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Restoring pelvic stability and nerve function with dextrose injections: A clinical framework for chronic pelvic pain

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ABSTRACT

Objective: Chronic pelvic pain without a clear etiology remains a diagnostic challenge in gynecology. In many women, standard investigations are normal, yet symptoms persist. A substantial proportion of these cases may involve neuromuscular mechanisms, particularly obturator and pudendal neuralgias. The objective of this work is to propose a structured clinical framework to support diagnostic evaluation and management.

Materials and Methods: This article presents a narrative clinical framework derived from routine perineological practice. It describes a stepwise approach based on clinical history, pelvic nerve examination, assessment of sacroiliac stability, and evaluation of generalized hypersensitivity. Targeted treatment strategies are outlined using dextrose injections: low concentration (5%, perineural injection therapy) for neural involvement and higher concentrations (15-25%, prolotherapy) for ligamentous instability. The identification of psycho-traumatic factors is based on structured clinical history, and autonomic modulation strategies may be considered in selected patients.

Results: This framework allows patients to be classified into clinically coherent profiles, including isolated neuralgia, generalized hypersensitivity associated with psycho-traumatic history, and sacroiliac instability. In clinical practice, dextrose injections may be associated with symptom improvement and functional recovery, although responses vary and should be interpreted within an observational context. Evidence from other peripheral neuropathies provides indirect support for the proposed mechanisms.

Conclusion: This integrative clinical framework may help structure the evaluation and management of chronic pelvic pain by linking clinical findings to targeted therapeutic strategies. It should be considered hypothesis-generating rather than confirmatory, and further controlled studies are required to assess clinical effectiveness.

Keywords: Pudendal neuralgia; obturator neuralgia; sacroiliac instability; post-traumatic stress disorders; pelvic pain; lower urinary tract symptoms; urge incontinence; cystalgia; dyspareunia; PGAD

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INTRODUCTION

Chronic pelvic pain is a frequent reason for consultation in perineology.[1] In a significant proportion of patients, standard investigations (pelvic imaging, urological assessment, infectious disease work-up) are normal, leading to diagnostic uncertainty and, at times, a psychogenic interpretation of symptoms.

However, numerous clinical observations show that these complaints often correspond to pain of neuromuscular origin, primarily obturator and pudendal neuralgia. Such neuralgia may be accompanied by reflex myofascial contractures, functional urogenital disorders, and persistent perineal pain.

Beyond these peripheral lesions, two major factors contribute to chronicity: firstly, sacroiliac instability, sometimes associated with hyperlaxity or Ehlers-Danlos syndrome; and secondly, generalized hypersensitivity observed in patients with post-traumatic stress disorder.[2]

The emergence and progressive validation of dextrose injections—either at 5% around the nerve [perineural injection therapy (PIT)] or at 15-25% within the ligaments (prolotherapy)—have provided clinicians with a simple, inexpensive, and pathophysiologically plausible tool for managing this patient group.[3]

The aim of this article is to describe an integrated clinical approach, beginning with the patient's history and physical examination and leading to targeted treatment with dextrose injections.

MATERIALS AND METHODS

Study Design

This manuscript presents a narrative clinical framework intended to support structured diagnostic reasoning in chronic pelvic pain. It is not designed as a formal case series with predefined inclusion criteria, standardized outcome measures, or protocolized follow-up.

Clinical Evaluation

Evaluation of a patient presenting with unexplained chronic pelvic or perineal pain is based on four complementary components: targeted history taking, pelvic nerve examination, assessment of sacroiliac stability and evaluation of generalized hypersensitivity.

Targeted History

The medical history aims to distinguish between pain of pudendal origin and pain of obturator origin. Pudendal pain is typically aggravated by sitting or cycling and affects the superficial vulvo-anal or clitoral region.[4-6] The presence of a PGAD-SAS (persistent genital arousal disorder–sexual arousal syndrome; intrusive sexual sensations occurring out of context) or proctalgia fugax is very suggestive.[7,8]

Obturator pain is deeper, unaffected by position, and often associated with inguinal, hip, or knee radiation, uterine pain (contractions) or sensations of a vaginal or rectal foreign body.[9]

A systematic search for functional urinary disorders (pollakiuria, nocturia, dysuria, painful bladder), sometimes with recurrent cystitis, dyspareunia, coccygodynia, or anorectal disorders (dyschezia, incontinence), is essential, as these are often secondary to pelvic nerve irritation rather than primary bladder or rectal pathology.

The history should also explore traumatic or psycho-traumatic events such as assaults, harassment, sexual abuse, or car accidents. These elements are common in patients with generalized cutaneous hypersensitivity or PTSD (post-traumatic stress disorder) and should be considered as potential contributing clinical factors requiring careful evaluation.

Finally, complaints of low back pain, restless legs, leg pain or paresthesia, unsteadiness while walking, or difficulty turning over in bed suggest sacroiliac or pelvic instability, particularly in hypermobile individuals.

These four components are assessed sequentially to differentiate primary neural pain from secondary musculo-ligamentary mechanisms and generalized autonomic hypersensitivity.

Clinical Examination

Pelvic Nerve Assessment

The examination is performed in the gynecological position and follows a structured and standardized clinical sequence linking symptoms to the structures involved.

The first step involves palpating the pudendal nerves vaginally or rectally at 5 and 7 o'clock, below the ischial spine and within Alcock's canal (Figure 1).[10,11] Sharp pain on pressure is suggestive of neuralgia. The compression test between the sacrospinous and sacrotuberous ligaments reproduces sitting pain and reinforces the diagnosis. Para-urethral palpation of the pubis is frequently painful on the side of pudendal neuralgia and can serve as a screening test.

The obturator nerves are palpated at 3 and 9 o'clock within the obturator foramen; provoked pain here also suggests neuralgia.[9]

A skin-rolling test is then performed over the cutaneous innervation territory: from the para-coccygeal to the para-clitoral region for the pudendal nerve, and along the medial aspect of the knee for the obturator nerve. A painful skin-rolling test is clinically suggestive of neuralgia (Figure 2).

Pinprick sensitivity is also tested in the vulvo-perineal areas (pudendal nerve) and the inner knee (obturator nerve).[12]

Contractures and Myofascial Trigger Points

Pelvic neuralgia frequently induces reflex contraction, with trigger points, of the obturator internus, piriformis and puborectalis muscles. Such secondary muscle spasm may mechanically irritate the adjacent pelvic nerve, leading to cross-irritation; pudendal neuralgia may therefore arise as an indirect consequence of primary obturator neuralgia, and vice versa.

Stress may also contribute to sustained perineal muscle contraction, potentially leading to mechanical irritation of the obturator nerve. The analogy of a terrified dog holding its tail between its hind legs illustrates this posture-related mechanism.[13] In humans, the coccyx represents the vestigial equivalent of the tail, and chronic stress-related perineal contraction may contribute to mechanical irritation of the obturator nerve.

Of course myofascial trigger points can be induced by postural or podiatric disorders and may be treated manually (trigger points release), but they have been observed to improve once the neuralgia itself is treated with PIT, without establishing a direct causal relationship.[13]

Assessment of Sacroiliac Instability

Sacroiliac instability is evaluated using several simple signs: Pain on palpation of the sacroiliac joints and/or pubic symphysis, unstable single-leg stance improved by a sacroiliac belt, and improvement in the straight leg raise test (20°) under transverse pelvic compression.

This instability should prompt active investigation for hypermobility or Ehlers-Danlos syndrome using the Hamonet questionnaire (Table 1).[14]

Percussion of the sacroiliac joints, sacrotuberous ligaments, or the pubic symphysis with a standard reflex hammer may reproduce characteristic pain irradiation, supporting a ligamentary contribution to neurological symptoms involving the lower limbs, lumbar spine, or perineum.

Generalized Hypersensitivity (Polyneuralgia) and PTSD

The arm skin-rolling test is routinely performed: If painful, it suggests generalized cutaneous hypersensitivity related to sympathetic nervous system hyperactivity (Figure 3). When the test is positive, skin sensitivity should also be assessed (skin rolling or pinch) at other body sites to rule out a localized upper-limb neuralgia, including reference areas such as the

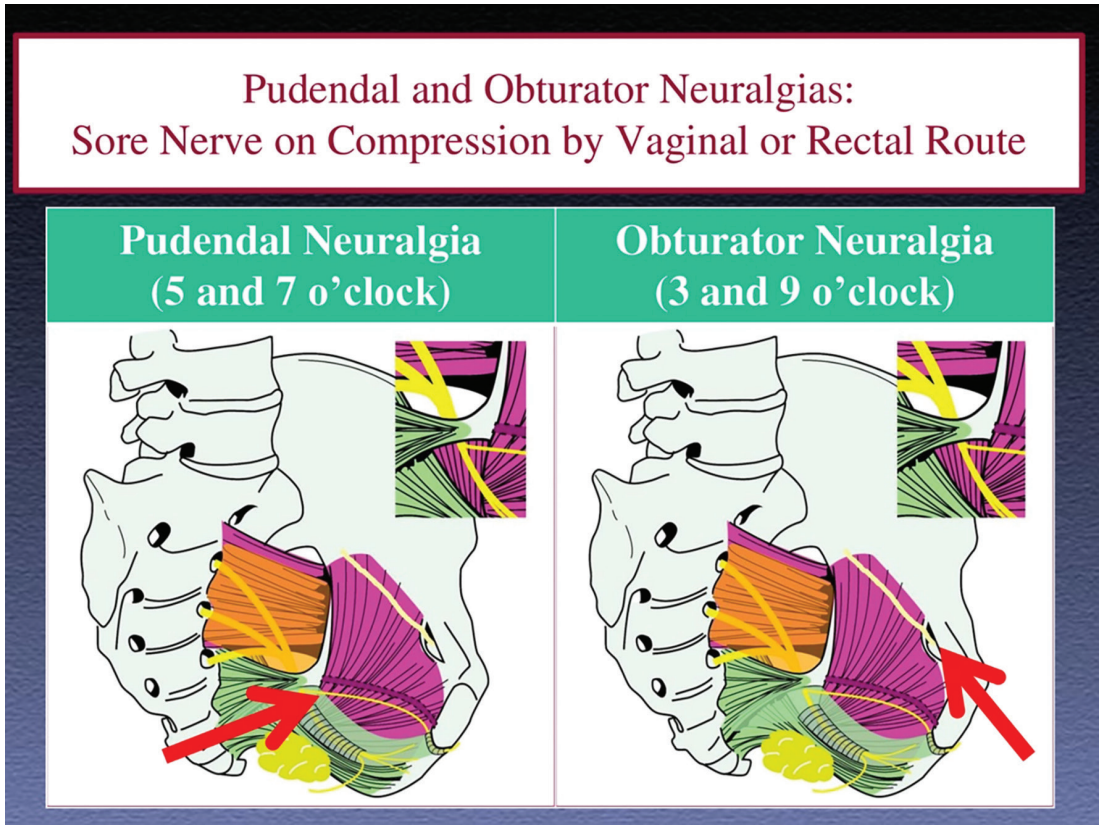

Figure 1. Clinical palpation of the pudendal and obturator nerves.
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acupuncture points CV6 and CV12, discussed later in this article. Patients with confirmed generalized hypersensitivity require specific management incorporating autonomic nervous system modulation.

In this observational framework, psycho-traumatic factors were identified through structured clinical history-taking and, when available, previously established psychiatric diagnoses reported by the patient. No standardized PTSD screening instrument was systematically applied. The association described should therefore be interpreted as a clinical correlation rather than as evidence of causation.

This structured clinical assessment allows patients to be classified into clinically coherent profiles guiding therapeutic strategy.

Ethical Considerations

All patients received clear and comprehensive information regarding the diagnostic procedures and injection techniques described in this article. Informed consent was obtained from all participants prior to treatment, in accordance with institutional and ethical requirements.

The study protocol and manuscript were approved by the Ethics Committee of CHC Liège (Belgium; OM087 accreditation), reference number 25/43/1360.

Statistical Analysis

This study is a descriptive and observational clinical work based on routine medical practice. No randomization, control

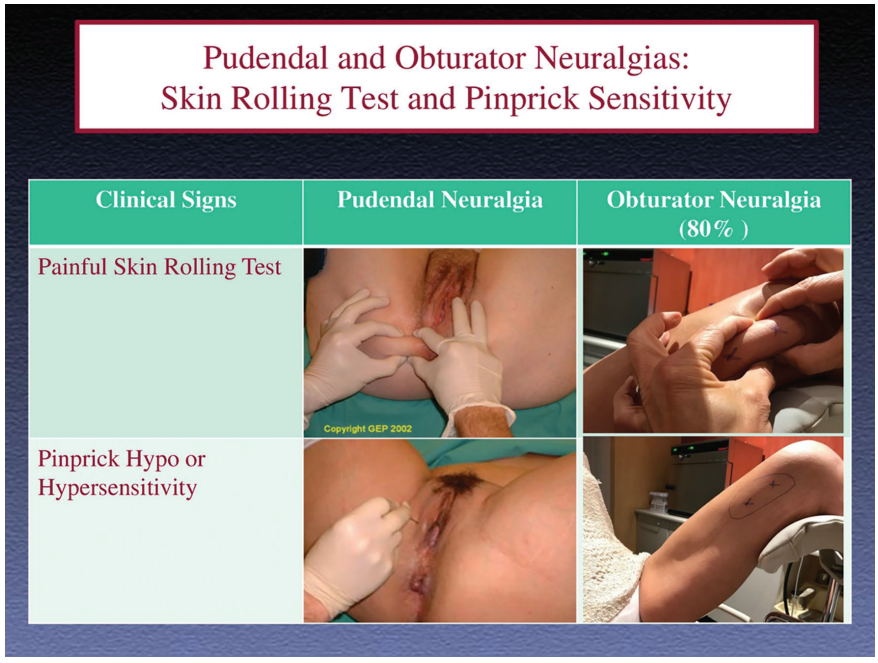

Figure 2. Skin-rolling test and pinprick sensitivity in pudendal and obturator nerve territories.
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Table 1. Screening for Ehlers-Danlos syndrome: Hamonet ECSS-62

No.	Symptom domain	Typical clinical features (examples)
1	Articular and peri-articular pain	Multiple sites; neuropathic quality or paroxysmal crises on a background of continuous pain; worse the day after physical effort
2	Marked fatigue	Present on waking with a sensation of bodily heaviness; highly disabling; sometimes associated with somnolence
3	Impaired voluntary motor control (proprioceptive origin)	Clumsiness; bumping into obstacles (“door sign”); gait deviation
4	Joint instability	Pseudo-sprains; subluxations or dislocations; joint cracking or locking episodes
5	Thin, pale, translucent skin	Visible venous network; electrostatic discharge sensations
6	Joint hypermobility	Past or present extreme flexibility; may be masked by pain and muscle contractures
7	Gastro-oesophageal reflux	Recurrent or persistent reflux symptoms
8	Easy bruising/purpura	Bruising after minimal trauma; miget sign after blood test
9	Hyperacusis	Noise intolerance; difficulty understanding speech in noisy environments
A screening result is considered suggestive when more than 5 of the 9 symptom domains are present		

group, or hypothesis-driven statistical testing was performed. Consequently, no inferential statistical analysis was applied.

CLINICAL PROFILES AND THERAPEUTIC MANAGEMENT

Applying this approach allows three main clinical profiles to be distinguished:

(1) isolated pudendal or obturator neuralgia;

(2) polyneuralgic patients with a clinical history suggestive of PTSD or psycho-traumatic exposure;

(3) patients with sacroiliac instability causing mechanical irritation of the pelvic nerves.

Isolated Neuralgia: Perineural Injection Therapy (PIT)

Isolated pudendal and obturator neuralgias are primarily treated with 5% dextrose (D5W) injections using the PIT described by Lyftogt.[15] Dextrose is injected subcutaneously or perineurally along the painful pathway and at points identified by the skin-rolling test (Figures 4-8). Three to four sessions, spaced 7-14 days apart, are often followed by normalization of palpation findings and symptom reduction in clinical practice, although responses may vary between patients.

The rapid analgesic effect has been hypothesized to relate to correction of C-fibers neuroglycopenia caused by compression of the vasa nervorum and/or to modulation of TRPV1-mediated nociceptive signaling. Randomized studies at other sites of peripheral neuropathy (e.g., carpal tunnel syndrome, ulnar nerve) suggest a potential benefit of D5W over corticosteroids or placebo, providing indirect biological plausibility for its use; extrapolation to pelvic neuralgia should be interpreted cautiously.[16,17]

Of course, in cases of pudendal neuralgia, protective strategies—such as using a U-shaped cushion when sitting, avoiding cycling or heavy lifting, and shifting backwards on the toilet seat in cases of perineal descent—should be combined with dextrose injections. If these conservative measures fail to provide adequate symptom relief, surgical pudendal nerve decompression may be considered.[7,18,19]

Generalized Hypersensitivity and PTSD: Anti-stress Point Injections

In patients with polyneuralgia, a positive arm skin-rolling test, and a history of trauma, it is useful to add, at the end of the session, D5W infiltration of seven acupuncture points described by Wancura-Kampik, corresponding to the main sympathetic nerve relays (Figure 9).[20]

This technique, inspired by Mulvaney's work on stellate ganglion block in PTSD, represents an extrapolation of autonomic modulation concepts to the pelvic context, and has been

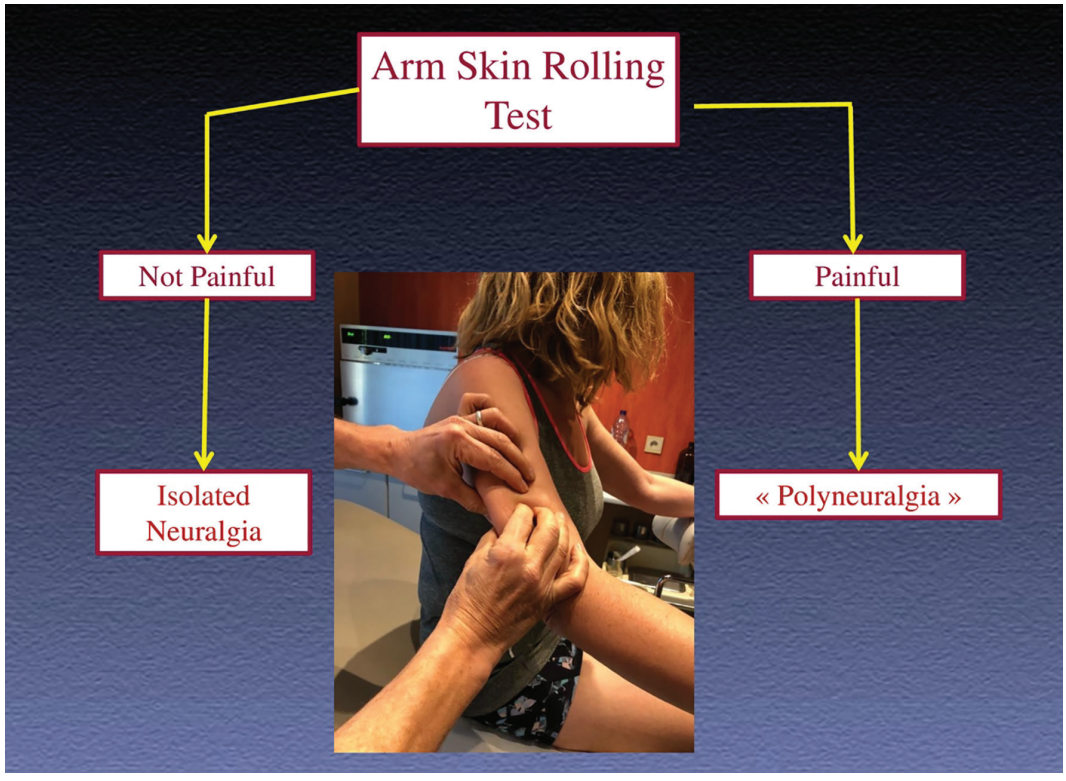

Figure 3. Arm skin-rolling test used to identify generalized cutaneous hypersensitivity and distinguish polyneuralgia from localized neuralgia. Reproduced from Simon A, Beco J. Gunaïkeia. 2025;30(1), with written permission from the publisher

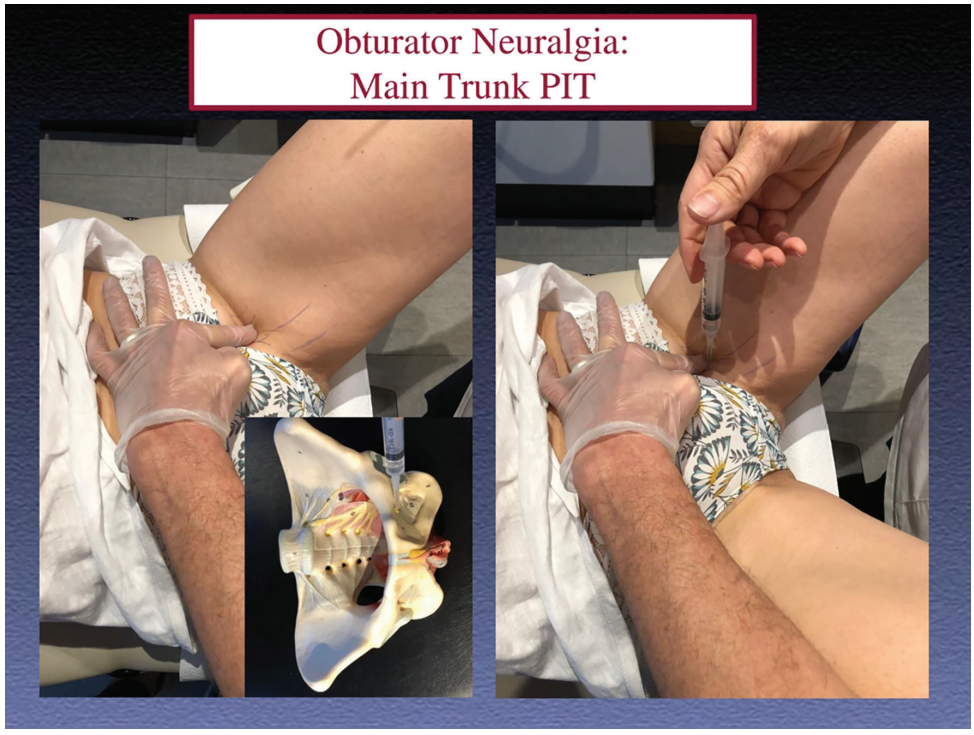

Figure 4. Perineural injection technique (PIT) targeting the main trunk of the obturator nerve.
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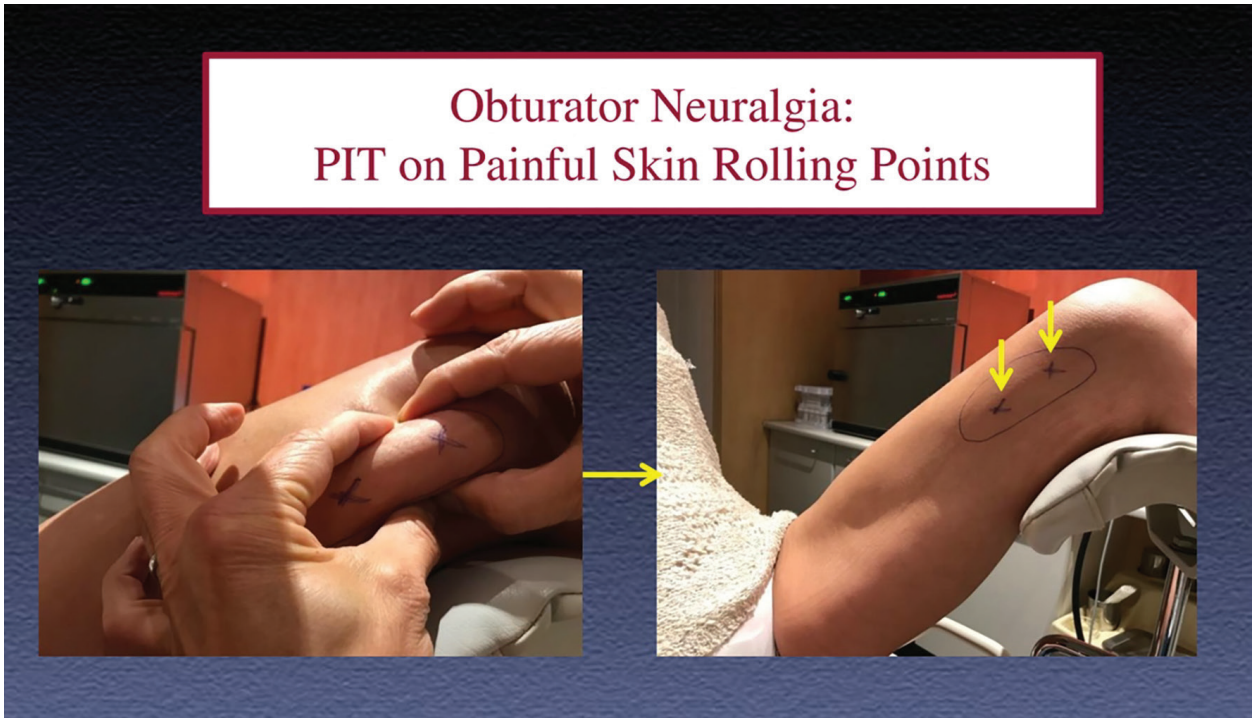

Figure 5. Perineural injection technique (PIT) applied to painful skin-rolling points in obturator neuralgia.
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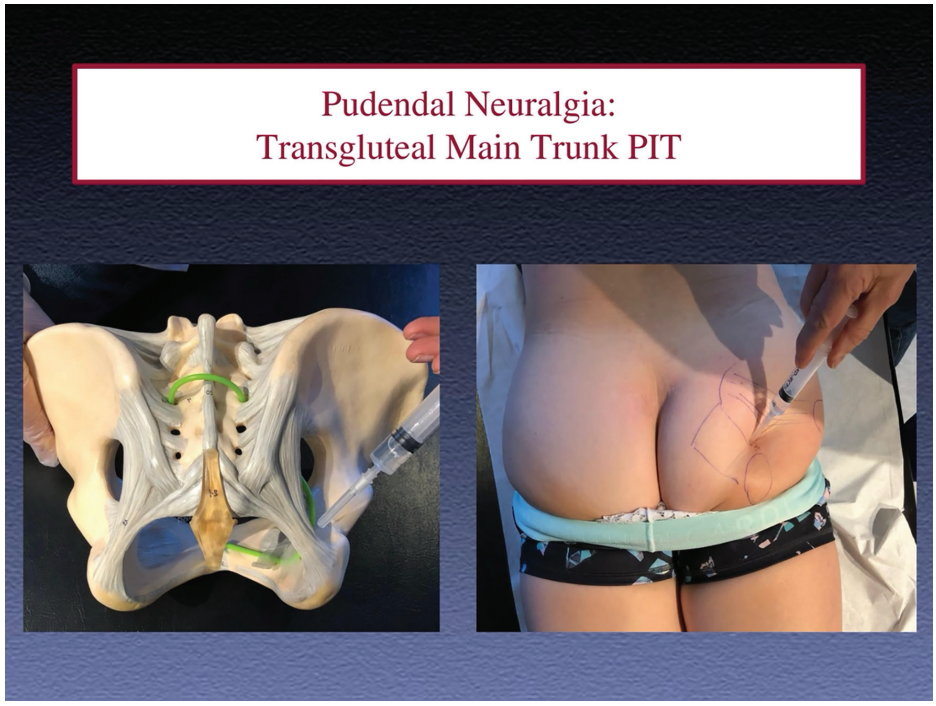

Figure 6. Transgluteal approach for perineural injection of the pudendal nerve main trunk.
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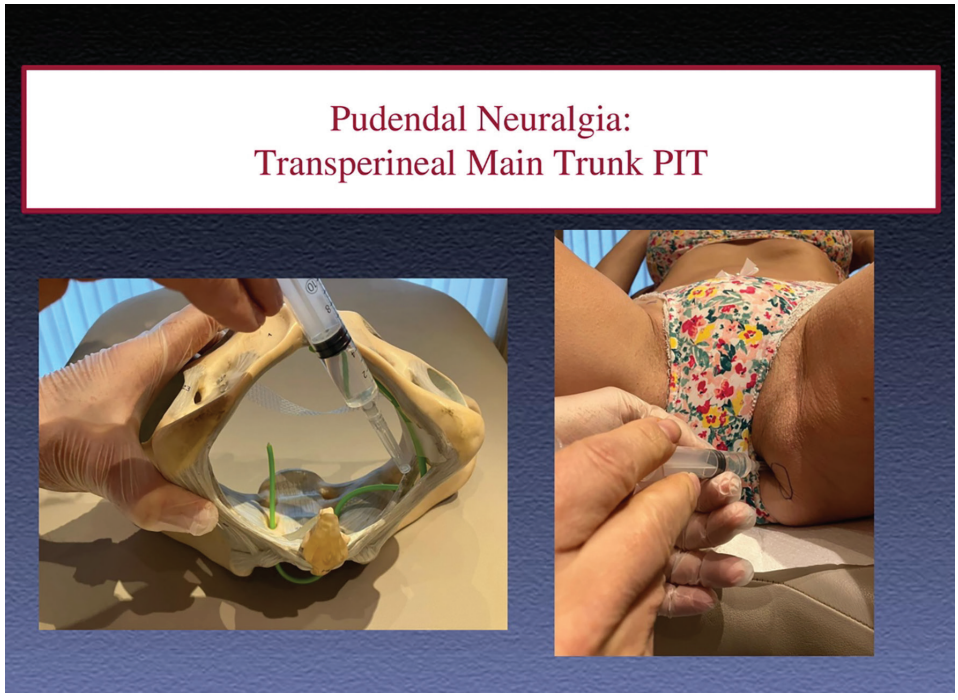

Figure 7. Transperineal approach for perineural injection of the pudendal nerve main trunk.
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reported to provide relief, reduce hypervigilance, and enhance receptivity to body-oriented psychotherapies.[2,21]

Sacroiliac Instability: Prolotherapy

When clinical examination reveals sacroiliac instability, a therapeutic option is prolotherapy with concentrated dextrose injections (15-25%) into the sacroiliac and sacrotuberous ligaments and the pubic symphysis (Figures 10 and 11). Concentrated dextrose is intended to induce controlled inflammation followed by fibroblast proliferation and collagen neosynthesis, thereby tightening the ligamentous structures. Four sessions spaced two to three weeks apart are commonly

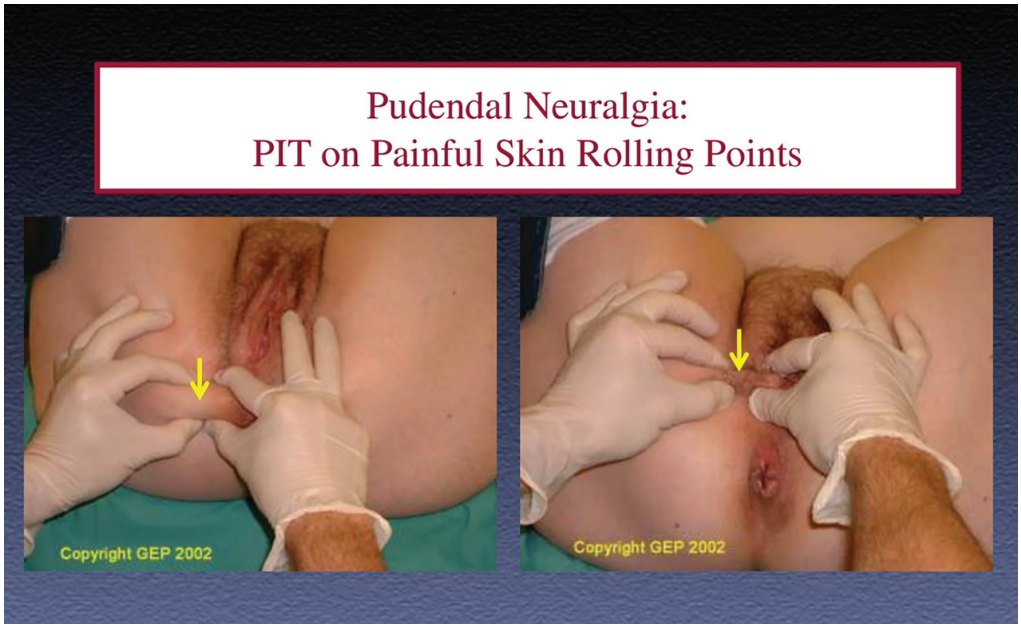

Figure 8. Perineural injection technique (PIT) at painful skin-rolling points in pudendal neuralgia.
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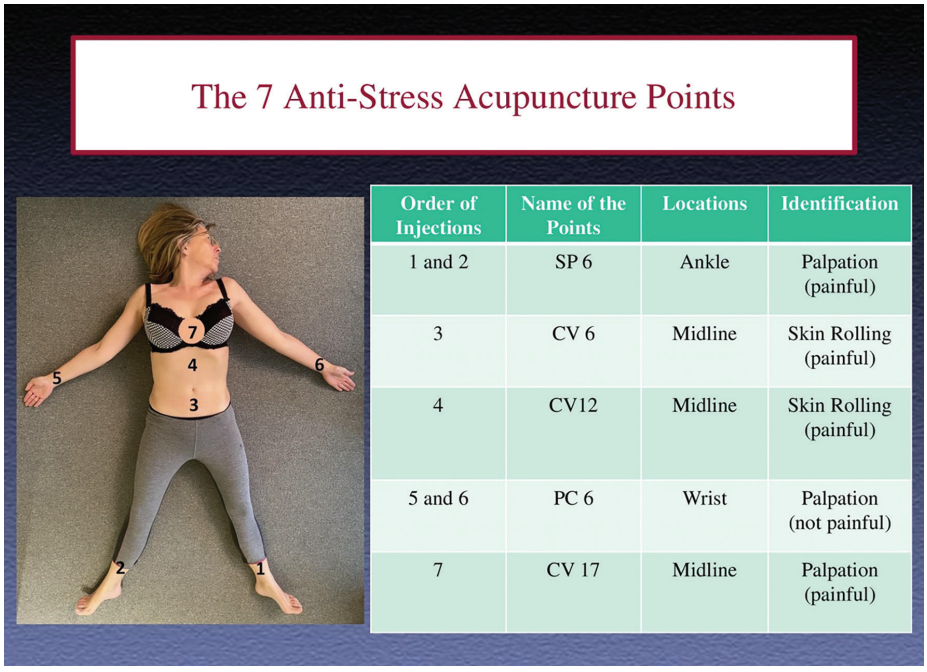

Order of Injections	Name of the Points	Locations	Identification
1 and 2	SP 6	Ankle	Palpation (painful)
3	CV 6	Midline	Skin Rolling (painful)
4	CV12	Midline	Skin Rolling (painful)
5 and 6	PC 6	Wrist	Palpation (not painful)
7	CV 17	Midline	Palpation (painful)

Figure 9. Seven anti-stress acupuncture points used for autonomic modulation, including SP6, CV6, CV12, PC6, and CV17.
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used in clinical practice. The patient can use a sacroiliac belt throughout the duration of the treatment.[22]

These injections can also serve a diagnostic purpose, as lidocaine is always injected together with dextrose. If the pudendal and obturator nerves are not more painful after these injections, it supports a sacroiliac contribution to the pain pattern, although it does not establish definitive causality.

Anti-inflammatory drugs are contraindicated during the treatment period because inflammation is essential for healing. Several studies have shown parallel improvement in pelvic, perineal, and leg pain, supporting a mechanical link between pelvic instability and irritation of the pelvic nerves.[23,24]

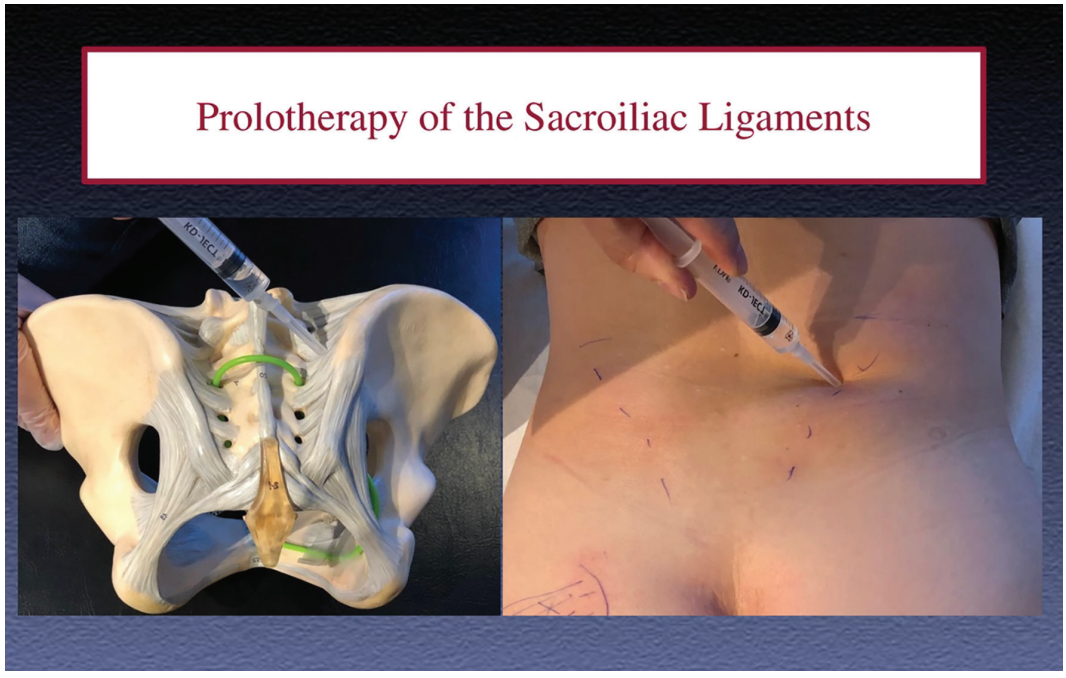

Figure 10. Prolotherapy technique targeting the sacroiliac ligaments.
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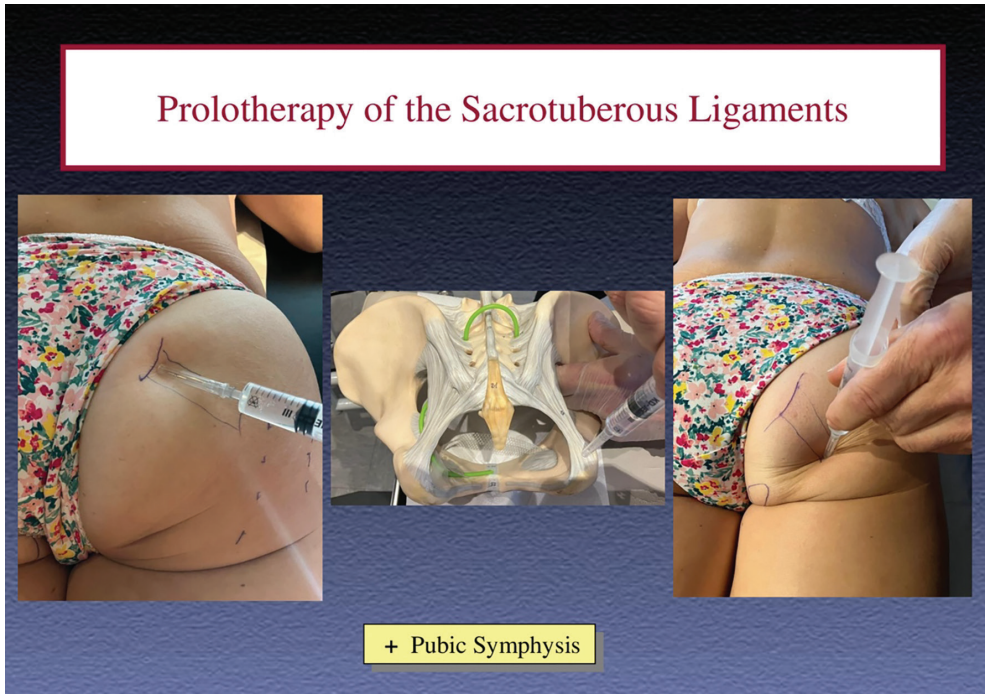

Figure 11. Prolotherapy technique targeting the sacrotuberous ligaments.
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DISCUSSION

This examination-centered approach offers a framework in which symptoms long considered "functional" may be interpreted in relation to anatomical and pathophysiological mechanisms.

Dextrose injections serve a dual purpose: diagnostic and therapeutic. Clinical improvement following perineural injection or prolotherapy may support a neuromuscular contribution to symptoms but should not be considered diagnostic proof.

The safety profile and low cost of dextrose and the possibility of repetition make it particularly suitable for pelvic floor rehabilitation.

The mechanisms of action are proposed to differ according to concentration. At 5%, dextrose may restore nutrition of C fibers under compression, reduce intraneural oedema, and modulate nociceptive discharge. At 15-25%, it is intended to induce a transient inflammatory response followed by ligament regeneration, which is particularly valuable in sacroiliac instability. This dual action enables treatment of both the painful nerve and the underlying mechanical source of irritation.

The sympathetic component should not be underestimated. Many patients with pelvic pain report chronic stress or a history suggestive of PTSD, and the work of Mulvaney and Lipov suggests that targeted sympathetic blockade can improve a range of conditions (hot flushes, ulcerative colitis, CRPS).[25] These observations originate outside the field of pelvic neuralgia and therefore serve as conceptual support rather than condition-specific evidence. Infiltrating the seven anti-stress points with 5% dextrose at the end of each session is a simple, minimally invasive adaptation of this principle to perineological practice.[2] This approach also facilitated timely referral of patients for hypnotherapy and eye movement desensitization and reprocessing, both of which function as complementary modalities to the seven-points anti-stress protocol.

Of course, other nerves and ligaments can also contribute to pelviperineal pain and should be treated accordingly—for example, lax iliolumbar ligaments inducing testicular or vaginal pain, or genitofemoral nerves causing anterior vulvar pain.[22,26] Similar principles of mechanical and neural modulation may be applied. Occasionally, a “sweet caudal” (caudal epidural with 5% dextrose) has been described as potentially beneficial by targeting multiple sacral roots simultaneously.[27]

Study Limitations

The limitations of this approach lie in the still largely observational nature of the evidence. Most available data derive from case series or extrapolations from other fields and should be regarded as indirect and hypothesis-generating. Randomized controlled trials incorporating quality-of-life scores and specific pelvic pain assessments are required.

Of course, true organic causes of pain—such as trans-obturator surgery complications, endometriosis, abscesses or lichen sclerosus—must be excluded, as they may act as persistent nociceptive drivers and precipitate recurrent symptoms.

Furthermore, several potential applications deserve exploration, including prolotherapy of the uterosacral ligaments in certain types of vulvar pain and lower urinary tract symptoms, or of the pubo-urethral ligaments in stress incontinence.[28-30]

CONCLUSION

The management of chronic pelvic pain must systematically include assessment of obturator and pudendal neuralgia, PTSD-type hypersensitivity, and sacroiliac instability. By linking patient history, clinical examination, and targeted dextrose injections, the perineologist gains a coherent and pathophysiological framework. This framework may help reduce diagnostic uncertainty and may support more targeted management strategies in selected patients, while prospective controlled studies are required to evaluate clinical effectiveness.

ETHICS

Ethics Committee Approval: The study protocol and manuscript were approved by the Ethics Committee of CHC Liège (Belgium; OM087 accreditation), reference number 25/43/1360.

Informed Consent: Informed consent was obtained from all participants prior to treatment, in accordance with institutional and ethical requirements.

FOOTNOTES

Contributions

Concept: J.B., A.S., Design: J.B., A.S., Data Collection or Processing: J.B., A.S., Analysis or Interpretation: J.B., A.S., Literature Search: J.B., A.S., Writing: J.B., A.S.

DISCLOSURES

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

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