

## **PAINFUL BLADDER SYNDROME/INTERSTITIAL CYSTITIS (PBS/IC)**

**Definition:** Painful bladder syndrome/interstitial cystitis (PBS/IC) is a collective term used to describe a debilitating, chronic inflammatory bladder disorder of unknown cause, with symptoms of pain, pressure or discomfort related to the bladder and usually associated with frequent and urgent need to urinate day and night. While the symptoms may resemble bacterial cystitis, there is no infection to be seen in the urine and no other identifiable disorder that could account for the symptoms.<sup>1</sup>

**Etiology:** In the normal bladder the bladder epithelium is covered with a mucous lining called glycosaminoglycan (GAG layer). It provides an impermeable barrier. In PBS/IC this GAG layer disappears and allows leakage and absorption of urinary solutes to occur; the major solute being potassium. Ongoing exposure of the bladder wall to solutes causes inflammation, irritation and injury. Histamine is released by the mast cells. This results in local inflammation with tissue damage and irritation of the sensory nerves located in the bladder wall. This could be part of an autoimmune condition.<sup>2</sup>

**Symptoms:** Abnormal urinary urgency, urinary frequency during day-time and at night. Bladder pain, pressure or spasm that may increase as the bladder fills. Urinating usually alleviates the pain and gives a temporary sense of relief. Bladder pain may be associated with lower abdominal and pelvic pain, sometimes extending to the lower part of the back and groin and thighs. In women there may be pain in the vagina and in men pain in the penis, testes, scrotum and perineum. Both men and women may experience pain in the urethra and pain with sexual intercourse. The pain may be constant or intermittent.<sup>1,2</sup>

**Incidence:** This condition is mainly found in women (90%).<sup>3</sup> 60 per 100,000 women. Men may be incorrectly diagnosed as having non-bacterial prostatitis, or prostatodynia (pain in the prostate).<sup>1</sup>

**How does it start?** The symptoms may begin for no apparent reason, sometimes following pelvic surgery, after childbirth or following severe bacterial infection of the bladder.

**Flares:** Symptoms may only occur in attacks known as “flares” and may be exacerbated just before or during menstruation, during ovulation, taking contraceptive pills or going through the menopause. Physical and emotional stress may exacerbate the symptoms but there is no proof that emotional stress is causing the condition. The pain, frequency and urgency and lack of sleep may themselves be a significant cause of stress. Patients may notice an increase in symptoms after consumption of specific foods especially coffee, alcohol, carbonated drinks, citrus (vitamin C), cranberries, tomatoes or chocolate.

### **Diagnosis:**

**Symptoms:** Urgency, frequency, pain

**Clinical examination:** Bladder tenderness (Abdominal and/or vaginal)

**Exclude diseases that might cause the symptoms,** such as: Urinary tract infections, kidney or bladder stones, bladder cancer, vaginal infection, sexually transmitted infections, radiation cystitis, chemical cystitis, eosinophilic cystitis, tuberculosis, schistosomiasis (bilharzia), endometriosis, prostatitis (in men), neurologic disorders including pudendal nerve entrapment, bladder and urethral diverticulitis and overactive bladder.

**Urodynamic studies:** Where indicated (? Detrusor overactivity, outflow obstruction in men)

### **Cystoscopy under general anaesthesia:**

Other causes of symptoms such as tumours and stones are excluded. Hydrodistension is carried out by filling the bladder twice, at a pressure of 80 cm H<sub>2</sub>O. As the walls of the bladder are stretched, pin point petechial haemorrhages (glomerulations), larger submucosal bleeding (ecchymosis), Hunner’s ulcer or tearing of the bladder mucosa may be seen during the second filling. Hydrodistension of the bladder may improve symptoms in 60% of patients but can temporarily exacerbate the symptoms and cause burning in the bladder or urethra. Blood may be visible in the urine.

**Treatment:**

The treatment is aimed at alleviation of the symptoms as no curative treatment has yet been found. Patients with PBS/IC may be anxious, sleep deprived and frustrated and need support. Most treatment regimes are multifactorial and highly individual.

**Conservative therapies:**

- **Diet modification:** Potential bladder irritants: Alcoholic drinks, apples or apple juice, artificial sweeteners, avocados, bananas, beans, cantaloupe (melon), carbonated drinks/soda, citrus fruit and juices, cranberry juice, caffeine, chili, chocolate, cheese, corned beef, grapes, peaches, plums, prunes/raisins, spicy food especially containing hot pepper, sour cream, tea, tomatoes, rye bread, vinegar, vitamin supplements such as vitamin C, yogurt, smoking.<sup>2, 4</sup>
- **General:** Fluid intake (balanced), reduce stress, gentle exercise, heat/cold packs, loose-fitting clothing, cotton underwear, travel (soft pillow).
- **Complementary therapies:** – herbal, massage, acupuncture.
- **Bladder training (Physiotherapy):** Following sufficient pain management.

- URINE ALKALIZATION:** Baking soda, Ural, Citravescent, Prelief (Ca glycerophosphate)<sup>5</sup>
- RESTORE GAG LAYER:** Heparin (Bladder instillation or subcutaneous injections)  
Elmiron Capsules (Pentosan polysulfate)
- ANTI-INFLAMMATORIES:** Corticosteroids (Bladder instillation or tablets)  
Non-steroidal (Diclofenac (voltage), Brufen, Aspirin)  
Histamine receptor blockers (antagonists).  
- (H1 – Promethazine (Phenergan), Loratadine, Hydroxyzine)  
- (H2 – Cimetidine, Ranitidine)  
DMSO (Dimethyl sulfoxide) bladder instillations.
- BLADDER MUSCLE RELAXANTS:** Oxybutynin, Vesicare (Solifenacin), Tolterodine  
Tricyclic antidepressants: (Amitriptyline, Nortriptyline, Imipramine)  
Botox injections, DMSO (Dimethyl sulfoxide) bladder instillations.
- NERVE BLOCKERS (REDUCTION OF NERVE SENSITIVITY):** Tricyclic Antidepressants, Tegretol,  
Gabapentin, Botox injections, DMSO (Dimethyl sulfoxide) bladder instillations.
- PAINKILLERS:** Local anaesthetic bladder instillations, Paracetamol, Codeine, Morphine.

**Neuromodulation/electrostimulation:** Electrodes are implanted around sacral nerves.

**Percutaneous tibial nerve stimulation:** This sends a mild electric current via the posterior tibial nerve to the sacral roots that control bladder function. It may help for selective patients suffering from urinary urgency and frequency and urgency incontinence.

**Surgery:** Removal of most of the bladder and replacement with a segment of bowel (Not recommended – phantom pain may still continue)

**Associated disorders:** Vulvodynia (vulvar pain syndrome)<sup>6</sup>, endometriosis, irritable bowel syndrome (abdominal bloating) in 40% of patients with PBS/IC, inflammatory bowel disease (Ulcerative colitis, Crohn's disease), fibromyalgia, rheumatoid arthritis, asthma, allergy (skin or systemic) in 50% of patients with PBS/IC, SLE, Sjögren's disease (dry eyes and mouth), chronic fatigue syndrome, chronic non-bacterial prostatitis (prostatodynia).

**References:**

1. [www.painful-bladder.org](http://www.painful-bladder.org)
2. Penzera AK. Interstitial cystitis/Painful Bladder Syndrome. Urol Nurs. 2007; 27(1):13-19
3. Theoharides TC. Critical role of mast cells in inflammatory diseases. J. of Neuroimmunology 146 (2004) 1-12
4. [www.ic-network.com/handbook/diet.html](http://www.ic-network.com/handbook/diet.html)
5. [www.prelief.com](http://www.prelief.com)
6. [www.nva.org](http://www.nva.org)
7. Dot Milne. New Zealand Painful Bladder Support Group Newsletters. weedot@xtra.co.nz