

Chronic pelvic pain

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Abstract

Chronic pelvic pain is defined as pain in the pelvis lasting for more than six months (some say three). The pain may be experienced in any of the structures of the pelvis, including the gynaecological organs; the lower urinary and gastrointestinal tract; and the vascular, neural and musculoskeletal systems. The pain can be continual, cyclical, provoked or unprovoked, and is frequently multifocal. A woman who complains of painful sex, for example, may also report vulvovaginal pain and dyspareunia; bladder frequency, urgency and suprapubic pain, as well as irritable bowel symptoms. Although an initiating event is sometimes described, such as an episode of severe "thrush" or cystitis, or following pelvic surgery or childbirth, this initial insult may be long forgotten and no longer relevant. Vulvodynia, endometriosis, bladder pain syndrome and irritable bowel syndrome are common causes of chronic pelvic pain in women but are often misdiagnosed and poorly managed.

Keywords: chronic pelvic pain, vulvodynia, vulvar vestibulitis, dyspareunia, painful sex, endometriosis

Introduction

Chronic pelvic pain is defined as pain in the pelvis lasting for more than six months (some say three). The pain may be experienced in any of the structures of the pelvis, including the gynaecological organs; the lower urinary and gastrointestinal tract; and the vascular, neural and musculoskeletal systems. The pain can be continual, cyclical, provoked or unprovoked, and is frequently multifocal. A woman who complains of painful sex, for example, may also report vulvovaginal pain and dyspareunia; bladder frequency, urgency and suprapubic pain, as well as irritable bowel symptoms. Although an initiating event is sometimes described, such as an episode of severe "thrush" or cystitis, or following pelvic surgery or childbirth, this initial insult may be long forgotten and no longer relevant.

The impact of chronic pain on a patient's life is considerable. It affects all spheres of life, from physical and psychological health to relationship intimacy and social interaction. It causes a compromise in work productivity and economic security. The healthcare and social cost burden was estimated at approximately \$2 billion per annum in a USA poll, in which 15% of women reported chronic pelvic pain. Chronic pain, and chronic pelvic pain, in particular, has a reputation among generalists and specialists for being difficult to treat. Doctors and patients have a low threshold for snap diagnoses, such as recurrent vulvovaginal candidiasis in the case of vulvodynia with or without dyspareunia, and recurring urinary tract infection (UTI) or irritable bowel syndrome (IBS) with respect to low abdominal and pelvic pain. Patients become frustrated and despondent, spending considerable time and money seeking a solution. A typical patient sees eight clinicians over many years before a diagnosis is made, and many do not reach this

point. Most treatment failures relate to one or a combination of misdiagnoses, inappropriate or inadequate treatment strategies, and poor patient compliance owing to "failure fatigue" and entrenched maladaptive behaviour.

The science of chronic pain has progressed to the point that there is strong theoretical and experimental support for various pathological mechanisms. Although this text focuses on the pelvis, most of these mechanisms apply to chronic pain throughout the body.

A key concept in chronic pelvic pain is the pathological hyperactivity of the immune and nervous systems in what can usefully be thought of as four domains:

- *Peripheral sensitisation:* This refers to overactive afferent nerve pathways.
- *Pelvic floor hypertonicity:* This refers to upregulation of the pelvic muscle tone.
- *Central sensitisation:* This refers to the abnormal central processing of both the afferent and efferent nerve signals.

These pathologies act in concert, perpetuating the pain. They may evolve in any sequence and combination, and may contribute to the pain cycle in varying magnitudes. With these four domains in mind, the clinician can formulate an individualised approach which takes into account multiple factors in a particular patient.

An inflammatory trigger, such as infection, allergy or endometriosis, may be both an initiating and an aggravating factor, but pelvic floor muscle tension, initially secondary as a guarding reflex, may become the primary factor in perpetuating the pain. In this context, chronic dyspareunia may be the presenting complaint, often with a history of multiple (erroneous) treatments for recurrent thrush, herpes or cystitis.

The initial inflammatory insult has long since resolved but pelvic floor tension myalgia perpetuates the pain and flares with each episode of coitus. Painful coitus leads to loss of the sexual arousal response, vaginal dryness and introital discomfort, adding another pain-generating stimulus to the complex. Pain results in loss of libido, sex-avoidance, emotions of guilt, low self-esteem and depression which can lead to relationship dysfunction and strain. An approach in this patient, for example, while keeping the inflammatory trigger at bay with prophylaxis against recurrent vulvitis, a UTI or the suppression of endometriosis, requires pelvic floor rehabilitation. Pelvic physiotherapy is essential to the effective management of all chronic pelvic pain, and is almost universally underutilised. Relaxation techniques, such as yoga, can be very helpful. Psychosocial and sexual aspects may need to be addressed, particularly as progress may be slow and requires coping strategies and partner participation to achieve resolution.

Presentation and history

Patients with chronic pelvic pain typically present to a clinician seeking a clear diagnosis, and may be desperate and despondent from earlier failed attempts. Internet searching may well lead to accurate self-diagnosis as there are many support groups and patient resources for chronic pelvic pain. The clinician needs to be receptive to this information as a dismissive response can negatively influence further rapport. (Appropriate Internet resources are of considerable value to both patients and doctors.) It is important to allow sufficient time at the first meeting for a detailed comprehensive history, a thorough examination, an explanation of the pathophysiology of chronic pain, and the formulation of an approach to which the patient can subscribe. The rapport established at this first encounter is pivotal to a therapeutic relationship, and the importance of listening and taking time to elicit all the relevant information cannot be overstated. The patient needs to be allowed to "tell her story". This builds her confidence in the process, and offers the clinician important insight as to the degree of compromise caused by the complaint, other external factors significant to her experience, and her particular needs, which may not solely be the resolution of pain. It is better to divide the appointment into parts, rather than to rush it, and this can be explained at the outset. An in-depth history should be the focus of the first appointment followed soon thereafter by another for examination and a workup / management plan. (Pain management should not be delayed and can be commenced from the first appointment).

Frequently, the pain problem which started as "simple" will have grown in complexity over time as it affects and is affected by all other aspects of life. This requires building a picture of all factors and issues which could help to formulate a management plan. Biological, psychosexual, relational, social and cultural domains need to be assessed and managed appropriately to achieve a sustainable therapeutic benefit.

A misconception that is still pervasive among clinicians is that pelvic and sexual pain, in the absence of obvious pathology, has a strong association with early sexual abuse. "Have you ever

had unwanted sex?" remains an essential question in the history but the research suggests a significant link only when the abuse continues into adulthood. (Too much focus on psychological factors may lead to the patient losing confidence in the clinician's recognition of or belief in a physical problem). Predisposing, precipitating and maintaining factors must be identified from the history. The complex interaction of multiple factors that are modulating the pain experience renders an exhaustive search for a primary cause (perhaps no longer present) difficult and often unhelpful. The menstrual history is important as the experience of menstruation in teenage years may set the scene for pelvic pain in adulthood. Severe dysmenorrhoea, tampon intolerance, and bladder and bowel complaints may date back to menarche. A type "A" personality, an anxiety tendency and the diagnosis of fibromyalgia is a frequent profile of the chronic pain sufferer. A cyclical relationship of the pain to menstruation raises a strong suspicion of endometriosis and adenomyosis, but all pelvic viscera and somatic structures can be influenced by the increase in pelvic inflammatory activity triggered by the premenstrual fall in steroid hormones.

The line of questioning must include:

- Incidents of musculoskeletal trauma, especially lumbosacral and coccygeal.
- Exercise preferences which may nurture pelvic floor tension, such as ballet and Pilates.
- Toilet habits and holding patterns.
- Toilet posture.
- Avoidance behaviour, such as avoiding public toilets or "hovering".
- Urinary hesitancy and frequency.
- Bladder pain relating to micturition and coitus.
- Bowel symptoms, including bloating, cramping, constipation, diarrhoea and dyschezia.

This list is not exhaustive, and further questioning about the pain pattern, timing, and exacerbating and relieving factors often establish the way for a working diagnosis. The general history needs to be systemically comprehensive, as even something apparently obscure such as poor breathing habits can influence pelvic floor tension myalgia (core muscles include the diaphragm). Any central or peripheral neurological or vascular condition, either primary or as a sequel of other co-morbidities, such as diabetes, is clearly important.

Autoimmune disease must be considered and the family history is particularly important in identifying possible genetic predispositions, such as diabetes, inflammatory bowel disease, rheumatoid and seronegative arthritis, lupus and scleroderma. The evidence is strong for an immunological pathogenesis in chronic pain syndromes which, among others, include IBS, endometriosis, vulvodynia, bladder pain syndrome and fibromyalgia. Psychiatric conditions are important. Anxiety, depression, post-traumatic stress disorder, past or ongoing emotional, physical and sexual trauma; relationship conflict and day-to-day stress need to be noted.

Examination

Patient presentation, including the gait, demeanour, affect, weight and posture, need to be noted during the general examination. Infectious, inflammatory, neoplastic and neurological disorders must be considered, and the clinician should be led by the history and examination to exclude systemic disease and sinister pathology. Appropriate referral to specialists for further evaluation depends on these findings. Both musculoskeletal and visceral examination is required. An arthritic spine, hip or knee can cause chronic pelvic myalgia, as would chronic constipation and endometriosis, for example.

The pelvic examination must be approached with sensitivity to psychological as well as physical comfort. It is normal for a vaginal examination to be met with a guarded response, which may be involuntary and heightens patient discomfort. Tense perineal muscles trigger a burning pain when stretched, increasing the tension further. Achieving adequate muscular relaxation depends on maintaining patient confidence by acknowledging her discomfort, and being sufficiently gentle so as not to escalate the pain. It is helpful to prepare the patient for a possible flare of pain post-examination, and also to limit the examination according to comfort. A gentle digital examination must precede a speculum examination, (which can be deferred, if needed) so that the perineal muscle tension and trigger points can be assessed.

The examination can be both informative and therapeutic. Access to the pelvis requires adequate muscle relaxation, which can be achieved by progressive myofascial trigger-point release (MFTPR), while encouraging controlled breathing, with further release of pelvic floor tension ("bottom sinking into the bed") at each exhalation. Digital trigger-point release is easily learned, and causes reflexive muscle relaxation at the points of tension (20-30 seconds of gentle pressure on the tense muscle tissue until a loss of tension and muscle lengthening is felt). This physiotherapy technique, which patients can learn to self-administer, is central to the management of pelvic floor myalgia.

Assessing the pelvic floor muscles (*levator ani*) is often neglected, yet it is a common source of pelvic discomfort. The location of painful foci is best recorded as points on a horizontal clock face, i.e. 6 at the perineal body, 12 at the sacrum. The pain severity should be scored (0-10), facilitating objective follow-up assessments. The left side is frequently more tender than the right, and often associated with chronic constipation. (There is also a left-sided predilection in pelvic endometriosis). Cervical excitation tenderness implies an active pelvic inflammatory process. Pain localising to the anterior cervix at the junction with the vagina may relate to bladder pain syndrome (previously interstitial cystitis). Nodular scarring in the rectovaginal septum and uterosacral ligaments is indicative of endometriosis, but a neoplastic process, particularly cervical cancer, must be excluded. Uterine orientation, size, mobility and sensitivity can point to a chronic inflammatory process, such as endometriosis or chronic pelvic infection. A rectal examination should be performed, if indicated, and especially when assessing severe endometriosis.

Again, the examination should be tailored to the patient's tolerance and guided by the history. The patient experience of the examination can be used to guide management choices. It may unmask other levels of anxiety and external factors which require attention before focusing on the pelvic symptoms. An assessment of the cervix and a Papanicolaou (Pap) smear is important, but the timing depends on tolerance of the digital examination and speculum. Vulvovaginal, cervical and urine microbiology is useful for *Candida*, *Chlamydia*, gonococcus and cystitis, as indicated by the history and examination. Pelvic ultrasound imaging is sufficient to assess pelvic anatomy, detect cystic structures and free fluid.

An examination under anaesthesia, vulval biopsy, laparoscopy and cystoscopy may be required for further investigation.

Management

An important tenet of management is that pain has a physical basis and is not psychogenic. Early referral to a psychologist or psychiatrist, while often appropriate at a later point as part of a multidisciplinary team approach, may be counterproductive and compromise the therapeutic relationship. The patient requires affirmation that the clinician recognises the existence of real symptoms, as she may have been told that "there is nothing wrong" on more than one occasion in the past.

"There is nothing seriously wrong, and it should settle" is unhelpful in the context of chronic pain. Listening and affirming the patient's symptoms and the magnitude of the problem as a real physical entity establishes a positive therapeutic relationship, with a greater chance of successful treatment. Agreeing on an approach to the investigation and management, as well as a timeline and checkpoints increases patient compliance. Managing expectations in terms of diagnosis and response time to treatment, including failures, assists with motivation and maintaining patient confidence. Utilising a pain diary is very useful, following the menstrual cycle if relevant, with visual analogue scoring by number (0-10) or by colour (white, yellow, red and black) to indicate severity. Flare triggers must be recorded, including menstruation, bowel or bladder infection, vulval candidiasis, herpes simplex, sexual intercourse, long episodes of sitting, wearing tight clothing, cycling and other pelvic visceral or musculoskeletal stimuli. Non-pelvic triggers include physical or psychological stressors. This offers insight into the diagnosis, perpetuating factors and the approach to treatment. Employing a team approach has been shown to be more effective than single clinician management, and the contributions of physiotherapy and psychology disciplines, when appropriate, are very important. Consultation with a pain specialist, urology, colorectal, neurology and rheumatology colleagues can assist but patients should feel they are being sent "from pillar to post" and too many inputs can be counterproductive.

Vulvodynia

Vulvodynia describes vulval dysaesthesia (itching, burning and "discomfort"), hyperalgesia (more painful than the pain stimulus

warrants) and allodynia (pain from a nonpainful stimulus), and may be provoked (with intercourse, touch or an examination) and/or unprovoked (without direct stimulation). In 2003, a consensus panel of the International Society for the Study of Vulvovaginal Disease (ISSVD) proposed a classification system which simplifies historically familiar and confusing terms, such as vulvar vestibulitis, vestibulodynia and clitoralgia, and specified a definition of chronic pain lasting at least three months in the vulvar region without another definable cause (Table I). This requires exclusion of other causes, such as infectious (e.g. candidiasis and herpes); inflammatory (e.g. *lichen planus*); neoplastic (e.g. Paget's disease of the vulva and squamous cell carcinoma); and neurological (e.g. spinal nerve compression and herpes neuralgia). The classification has two main categories, i.e. generalised or localised, and three subcategories of unprovoked, provoked and mixed. Provoked can be sexual or non-sexual. Vulvar vestibulitis syndrome or provoked vestibulodynia would then fall into the localised, provoked category. However, it makes sense to describe any vulval pain as vulvodynia, and include the "other causes" in the differential diagnosis.

Vulvodynia is common (it occurs in 12-15% of women at some time), and is frequently misdiagnosed as candidiasis or herpes simplex, and failure to respond to antimicrobial agents and the chronicity of the complaint should question this diagnosis. A burning introital and vaginal pain is not typical of thrush, and the cause often relates to pelvic myalgia and neuralgia, which can be primary or secondary to other painful stimuli. Infectious stimuli may play a pathogenic role in chronic vulvodynia. Surface inflammatory causes should be sought on examination, microbiological analysis and biopsy. Over 90% of vulvovaginal candidiasis is sensitive to fluconazole or itraconazole in adequate doses, and failure to respond requires further investigation, rather than multiple courses. The presence of *Candida* on a Pap smear or vulvovaginal swab is common in the absence of infection, i.e. for 20-30% of the time. A white discharge is more likely to be physiological leucorrhoea or bacterial vaginosis in the absence of itching. Herpes simplex recrudescences are typically unilateral and focally painful, and recur in a similar pattern, resolving within a week.

Table I: The 2003 classification of vulvar pain, according to the International Society for the Study of Vulvovaginal Disease

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| A) Vulvar pain due to a specific disorder, such as: <ol style="list-style-type: none"> 1. <i>Infectious</i>: Candidiasis and herpes 2. <i>Inflammatory</i>: <i>Lichen planus</i> and immunobullous disorders 3. <i>Neoplastic</i>: Paget's disease and squamous cell carcinoma) 4. <i>Neurological</i>: Herpes neuralgia and spinal nerve compression) |
| B) Vulvodynia <ol style="list-style-type: none"> 1. Generalised <ol style="list-style-type: none"> a. Provoked (sexual, nonsexual or both) b. Unprovoked c. Mixed (provoked and unprovoked) 2. Localised (vestibulodynia, clitorodynia and hemivulvodynia) <ol style="list-style-type: none"> a. Provoked (sexual, nonsexual, or both) b. Unprovoked 3. Mixed (provoked and unprovoked) |

Commonly called vulvar vestibulitis syndrome, vulvodynia at the introitus (vestibule) is often described as "paper cuts" by the patient, and burns rather than itches. Typically, it causes superficial dyspareunia, persists and flares after intercourse, and may recur after prolonged sitting, cycling or wearing close-fitting clothing. There may be a history of severe dysmenorrhoea from a young age, the inability to insert or comfortably use tampons and dyspareunia from the sexual debut.

There may be subjective erythema on examination, but the surface signs are often absent. Perineal muscle guarding (*vaginismus*) may be present, and prohibit further vaginal examination at this point. How the patient accommodates an examination may direct further investigation and treatment. The "paper cut" symptoms localise to the posterior fourchette, and sensitivity to gentle pressure with a cotton bud ("Qtip") is classically provoked around the base of the hymen (hymenal remnants). Maximum sensitivity is typical at the 5 and 7 o'clock positions. By contrast, there is no such sensitivity on the vaginal aspect of the hymen.

"There is a wall there" (with initial penetration during intercourse) describes involuntary *vaginismus*, a guarding reflex in anticipation of pain. A tense vaginal sphincter may limit the examination and reproduce the burning pain felt during intercourse.

Management

Local triggers and irritants can be reduced by avoiding the use of perfume, shampoo and detergent. Cotton underwear and loose-fitting clothing should be worn. Constipation should be prevented and an overfull bladder avoided. A water-based lubricant must be used during intercourse, and the bladder emptied and rinsed with cool water afterwards. An ice compress reduces post-coital burning. Excessive friction through exercise such as cycling and horse riding is best avoided.

A topical 15% lignocaine ointment or gel can be applied 15-30 minutes before intercourse. It can be mixed with a small amount of petroleum jelly if irritation is a problem. The partner may prefer a condom if penile numbness is a side-effect. A small amount of oestradiol cream is useful if the skin is thin. Some success has been reported with compounded creams containing testosterone and gabapentin (vestibule) and diazepam (intravaginal) but current evidence is weak. If the symptoms commenced on combined hormonal contraceptives, with reduced free testosterone levels, then cessation can lead to resolution and a testosterone-oestradiol compounded cream may assist.

Good results in up to 75% of users have been reported after 25-35 sessions of transcutaneous electrical nerve stimulation (TENS), self-administered with a vaginal probe. Guidance from a physiotherapist who is familiar with its use is important initially.

Painful trigger points in the vestibule can respond well to infiltration with lignocaine and methylprednisolone or with botulinum toxin A. Hypertonic pelvic floor muscles can be treated with botulinum toxin A for the relief of both vulvodynia

and vaginismus. These treatments usually need repeating, but at increasing intervals, when the symptoms return.

A pudendal nerve block (lignocaine and methylprednisolone) can treat generalised vulvodynia, and is particularly useful when there is a combination of vulval, vaginal and bladder symptoms.

Central desensitisation with oral medication applies to most chronic pain syndromes, and the results are highly variable. The side-effects may be limiting, and it may take many months before a benefit is noticed. Amitriptyline has typically been used at 10-30 mg for neuropathic pain, but higher doses achieve more with respect to the degree of benefit. At an average dose of 60 mg, almost 50% of patients experience significant relief. The dosage should be started at 10 mg at night, and increased by 5 mg every five days, until the symptoms are controlled to a maximum of 150 mg. The side-effects of fatigue, a dry mouth and weight gain may be limiting. Venlafaxine 225mg, duloxetine 60mg daily, gabapentin 900mg and pregabalin 75 mg have all shown benefit, but may be limited by side-effects, such as somnolence, dizziness and weight gain. Venlafaxine and duloxetine are useful when anxiety and/or depression are comorbidities. All of them should be commenced at a low dose, and increased at recommended intervals and doses. Combining venlafaxine or duloxetine with gabapentin or pregabalin allows for lower doses of each, with lesser side-effects, if necessary.

When other methods have failed, vestibulectomy can relieve localised, provoked vestibulodynia in up to 70% of patients. Appropriate patient selection and adequate counselling are essential.

Psychological support remains a key part of the management of any chronic debilitating condition. This starts with the lead clinician, but the complexity of pain syndromes and their wider effect on many other aspects of life, and sexual function, in particular, can benefit from a psychological intervention. Cognitive behavioural therapy has been shown to be more successful than non-directional support in pain management. Sexual dysfunction can have a profound effect on relationships and the individual, and sexual health counselling becomes particularly important for long-term management.

Conclusion

The assessment of chronic pelvic pain requires time and attention to detail. The establishment of a therapeutic rapport is a cornerstone of treatment.

Neoplastic processes, chronic infection, other inflammatory and neurological conditions must be sought and excluded.

A pelvic floor physical assessment is integral to diagnosis and management. The benefit of a specialist pelvic floor physiotherapist cannot be overemphasised.

A spectrum of local measures, peripheral nerve desensitisation, central desensitisation and pelvic floor physiotherapy offer a template for pelvic pain management. The approach requires a clear plan and commitment to the strategy by the patient.

A team approach has been shown to be a more successful model than management by an individual clinician. Psychological support and therapy is an important part of this approach, but should be broached in an appropriate patient-centred context.

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