

# A gynecological perspective of interstitial cystitis/bladder pain syndrome may offer cure in selected cases

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**Introduction** Recent publications of interstitial cystitis (IC)/bladder pain syndrome cure by a gynecological prolapse protocol, run counter to traditional treatments such as bladder installations which do not offer such cure. The prolapse protocol, uterosacral ligament (USL) repair, is based on the 'Posterior Fornix Syndrome' (PFS). PFS was described in the 1993 iteration of the Integral Theory. PFS comprises predictably co-occurring symptoms of frequency, urgency, nocturia, chronic pelvic pain, abnormal emptying and post-void residual urine, caused by USL laxity and cured or improved by repair thereof.

**Material and methods** analysis and interpretation of published data showing cure of IC by USL repair.

**Results** In many women, USL pathogenesis of IC can be explained by the effect of weak or loose USLs weakening two pelvic muscles which contract against them, levator plate (LP) and conjoint longitudinal muscle of the anus (LMA). The now weakened pelvic muscles cannot stretch the vagina sufficiently to prevent afferent impulses from urothelial stretch receptors 'N' reaching the micturition centre where they are interpreted as urge. The same unsupported USLs cannot support the visceral sympathetic/parasympathetic visceral autonomic nerve plexuses (VP). The pathway of multiple referred pelvic pains is explained as follows: groups of afferent VP axons stimulated by gravity or muscle movements fire off 'rogue' impulses, which are interpreted by the cortex as end-organ chronic pelvic pain (CPP) from several end organs; this explains how CPP is invariably perceived in several sites. Reports of cure of non-Hunner's and Hunner's IC are analysed with diagrams which explain co-occurrence of IC with urge and phenotypes of chronic pelvic pain from several different sites.

**Conclusions** A gynecological schema cannot explain all IC phenotypes, especially male IC. However, for those women who obtain relief from the predictive speculum test, there is a significant possibility of cure of both the pain and the urge by uterosacral ligament repair. In this context, it may well be in such female patients' interests, at least in the exploratory diagnostic phase, for ICS/BPS to be subsumed into the PFS disease category. It would give such women a significant chance of cure, something denied to them for now.

**Key Words:** interstitial cystitis <> chronic pelvic pain <> posterior fornix syndrome <> uterosacral ligaments

## INTRODUCTION

Recent reports of interstitial cystitis/bladder pain syndrome (IC/BPS) cure [1, 2] by a gynecological prolapse protocol, uterosacral ligament (USL) repair, have upended the whole IC/BPS paradigm. The patients involved [1, 2] had typical symptoms and signs of the Posterior Fornix Syndrome (PFS) [3],

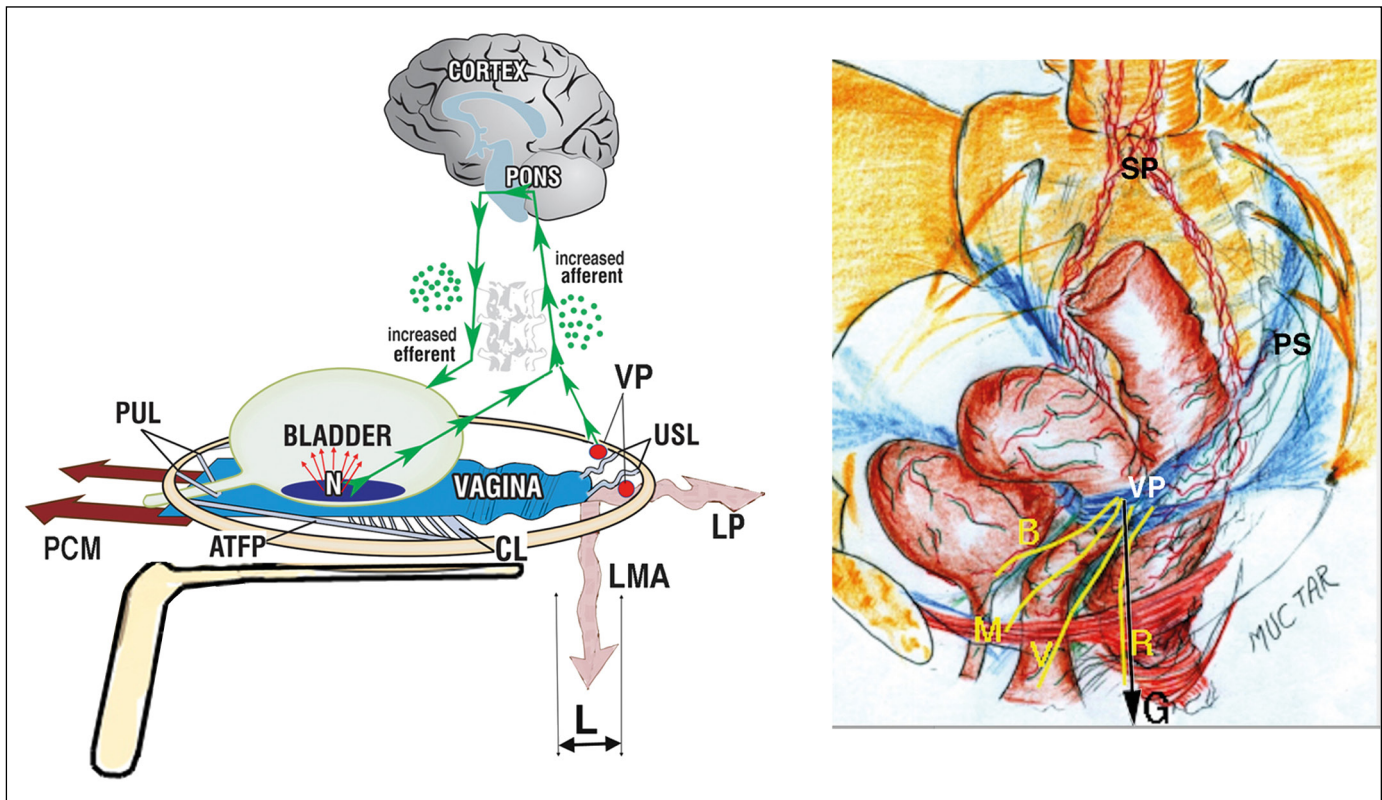
including positive speculum tests, Figure 1. Such 'out of field' concepts [1, 2] are wildly at variance with existing concepts for IC/BPS, especially traditional treatments such as bladder installations which do not offer cure [4]. PFS was first reported in 1993 [3] as part of the 2<sup>nd</sup> iteration of the Integral Theory of Female Urinary Incontinence. It is an essential part of the Integral Theory Paradigm. PFS comprises

co-occurring symptoms of chronic pelvic pain (CPP), urge, frequency, nocturia, abnormal emptying/retention, caused by uterosacral ligament (USL) laxity, and cured or improved by repair thereof.

The aim of this short commentary is to briefly analyse these two reports of IC/BPS cure by uterosacral ligament (USL) repair from a gynecological perspective, the research question being, “Is IC/BPS in the female simply another manifestation of the Posterior Fornix Syndrome (PFS)” [3]?

## MATERIAL AND METHODS

Material and methods comprise analysis of two studies demonstrating cure of IC by USL repair, IC/Hunner’s, and non-Hunner’s IC. Both conformed to IC/BPS definitions; both were managed according to the ligament-based PFS protocols [3]. A 3<sup>rd</sup> study of 611 women with apical prolapse and PFS symptoms [5] was analysed. The study by Scheffler presented a serendipitous discovery of IC/Hunner’s ulcer and surgical cure.



**Figure 1.** Pathogenesis of pain and bladder dysfunctions comprising interstitial cystitis definition.

**Left Figure.** Speculum test. Bladder supported by anterior vaginal wall. Vagina suspended from pelvic brim by pubourethral (PUL), cardinal (CL), and uterosacral (USL) ligaments. Arrows signify 3 reflex directional forces LP (levator plate) and LMA (conjoint longitudinal muscle of the anus) contracting against PUL and USL. Wavy arrows represent weakened muscle forces, because their insertion points, USL, are weak or loose. ‘L’ signifies laxity in USLs and vagina. A speculum inserted into the posterior fornix mechanically supports urothelial stretch receptors ‘N’ and the visceral nerve plexuses (VP) S2–4, T11–L2 to decrease afferent impulses to the brain, which are interpreted as urgency from ‘N’ and pain from ‘VP’.

Left Figure 1. from: Petros P. A ligamentous explanation for overactive bladder symptoms as defined by International Continence Society in the female. *Cent European J Urol.* 2018; 71: 105-107.

**Right Figure.** Visceral plexus (VP) serves as a type of relay junction. It is composed of ‘SP’ (sympathetic T11–L2) and ‘PS’ parasympathetic (S2–4) nerves. End-organ afferent visceral nerves M (muscles), B (bladder), V (vagina), R (rectum) travel to VP where they group (explaining co-occurrence of end-organ site pain); G signifies forces of gravity acting on these nerves in the upright position. If VPs are unsupported by competent USLs, they can directly fire off signals to the brain which are interpreted as pain arising from the end organs such as M, V, P, R and lower abdomen [3].

Right Figure 1. Reproduced with permission from S. Karger, Basel from the article: Goeschen K, Gold DM, Liedl B, Yassouridis A, Petros P. Non-Hunner’s Interstitial Cystitis Is Different from Hunner’s Interstitial Cystitis and May Be Curable by Uterosacral Ligament Repair. *Urol Int* 2022; 106: 649-657. doi: 10.1159/000524321

ATFP – arcus tendineus fascia pelvis; PCM – percutaneous renal surgery

The 73 year old woman had classical symptoms of PFS, and was managed according to the ligament-based PFS protocol [1]; Scheffler hypothesized that IC/BPS may comprise part of the PFS. Scheffler's hypothesis stimulated a second study by Goeschen et al. [2] to test it for truth or falsity. They examined previous data from 198 women who presented with CPP, and were treated according to PFS protocols [3]; all 198 women had some degree of uterine/apical prolapse; they had 313 co-occurring bladder symptoms (urge, frequency, nocturia, emptying,) but no Hunner's ulcers [2]. The 3<sup>rd</sup> study, Figure 2, examined 611 women with apical prolapse and OAB [5], which asked the question, "Is overactive bladder in the female surgically curable by ligament repair?"

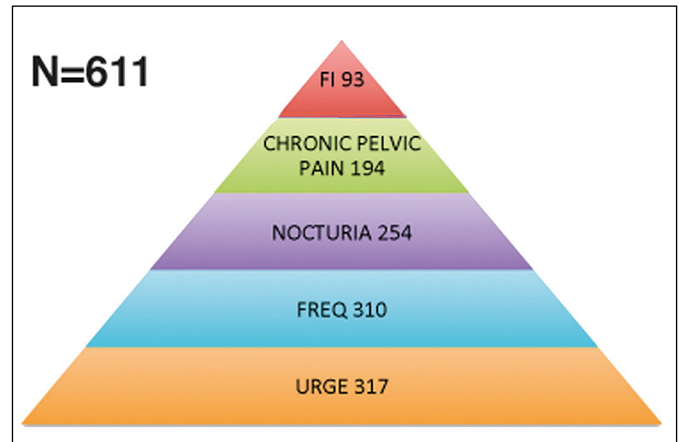
## RESULTS

Both IC/BPS studies [1, 2] conformed to standard definitions for IC/BPS. Both followed Posterior Fornix Syndrome paradigm (PFS) [3] protocols: questionnaire, pelvic examination for anatomical defects, relief of both pain and urge by 'simulated operations', mechanical support of USLs by the speculum test (Figure 1). The second study [2] reported 198 women presenting with CPP and prolapse with 313 bladder symptoms, cured or improved by USL repair; % cure rates in brackets: CPP (74%); frequency (79%), urgency (78%), nocturia (78%), emptying difficulties (53%). The 3<sup>rd</sup> study, Figure 2, is from a multicentre study [5], where 611 women who had TFS minisling cure of apical prolapse, had CPP (n = 194) in addition to 881 bladder symptoms. The following symptom cure rates were reported [5], CPP, 77%, urge incontinence, 85%, nocturia, 68%, frequency, 83%. Similar data has been reported by other studies [6–14].

## DISCUSSION

The hypothesized pathway for PFS symptom causation is summarized in Figure 1: weak USLs weaken the posterior vectors levator plate (LP)/ conjoint longitudinal muscle of the anus (LMA) (arrows) which contract against them. The vagina cannot be stretched sufficiently to prevent afferent impulses from urothelial stretch receptors 'N' reaching the micturition centre where they are interpreted as urge. Weakened posterior vectors cannot adequately open out the posterior urethral wall to facilitate detrusor emptying, so the detrusor has to expel the urine through a partly opened urethra. This is experienced by the patient as 'obstructed micturition'.

The pathway of multiple referred pelvic pains is explained as follows: groups of afferent axons stimu-



**Figure 2.** The Pelvic Symptom pyramid – symptoms occur in predictable groupings. The relationship of symptoms within this grouping of 611 patients who had cardinal/uterosacral ligament laxity is expressed as a pyramid.

Figure 2 from: Liedl B, Inoue H, Sekiguchi Y, et al. Is overactive bladder in the female surgically curable by ligament repair? *Cent European J Urol.* 2017; 70: 53-59.

lated by gravity or muscle movements fire off 'rogue' impulses, which are interpreted by the cortex as end-organ chronic pelvic pain (CPP) from several end organ sites, which explains how CPP phenotypes invariably co-occur in several sites.

The data from these 3 studies seem to open the floodgates for an IC/BPS diagnosis for virtually any paper reporting surgical cure of OAB [5–14], as CPP has been a known and frequent co-occurring symptom of OAB since 1993, both being caused by lax or damaged USLs [3]. PFS has a well-documented predictive test for symptom cure, the speculum test, Figure 1, or according to the St. Petersburg group [7], a more effective gauze roll test in the vaginal fornix (which also alleviates nocturia). For such 'IC/BPS' cases, it may well be in the patients' interest for them to be subsumed into the PFS disease category, as they would then have a significant chance of cure, something denied to them for now.

## CONCLUSIONS

Clearly a gynecological schema cannot explain all IC phenotypes, especially male IC. However, for those women who obtain relief from the predictive speculum test, a cylindrical vaginal pessary [1], or a gauze roll test [7], there is a significant possibility of cure of both the pain and the urge by uterosacral ligament repair. For younger women, native USL plication gives good results [7]. Older women with depleted ligament collagen will need some type of collagenopietic material to reinforce their USLs [7],

for example, suturing USLs with no. 2 or no. 5 polyester sutures, or an artisan tape [13].

#### CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

#### References

- Scheffler KU, Oliver W, Hakenberg OW, Petros PE. Cure of interstitial cystitis and non-ulcerating Hunner's Ulcer by cardinal/uterosacral ligament repair. *Urol Int.* 2021; 105: 920-923.
- Goeschen K, Gold DM, Liedl B, Yassouridis A, Petros PE Non-Hunner's Interstitial Cystitis Is Different from Hunner's Interstitial Cystitis and May Be Curable by Uterosacral Ligament Repair *Urol. Int.* 2022; 106: 649-657.
- Petros PE, Ulmsten U. The posterior fornix syndrome: a multiple symptom complex of pelvic pain and abnormal urinary symptoms deriving from laxity in the posterior fornix. An Integral Theory and its Method for the Diagnosis and Management of female urinary incontinence. *Scand J Urol Nephrol.* 1993; 27 (Suppl 153): 89-93.
- Clemens JQ, Erickson DR, Varela NP, et al. Diagnosis and treatment of interstitial cystitis/bladder pain syndrome. *J Urol.* 2022; 208: 34-42
- Liedl B, Inoue H, Sekiguchi Y, et al. Is overactive bladder in the female surgically curable by ligament repair? *Cent European J Urol.* 2017; 70: 53-59.
- Inoue H, Nakamura R, Sekiguchi Y, et al. Tissue Fixation System ligament repair cures major pelvic organ prolapse in ageing women with minimal complications – a 10-year Japanese experience in 960 women. *Cent European J Urol.* 2021; 74: 552-562.
- Shkarupa D, Zaytseva A, Kubin N, Kovalev G, Shapovalova E. Native tissue repair of cardinal/uterosacral ligaments cures overactive bladder and prolapse, but only in pre-menopausal women. *Cent European J Urol.* 2021; 74: 372-378.
- Petros PE, Abendstein B, Swash M. Retention of urine in women is alleviated by uterosacral ligament repair: implications for Fowler's syndrome. *Cent European J Urol.* 2018; 4: 436-443.
- Petros P, Goeschen K, Inoue H. Underactive bladder may be caused by uterosacral ligament laxity – a critical review of two paradigms. *Cent European J Urol.* 2018; 71: 444-447.
- Petros P. A ligamentous explanation for overactive bladder symptoms as defined by International Continence Society in the female. *Cent European J Urol.* 2018; 71: 105-107.
- Petros P. A watershed paper for surgical cure of overactive bladder and nocturia. *Cent European J Urol.* 2021; 74: 379-381.
- Petros P, Abendstein B. Mini Review. Pathways to causation and surgical cure of chronic pelvic pain of unknown origin, bladder and bowel dysfunction – an anatomical analysis. *Cent European J Urol.* 2018; 71: 448-452.
- Piñango-Luna S, Level-Córdova L, Petros PE, Yassouridis A. A low cost artisan tension-free tape technique cures pelvic organ prolapse and stress urinary incontinence- proof of concept. *Cent European J Urol.* 2020; 73: 490-497.
- Enache T, Bratila E, Abendstein B. Chronic pelvic pain of unknown origin may be caused by loose uterosacral ligaments failing to support pelvic nerve plexuses – a critical review. *Cent European J Urol.* 2020; 73: 506-513. ■