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EDITORIAL

Understanding bladder pain syndrome/interstitial cystitis

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Abbreviations

BPS Bladder pain syndrome
IC Interstitial cystitis

In 1887, Dr. Alexander Skene introduced the concept and disease "interstitial cystitis," describing inflammation that destroys the mucous membrane partly or wholly and extends to the muscular parietes. Over time, the core definition has evolved to include ulcerations [1], chronic symptoms including pain [2], glomerulations [3], and finally the umbrella concept of painful bladder syndrome (ICS 2002) or bladder pain syndrome (The European Society for the Study of Interstitial Cystitis 2006) as it is now termed [4].

Bladder pain is defined as the complaint of suprapubic or retropubic pain, pressure, or discomfort, related to the bladder, and usually increasing with bladder filling. It may persist or be relieved after voiding. When symptoms are associated with urinary symptoms such as urgency, frequency, and nocturia, the diagnosis of bladder pain syndrome (BPS) is given [5] . International societies vary in their opinion of the duration of symptoms, from 6 weeks (American Urological Association [6]) to 6 months (European Society for the Study of Bladder Pain Syndrome), but all agree the diagnosis is given in the absence of identifiable pathology or causes. The symptoms of BPS have a significant impact on a patient's quality of life and can also be associated with additional pain syndromes, such as vulvodynia and fibromyalgia [7, 8].

Interstitial cystitis (IC) remains a considered diagnosis and a possible phenotype or subtype under the overall diagnosis of BPS. Features of IC include bladder ulcerations, with the original description given by Hunner in 1915 as the appearance of patches of red mucosa exhibiting small vessels radiating to a central pale scar [1].

Cystoscopy is recommended in the investigation of BPS/IC to exclude alternative causes of the presentation, such as bladder carcinoma, endometriosis, infection, and bladder stones [4, 5], but not for diagnosis [4]. Low anaesthetic bladder capacity is associated with BPS/IC and may even form a separate subtype in patients with disease symptoms [9]. Bladder biopsy may reveal associated histological changes, such as a degree of denuded epithelium, ulceration, chronic inflammation, and raised mast cell count [4, 9]. However, one can have pathology consistent with the diagnosis of BPS, but there is no histology that is pathognomonic of this syndrome.

As is the case with a broad definition and wide range of clinical findings, there are challenges in clinical and basic science research as well as for the clinician managing patients with BPS/IC. In recent studies on the aetiology of BSP/IC, potential biomarkers have been identified from urine, stool and bladder biopsy specimens;however further research into these biomarkers and their association with clinical severity and impact are required [10, 11]. The study of the urinary microbiome in urogynaecology has become a recent focus [12–15], but no significant urobiome differences among patients with BPS/IC have so far been identified [15].

The likely multi-factorial aetiology results in a wide range of available management options.

General relaxation, stress and pain management, patient education, self-care and behavioural modification, a low-histamine diet, as well as manual physical therapy/trigger point techniques are often first-line, non-invasive treatment methods. Medical management includes antihistamines (i.e. cimetidine, hydroxyzine), antidepressants (i.e. amitriptyline, duloxetine), pentosan polysulfate, as well as pain management treatments (i.e. gabapentin and pregabalin).

Intravesical treatments with instillations using hyaluronic acid, chondroitin sulfate, dimethyl sulfoxide, corticosteroid (e.g. hydrocortisone, triamcinolone), lidocaine and heparin have been found to be effective in treating symptoms [16];

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however, the best combination, dosage, and frequency are yet to be determined.

Bladder dome or trigone injection with Botulinum toxin A, a neurotoxin, and triamcinolone, particularly in the presence of ulceration, have been studied [17, 18]. Both have shown treatment benefit with a reduction in bladder pain; however, both are not curative and require repeated treatment. Risks of urinary tract infection, dysuria and urine retention have been reported with the use of Botulinum toxin [17].

If ulcerations are identified at cystoscopy, transurethral fulguration or ablation or resection is recommended, producing symptom improvement in 50–81% of treated patients [18]. Medically recalcitrant cases may be suitable for sacral neuromodulation. Success rates, particularly with optimized protocols to include motor response with low (≤3 V) voltage stimulation, can produce clinical benefit, with a reduction in visual analogue pain scores and validated symptom questionnaire scores in up to 95% of patients [19].

Resistant cases may benefit from adjuvant treatment with cyclosporine, which inhibits production and release of lymphokines and therefore suppresses cell-mediated immune response. The last line of treatment is surgery, which can include urinary diversion without cystectomy, augmentation ileocystoplasty and cystectomy [20].

There is still much to understand on the topic of BPS/IC. In response to Hunner, the scientific community has "awakened to its existence" and made encouraging steps towards identifying the aetiology and optimizing treatment of this "…condition which is not so rare" [21].

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