syndrome

PMC : Pontine micturation center

PPS : Pentosan polysulphate sodium

: Percutaneous tibial nerve stimulation **PTNS**

SNS : Sacral nerve stimulation

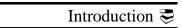
: Transcutaneous electrical nerve stimulation **TENS**

: Urologic chronic pelvic pain syndromes **UCPPS**



Contents

	Page
Introduction	1
Aim of the work	4
Chapter 1: Detrusor Ultrastructure	5
Chapter 2: Neurophysiology Of The Lower Urinary Tract	21
Chapter 3: Historical Overview	47
Chapter 4: Histopathology Of PBS/IC	61
Chapter 5: Definition Of Interstitial Cystitis	75
Chapter 6: Treatment	93
Summary	132
References	135
Arabic summary	



List Of Tables

Table No.				Title		Page
1					confusable be excluded	
	or diag	gnosed	l	• • • • • • • • • • • • • • • • • • • •		85



List Of Figures

Figure No.	$\it Title$	Page
1	Normal smooth muscle cells are packed with myofilaments	6
2	Annexin 6 expression in smooth muscle cells from normal bladder	6
3	Fibroblastic cell ultrastructure	8
4	Muscle cell junction. Protrusion junctions	9
5	Sacs of sarcoplasmic reticulum with caveolae.	12
6	Peg and socket junctions	14
7	Intermediate junctions	15
8	Gap junctions (Nexus)	17
9	Striated urogenital sphincter muscle in the female	21
10	Neural circuits controlling continence and micturition	22
11	Nerve supply of the lower urinary tract	25



List Of Figures (Cont..)

Figure No.	Title	Page
12	Motor innervation of the bladder wall; neurotrnasmitterse	36
13	Sensory in nervation of the bladder wall; neurotransmitters	36



All praise be to Allah and all thanks. He has guided and enabled me by His mercy to fulfill this thesis, which I hope to be beneficial for people.

I would like to express my deepest gratitude and sincere appreciation to Prof. Dr. Ismail Osman Abdel Hafeez, Professor of Urology, Faculty of Medicine, Ain Shams University for his continuous encouragement, his kind support and appreciated suggestions that guided me to accomplish this work.

I am also grateful to Prof. Dr. Ahmed Aziz Mihena, Professor of Urology, Theodor Bilharz Research Institute, who freely gave his time, effort and experience along with continuous guidance through out this work.

Special thanks are extended to Dr. Khaled Mokhtar Kamal, Lecturer of Urology, Faculty of Medicine, Ain Shams University for his constant encouragement and advice whenever needed.

Dedication

Ja ...

My Parents;

My Family

My Fiancée,

Who gave me all support and love that Ineeded.





NTRODUCTION

Painful Bladder syndrome (PBS) formerly referred to as interstitial cystitis (IC) is a condition diagnosed primarly on the basis of clinical symptomatology. It requires a high index of suspicion on the part of the urologist.

It should be considered in the differential diagnosis of the patient presenting with chronic pelvic pain, often exacerbated by bladder filling and associated with urinary frequency. The highlight of the diagnosis is the presence of pain associated with the bladder.

The older term(IC) was not at all descriptive of the clinical syndrome and not accurate with regard to the pathologic findings. Originally considered a bladder disease, it is now positioned in the medical spectrum as chronic pain syndrome that may begin as a pathologic process in the bladder in most but not all patients. In a small percentage of patients it can progress into a disorder that even cystectomy may not benefit.

PBS encompasses a major portion of the painful bladder disease complex which includes large group of patients with bladder and/or urethral and/or pelvic pain, irritative voiding symptoms (urgency, frequency, nocturea, dysurea) and sterile urine cultures. It may have multiple causes and represents a final common reaction of the bladder to different type of insults.

Essentially, one must be confident that the patient with PBS is not actually suffering from any known cause of bladder pain before making the diagnosis. The international continence society (ICS) defines PBS as the complaint of suprapubic pain related to the bladder filling, accompanied by other symptoms such as increased daytime and night-time frequency in the absence of proven urinary infection or other obvious pathology. The ICS considers IC to be a subset of the broader PBS syndrome and reserves the interstitial cystitis designation to patients with PBS and typical cystoscopic and histologic features.

It is likely that PBS/IC has a multifactorial etiology. A leakly epithelium, mast cells activation, neurogenic inflammation. primary pelvic floor dysfunction and sequelae of bladder infection or pelvic surgery have all been prepared. It is possible the viral,

bilharzial or bacterial cystitis could begin the cascade that ultimately leads to a self-perpetuating process resulting in chronic bladder pain voiding and dysfunction.

It is very important in the diagnosis and management of PBS/IC to be familiar with the common differential diagnosis as:

- Radiation cystitis.
- Urethral caruncle.
- Large postvoid residual.
- Large fluid intake.
- Chemical irritants:contraceptive foams, douches, diaphragm.
- Upper motor neuron lesion.
- Atrophic urethral changes.
- Vulvodynia.
- CARCINOMA in SITU is crucial to be excluded by searching for micro hematuria, cystoscopy And biopsy before confirming the diagnosis (PBS)/(IC).
- Pelvic mass.
- Diabetes mellitus.

- Overactive bladder.
- Genital Condyloma.
- Cervicitis.
- Diuretic Therapy.