During urodynamic studies, pain on bladder filling, a reduced first sensation to void and reduced bladder capacity are consistent with BPS; however, there are no urodynamic criteria that are diagnostic for BPS. The presence of detrusor overactivity, which is seen in approximately 14% of patients with BPS, should not preclude a diagnosis of BPS.[31] Pressure flow studies may be considered in patients where there are coexisting voiding symptoms, but are not recommended for the diagnosis of BPS.[32]

Evidence level 2–

Any suspected additional pelvic or abdominal pathology should be appropriately investigated.

5.3 How can we classify the severity of BPS?

Clinicians should use a validated symptom score to assess baseline severity of BPS and assess response to treatment.

B

The use of visual analogue scales for pain should be considered to assess severity of pain in BPS.

D

Symptom scores can be used to grade the severity of BPS and assess response to treatment. There are three published BPS symptom questionnaires: the University of Wisconsin IC Scale,[33] the O'Leary-Sant IC Symptom Index and IC Problem Index,[34] and the Pelvic Pain and Urgency/Frequency Scale.[17] All have been validated in patients with BPS, and the University of Wisconsin IC Scale, and the O'Leary-Sant IC Symptom Index and IC Problem Index have shown responsiveness to change over time.[32] In a comparison of questionnaires used for the evaluation of chronic pelvic pain, there was a good correlation between the IC Symptom Index, and the Pelvic Pain and Urgency/Frequency symptom scores for bladder complaints, but poor correlation for quality of life (QoL).[35]

Evidence level 2++

A number of different rating scales have been devised to measure pain, such as numerical rating scores or the McGill pain questionnaire.[36] The rating scales rely on a subjective assessment of the pain. Although a visual analogue scale is an easily administered instrument to capture pain intensity, a pain-related QoL measure, such as the brief pain inventory, gives a far better assessment of baseline pain and response to treatment.[37]

Evidence level 3

6. What is the effect of BPS on QoL?

Patients with BPS can have low self-esteem, sexual dysfunction and reduced QoL.

C

Patients with BPS may have other coexistent conditions impacting on their QoL.

D

Patients will often be highly anxious about their symptoms and may present with low self-esteem and poor QoL.[38] Women with BPS can present with sexual dysfunction.[39] Partner and family support are important and early referral to a clinical psychologist, patient support groups and cognitive behavioural therapy should be considered for persistent BPS. QoL can be assessed formally using questionnaires, such as the King's Health Questionnaire, EuroQoL or Short Form-36 Health Survey.

Evidence level 2–

The coexistence of other chronic pain conditions, such as endometriosis and irritable bowel syndrome, can make diagnosis challenging and add to the impact on the patient's QoL.[40,41]

Evidence level 3

7. What is the initial management? (see Appendix IV)

7.1 *Conservative treatments*

Dietary modification can be beneficial and avoidance of caffeine, alcohol, and acidic foods and drinks should be considered. D

Stress management may be recommended and regular exercise can be beneficial. D

Analgesia is recommended for the symptom of pelvic or bladder pain. ✓

There are limited data on the benefits of acupuncture. D

A survey of 1982 participants with IC[42] revealed that 87.6% of patients reported symptomatic improvement with an elimination diet and 86.1% by complete avoidance of comestibles outlined in a paper by Shorter et al.,[43] although treatment duration was not specified. Certain foods that worsen pain are alcohol, citrus fruits, coffee, carbonated drinks, tea, chocolate and tomatoes.[18] If dietary modifications do not help symptoms, these foods can be reintroduced.

In the same survey,[42] 76.4% of patients reported symptomatic improvement using relaxation techniques, 66.8% using meditation, 64.5% listening to music and 80.5% with stress reduction. In addition, 65.2% of patients reported symptomatic improvement with regular exercise.

Evidence level 3

Between 30% and 61% of patients presenting with chronic pelvic pain have BPS, so although there are no data available about the efficiency of different forms of analgesia in the treatment of BPS, simple analgesia, such as paracetamol and ibuprofen, may be useful at treating the key symptom of pain in this condition.[40,44] However, opioids should be used with caution as there is little evidence they are useful for long-term chronic pain. Early referral to a pain clinic should be considered for patients with refractory symptoms.[45]

Evidence level 4

A systematic review of three observational studies with a total of 22 patients[46] suggested that acupuncture provided moderate symptomatic improvement; however, these are very small numbers and a large randomised trial is needed to properly evaluate treatment effectiveness.

Evidence level 3

7.2 *Pharmacological treatments*

Oral amitriptyline or cimetidine may be considered when first-line conservative treatments have failed. Cimetidine is not licensed to treat BPS and should only be commenced by a clinician specialised to treat this condition. B

A systematic review[47] of two randomised controlled trials (RCTs)[48,49] that included a total of 281 patients who were treated with increasing titrated doses of amitriptyline between 10 mg and 100 mg over a 4-month period showed trends in improvement in urinary urgency, frequency and pain scores in both trials compared with nontreated patients. However, these were only statistically significant in the smaller study of 48 patients.[49] Compliance is often affected by the adverse effects, which include dry mouth, constipation, sedation, weight gain and blurred vision.

Evidence level 1–

One RCT[50] compared 36 patients treated with a 3-month course of 400 mg cimetidine orally versus placebo twice daily. All patients had symptomatic improvements, but these were more pronounced in the treatment group, especially for pain and nocturia. The small sample size and short duration of follow-up are limiting factors in this study. Cimetidine is currently not licensed for the treatment of BPS.

Evidence level 1–

Multimodal therapy may be considered if single drugs are unsuccessful, but should be commenced by consultants with special expertise and consideration of multidisciplinary input.

7.3 Intravesical treatments

If conservative and oral treatments have been unsuccessful, other therapies may be added or substituted using an individualised approach. This will depend on the experience and expertise of the clinical team involved, and onward referral to a specialist centre with expertise in chronic pain management and access to professionals from other specialties to provide a multidisciplinary approach to care may be appropriate. Options include:

Intravesical lidocaine. B

Intravesical hyaluronic acid. B

Intravesical injection of botulinum toxin A (Botox). B

Intravesical dimethyl sulfoxide (DMSO). C

Intravesical heparin. D

Intravesical chondroitin sulfate. D

Lidocaine is a local anaesthetic that acts by blocking sensory nerve fibres in the bladder. One RCT[51] reported on 102 patients treated with a 5-day course of 200 mg intravesically administered lidocaine with alkalinised instillation of 8.4% sodium bicarbonate to a final volume of 10 ml versus placebo. Over a 29-day follow-up period, 30% of treated patients compared with 9.6% of the control group reported symptomatic improvement.[52]

A systematic review of controlled and observational studies evaluated hyaluronic acid, for example, Cystistat® (Teva UK Limited, Castleford, Yorkshire) given in a weekly regimen for up to 4–10 weeks, with varying follow-up times. It appears to be an effective intravesical treatment with a number needed to treat of 1.31.[53]

Evidence level 1–

A systematic review[54] evaluating intravesical injection of Botox in BPS patients found three RCTs[55–57] and seven prospective cohort studies[58–64] with a total of 260 patients. Eight of these studies reported symptomatic improvement,[55,56,58–61,63,64] although, 7% of patients needed post-treatment self-catheterisation. Clinicians and patients might consider trying bladder instillations before resorting to invasive treatments like Botox injections into the bladder, including the trigone. For this reason, it should be performed by a consultant with a special interest in this clinical field.

Evidence level 2++

A systematic review[65] of pharmacological managements of BPS identified one randomised crossover study[66] that evaluated 33 patients given placebo (saline) or 50% DMSO for two sessions each week for 2 weeks. Of the treatment group, 53% had marked symptomatic improvement compared with 18% of the placebo group. Adverse effects include a garlic-like taste and odour on the breath and skin, and bladder spasm. Full eye examination is needed prior to starting treatment and 6-monthly blood tests for renal, liver and full blood counts are advised. This treatment may not be offered in all hospitals in the UK as it is an unlicensed treatment that needs to be prescribed by a consultant with special expertise in this clinical field. For this reason, referral to a specialised centre would be recommended.

Evidence level 2+

One observational study[67] evaluated 48 patients treated with 10 000 units of heparin in 10 ml sterile water instilled three times a week for 3 months. The study reported that 56% of patients achieved clinical remission over 3 months and 50% of patients had symptomatic control after 1 year.

An individual participant meta-analysis of 213 patients[68] showed some benefit in the global response assessment using 2% intravesical chondroitin sulfate. Small observational studies of 43 patients[69–71] have shown symptomatic improvement using a combination of intravesical hyaluronic acid and chondroitin sulfate, with data suggesting a sustained effect for up to 3 years. Use of multimodal therapies needs to be initiated with specialist clinicians after multidisciplinary input.

Evidence level 3

7.4 Further treatment options

Further options should only be considered after referral to a pain clinic and discussion at a multidisciplinary team (MDT) meeting. ✓

Cystoscopic fulguration and laser treatment, and transurethral resection of lesions can be considered if Hunner lesions are identified at cystoscopy. ✓

Neuromodulation (nerve stimulation), in the form of posterior tibial or sacral neuromodulation, may be considered after conservative, oral and/or intravesical treatments have failed, in a multidisciplinary setting. D

Oral cyclosporin A may be considered after conservative, other oral, intravesical and neuromodulation treatments have failed. D

Cystoscopy with or without hydrodistension may be considered if conservative and oral treatments have failed. D

Major surgery may be considered as last-line treatment in refractory BPS. D

Hunner lesions do not respond to oral treatments and need surgical management. They are usually diagnosed by cystoscopy with the appearance of a well-demarcated, reddish, mucosal lesion lacking in the normal capillary structure, which usually bleeds.[72] Two observational studies[73,74] reported success when using Nd:YAG (neodymium:yttrium-aluminium-garnet) laser under cystoscopic control in patients with BPS with Hunner lesions. Fifty-one patients were treated, resulting in 88% symptomatic relief within 2–3 days of treatment; however, 45% needed additional treatment within 23 months. Since these lesions do not usually respond to oral treatments, fulguration and resection should be considered at an early stage.

Posterior tibial nerve stimulation (PTNS) is likely to require a fine needle being inserted 5 cm cephalad from the medial malleolus and posterior to the margin of the tibia at the site of the posterior tibial nerve. The treatment regimen is usually weekly for 10–12 weeks.[75] Sacral nerve modulation involves an initial test phase with insertion of a test lead tunnelled under the skin, transmitted onto the nerve roots exiting the S3 foramen, causing stimulation of the pelvic and pudendal nerves. The lead is connected to a stimulator which is exchanged for a permanent implant if successful.[76] There are no RCTs evaluating either form of neuromodulation. Effectiveness data come from observational studies. One study reported efficacy of PTNS in 18 patients[77] and five studies[78–82] reported on sacral nerve stimulation in 150 patients. All studies showed improvements in symptoms and QoL. Both forms of neuromodulation are invasive procedures and are associated with potential risks, although, PTNS is an office-based (outpatient) procedure with no incisions. This treatment should be carried out in centres with expertise at managing chronic pain in a multidisciplinary care setting.

Evidence level 3

One observational study[83] of 23 patients treated with low-dose oral cyclosporin showed improvements in bladder capacity, voiding volumes, pain and decreased urinary frequency; however, symptoms recurred with treatment cessation. Adverse effects include hypertension, gingival hyperplasia and facial hair growth.

Cystoscopy is recommended as a treatment rather than solely as a diagnostic tool. Three observational studies[84–86] have described variable symptomatic improvement. However, within 6 months, symptoms had recurred in the majority of patients.[84–86] Bladder rupture is a possible complication of prolonged distension of a diseased bladder; hence, low-pressure distension is advised.[30]

Total cystectomy and urinary diversion in the form of supratrigonal cystectomy with bladder augmentation, bowel or supratrigonal cystectomy, and orthotopic neobladder formation will likely need intermittent self-catheterisation, and patients must be aware of the likelihood of persistent pelvic and pouch pain post surgery.[72] Urinary diversion in the form of an ileal conduit (with or without simple cystectomy) will not require intermittent self-catheterisation.[87] This surgery is usually performed in specialist centres by a urologist. A retrospective observational study[88] of 47 patients who had reconstructive surgery, including cystectomy, ileocystoplasty and urinary diversion, for BPS found that 82% of patients with Hunner lesions had symptomatic relief after surgery compared with 23% with non-ulcer disease after an average 89-month follow-up period.

