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Separate anatomical pathways for urge and pain mandate definition change for interstitial cystitis/bladder pain syndrome

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Interstitial cystitis (IC)/bladder pain syndrome (BPS) "persistent or recurrent chronic pelvic pain (CPP), pressure or discomfort perceived to be related to the urinary bladder accompanied by at least one other urinary symptom such as an urgent need to void or urinary frequency.

Posterior fornix syndrome (PFS): "Predictably co-occurring group of pelvic symptoms, CPP, urge, frequency, nocturia, emptying difficulties/urinary retention, caused by uterosacral ligament (USL) laxity, and cured/improved by USL repair."

The background for this contribution was a debate within ESSIC whether or not to categorize Hunner lesion (HL) IC as a distinct disease entity from BPS.[1,2]

IC/BPS as defined by the ICS, has two main symptoms, pain and one bladder dysfunction. The PFS, first described in 1993 comprised (variously) co-occurring CPP, urge, frequency, nocturia, abnormal bladder emptying.[3,4] Though PFS symptoms could be simultaneously cured or improved by lax USL repair, the pain and bladder symptoms had very different anatomical pathways, Figure 1.

The catalyst for this editorial was a case report, serendipitous histologically-validated cure of "HL" treated by PFS protocols,[5] which included the speculum test, Figure 1, and USL repair. The question raised was, "were PFS and IC/BPS one and the same condition?"[5]

This question was tested for truth or falsity by examining data from 3 studies in 902 women assessed by PFS protocols, (including the speculum test), and treated by a posterior USL sling for uterine/apical prolapse.[6-8] The 902 women had 438 CPP symptoms and 1.351 bladder symptoms (urge, frequency, nocturia, abnormal bladder emptying) which accorded with ICS definitions for IC/BPS.[3] No evidence of HL was found in any of the 902 women when examined cystoscopically.

The CPP part of PFS was investigated by a laparoscopically controlled trial in women with severe pain who had native USL ligament repair.[9] Laparoscopy revealed no obvious pathology. At 12-month review, 70% were cured of CPP in multiple co-occurring sites. It was hypothesized that CPP originated from gravity stimulation of T12-Ll visceral plexuses (VP) because of inability of weak USL to support them.

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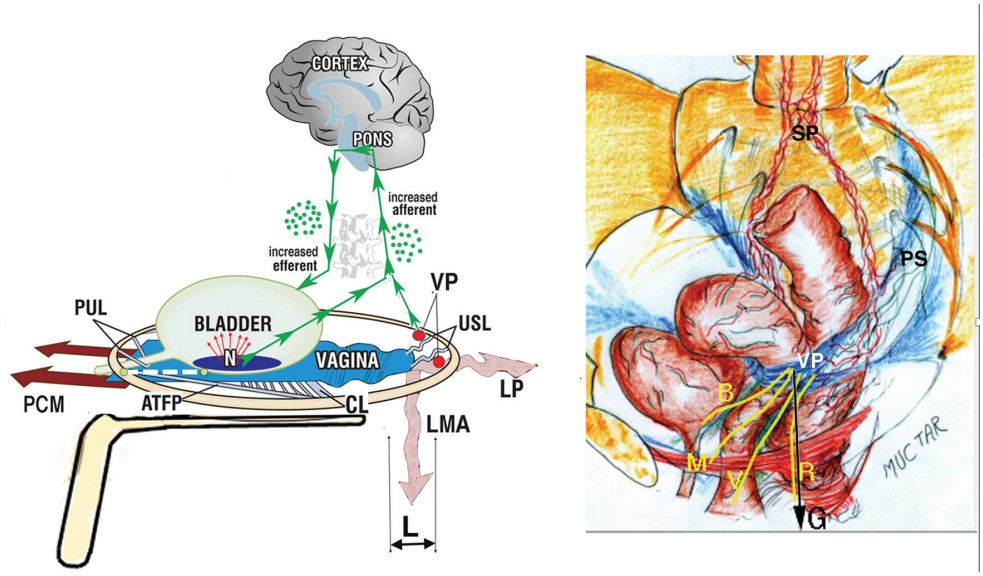

Figure 1. The speculum test relieves pain and urge

Left image: The speculum relieves urge by supporting "N" and pain by supporting VPs. Loose USLs ("L") cannot directly support pelvic visceral nerve plexuses "VP" and they weaken the LP/LMA muscles which contract against them to stretch the vagina to support the stretch receptors "N". Wavy lines in LP and LMA indicate weakened muscle forces, as LP/LMA require firm USLs to contract against for optimal force. LP=levator plate; LMA=conjoint longitudinal muscle of the anus; PUL=pubourethral ligaments; CL=cardinal ligaments.

Right image: 3D view of pelvic organs. VP comprises sympathetic plexus "SP", and parasympathetic plexus "PS". The yellow lines from VP represent visceral nerves to and from the end organs, M (muscles), V (vagina/vulva), B (bladder), R (rectum). G=force of gravity acting on VPs. Right figure by permission, Muctar S. and Karger

The VP causation of CPP was tested by local anesthetic (LA) injection into each USL, at the posterior fornix in 10 women with vulvodynia; 8/10 reported complete disappearance of introital sensitivity and 2/10 in one side only.[10]

The xylocaine injection test was applied to 3 women with IC/BPS.[11] Abdominal, urethral, introital and cervical tenderness and pain, objectively confirmed pre-test, disappeared, or substantially improved, within 5 minutes.[11]

With reference to Figure 1, although pre-operative speculum tests relieved both pain and urge,[6-8] the LA test.[10,11] demonstrated that the various manifestations of CPP originating from the VP were quite independent of urge symptoms originating from unsupported urothelial stretch receptors. This suggests pain and urge are separate entities, both caused by lax USLs, but from separate anatomical pathways. The 438 PFS data wholly incorporate non-Hunner IC/BPS symptoms as defined,[3] with no evidence of HL.[6-8] On this basis alone, neither BPS nor PFS belong in any HL definition. Definition change is urgently needed to separate HL from BPS. Incorporating a simple speculum test in assessment of IC/BPS patients, may indicate if the pain and urge are potentially curable by USL support, surgically, or in time, non-surgically.

ETHICS

Contributions

Surgical and Medical Practices: B.L., K.G.; Concept: B.L., K.G.; Design: B.L., K.G.; Data Collection or Processing: B.L., K.G.; Analysis or Interpretation: B.L., K.G.; Literature Search: B.L., K.G.; Writing: B.L., K.G.

DISCLOSURES

Conflict of Interest: No conflict of interest was declared by the authors.

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