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"OAB" crisis. Has ICS entropy failed one billion women?

Darren M. GOLD

Department of Surgery, St Vincent's Hospital Clinical School, University of NSW, Sydney, Australia

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ABSTRACT

This editorial describes how formation of the international continence society (ICS) in 1971, the standardization of definitions as well as other important advances, led to a whole new medical discipline, Incontinence; how these achievements quickly led to the magisterial status which the ICS has today. It also analyses how the ICS may have succumbed to the entropy which can affect any system over a 50-year period. Discoveries made 30 years ago which can potentially cure overactive bladder (OAB) and other bladder conditions which affect one billion women have been ignored. This fact, and the anticholinergic causation of Alzheimer's disease has created a crisis for OAB. A suggested way forward is to change the OAB definition from "OAB" (causation in the detrusor muscle) to "OAB" (causation from structures mainly outside of the detrusor muscle). Such changes open the door to a whole new range of research and treatments, some undoubtedly not yet conceptualized.

Keywords: OAB; entropy; ageing ICS; integral theory paradigm; crisis; definitions

Dedication

This editorial is respectfully dedicated to the 50 urologists whose pioneering insights at the initial 1971 ICS meeting laid the foundation of a whole new medical discipline which did not previously exist, incontinence. Incontinence of some kind affects 20-30 out of every 100 people in the world.

ICS Growth and Power

The background to the 1971 international continence society (ICS) meeting was a growing world-wide interest in bladder and anorectal function and dysfunction in the first half of the 20th century. This "growing interest", when translated to published literature, is best described as "scientific chaos". What is now described as "overactive bladder (OAB)" had multiple descriptions, including "dyssynergic detrusor dysfunction", "psychogenic bladder", "uninhibited bladder", "painful bladder". Then there were complexities and contradictions such as coincidence of urge and stress, activation of urge on coughing, apparent causation of incontinence by childbirth and menopause (yet findings of incontinence in nulliparas and children!), *de novo* urgency after stress urinary incontinence (SUI) cure by the then gold standard, burch colposuspension, and much more. In trying to sort some order out of this "scientific chaos", a group of scientifically-minded urologists held the first ICS meeting in exeter, UK, hosted by Eric Glen in 1971. Their first step was seminal, standardization of definitions, to create a common language. Instead of a plethora of different descriptions, researchers and clinicians now knew what others

Address for Correspondence: Darren M. Gold, Department of Surgery, St Vincent's Hospital Clinical School, University of NSW, Sydney, Australia
E-mail: dandjgold@gmail.com **ORCID ID:** orcid.org/0000-0003-4478-9747
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were talking about. By 1976, urodynamics was recommended by an expert committee so as to objectively separate SUI from urge incontinence, especially prior to undergoing surgery for SUI. This convention continues unchanged today.

The original definitions brought some order to the prevailing "scientific chaos" and were universally adopted. In time, almost all pronouncements of the ICS achieved a magisterial status, and with it, the enormous power which comes from a singular reference point. This power set the stage for the inevitable ravages of entropy which occur with any system.[1]

Entropy is a fundamental law of nature which mandates a natural decline into disorder.[1] Though originally referenced to the 2nd Law of Thermodynamics, entropy has since been generally applied to every aspect of the world, even societal systems.[1] New energy has to be applied to a system to maintain its function.[1] The energy for a societal system such as the ICS would seemingly come from progressing new concepts which accord with its mission statement.

Pathogenesis of OAB is known it was urodynamically demonstrated in neurourology and urodynamics, the official ICS journal in 1993, that "OAB" was a prematurely activated, uncontrolled micturition.[2] In the same journal in 1999, it was urodynamically demonstrated that the bladder was externally controlled by a binary feedback central/peripheral mechanism,[3] Figure 1.

OAB cure is possible It was demonstrated by a urodynamically controlled trial in 1997,[4] and since, by data from many thousands of cases,[5-16] that OAB can be cured in up to 80% of women, by daycare ligament repair surgery where there is a positive clinical test, Figure 1.

Change? The salient question is, "should knowing the pathogenesis of OAB and how it could be cured (since 1997) have resulted in a change in direction from the ICS regarding OAB management?" According to Kuhn[17] in his book "the structure of scientific revolutions", a new paradigm*, for example, ligament repair of OAB, does not dominate by being more effective than the old - there needs to be a crisis for a change from the old paradigm**.

*The new paradigm the cause of OAB "overactive bladder" (urge, frequency, nocturia) is mainly outside of the bladder, from laxity of the supporting ligaments of the vagina.[18]

https://obgyn.onlinelibrary.wiley.com/toc/16000412/1990/69/S153

Inability of the now weakened muscle forces to stretch the vagina to support the stretch receptors "N", Figure 1, results in excess afferent impulses from "N" reaching the cortex, which are interpreted as urge symptoms. If, when contemplating surgery, urge can be diminished by a "simulated operation", for example the speculum test, Figure 1, intravaginal probe,[5] or for nocturia, a roll gauze,[15] OAB is potentially curable/improvable by ligament surgery, either native ligament repair,[15] or in older women, a sling.

**The old paradigm the ICS definition of OAB suggests the pathogenesis is in the detrusor itself and therefore is incurable. Management of OAB since 1976 has been based on urodynamics.

The OAB crisis starting in the 1970s, the ICS and later, the ICI, have stated and taught that OAB pathogenesis was unknown, and it was incurable. Nothing has changed for 50 years, except

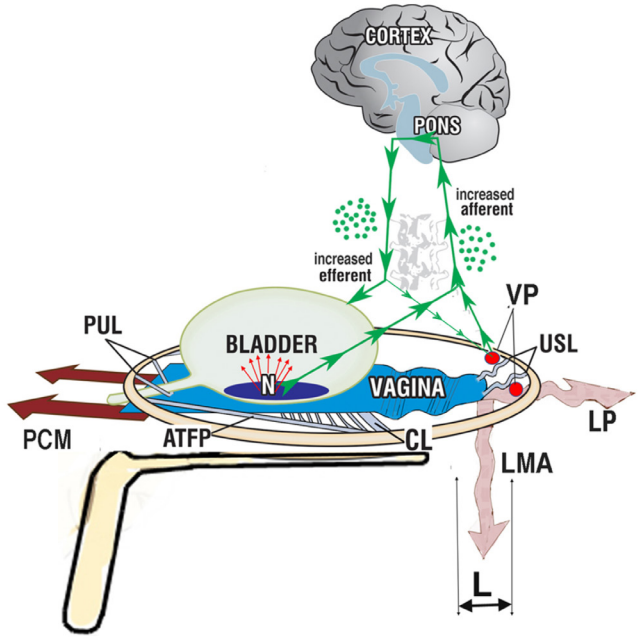

Figure 1. "Simulated operation" speculum test. 3D view of pubourethral (PUL) and USL attachments to the pelvic brim. The speculum mechanically supports urothelial stretch receptors "N" at bladder base, uterosacral ligaments "USL" and visceral plexuses "VP". "L" indicates USL laxity. Wavy lines in the muscles LP and LMA which contract against USLs indicate weakened muscle forces, as a muscle requires a firm insertion USL point to exert optimal force.

Pathogenesis of urge the wavy form of the vagina indicates looseness; it cannot be stretched sufficiently to support "N" which now fire off excess afferents at a lower bladder volume to activate the micturition reflex prematurely. The cortex interprets these impulses as "urge."

Pathogenesis of pain lax USLs (laxity indicated by wavy lines) cannot support the visceral plexuses "VPs" and these fire off "rogue" impulses to the cortex which are interpreted as pain.

How the speculum test works. It mechanically supports USLs, and therefore VPs, mechanically restoring VP support; the speculum stretches the vagina to support "N" to decrease the quantum of afferent impulses to the cortex; when the test is positive, the patient reports lessening of pain and urge.

PCM: pubococcygeus muscle; LP: levator plate; LMA: conjoint longitudinal muscle of the anus

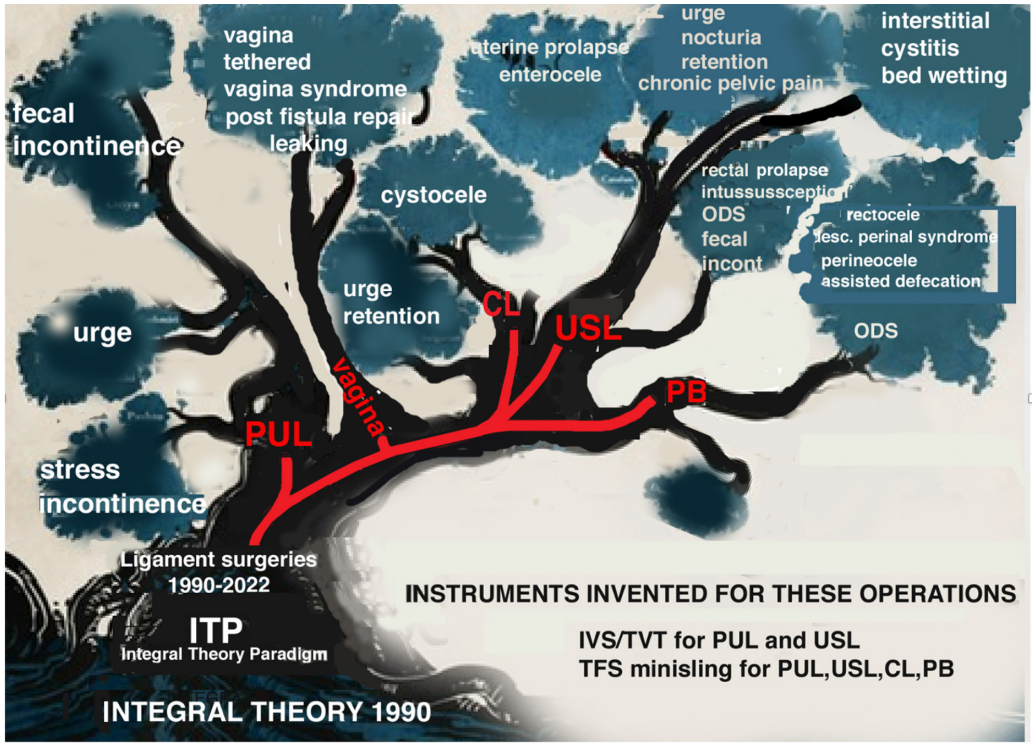

Figure 2. Growth of the integral theory paradigm from 1990 to 2022.

that anticholinergics, the drug treatment of choice, is now proven to cause Alzheimer's disease. There truly is a crisis for OAB, especially with a rapidly ageing population. Of the 4 billion women on the planet, an estimated one billion suffer from OAB and other bladder conditions. Given the power and status of the ICS definitions and statements, the message from ICS to the one billion women on the planet suffering with "incurable" bladder conditions is they are condemned to a life of misery with no hope of cure.

ICS mission statement "The ICS is a registered charity with a global health focus which strives to improve the quality of life for people affected by urinary, bowel and pelvic floor disorders by advancing basic and clinical science through education, research, and advocacy." In the 2600 pages of the ICI book, there is no mention of the integral theory paradigm (ITP) on which OAB pathogenesis and cure are based, not even as regards its foundation of the gold standard midurethral sling.

Resolution of the Crisis

It is in the hands of the ICS committee to put energy into the system and reverse the entropy which has prevented it seeing the advances offered by other systems, for example, the major advances in pathogenesis and cure for OAB and other conditions, offered by the anatomically-based ITP, Figure 2. The 1st step is to change the OAB definition from "overactive bladder" (causation in the detrusor muscle) to "overactivated bladder" (causation from structures outside of the detrusor muscle).[19] Changing the definition to include causes outside the detrusor opens the door to a whole new range of research and treatments, some undoubtedly, not yet conceptualized.

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ETHICS

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