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REVIEW ARTICLE

Chronic pelvic pain syndrome: Role of a thorough clinical assessment

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Abstract

Chronic pelvic pain syndrome (CPPS) presents with a variety of symptoms affecting multiple systems. There is no universal treatment that can be given to all patients with CPPS. The results of treatment depend greatly on an accurate diagnosis. A thorough clinical assessment, including a "four-step plan", should include paying special attention to the musculoskeletal system. This assessment is not difficult to perform and provides valuable information on possible muscular problems and neuropathy.

Key Words: *Assessment, chronic pain, chronic pelvic pain syndrome, guidelines*

Introduction

Chronic pelvic pain syndrome (CPPS) is characterized by continuous or recurrent pain, associated with symptoms related to organs in the pelvic region, without a proven infection or other obvious pathology, such as lower urinary tract (LUT), sexual, bowel, pelvic floor or gynaecological problems, according to the International Continence Society (ICS, 2002) [1,2]. The pain must exist for at least 6 months [irritable bowel syndrome (IBS) for ≥3 months]. The complexity and interactive aspects of CPPS and its multidisciplinary management underline the need for a detailed diagnosis.

Prevalence

Multiple studies have investigated the prevalence of CPPS. Hahn gives a figure of 15% in women between 18 and 50 years of age [3]. Howard suggested a prevalence of 3.8% in women [4]. Bartoletti et al. showed a prevalence of 13.8% and an incidence of 4.5% in Italian men ($n = 5540$) [5]. An Austrian study by Marszalek et al. found complaints of CPPS in 2.7% of men ($n = 1768$) and 5.7% of women ($n = 981$) [6]. Petersen et al. found a prevalence of vulvodynia in 9–12% [7]. Latthé et al. (2006) give a prevalence of non-cyclic pelvic pain in 2.1–24% in a World Health Organization review [8]. Zondervan et al. (1998) showed that 39% of women who underwent a laparoscopy for sterilization or infertility problems had CPPS symptoms [9]. A study in Kuwait, by Gelbaya and El-Halwagy, found CPPS in 10% of ambulatory gynaecological consultations. CPPS was the reason for laparoscopy in 40% or indication for hysterectomy in 10–15% [10]. The variety of "prevalence results" can be explained by the different criteria used to determine CPPS, the different methods of evaluation and the inclusion of different patient groups.

Definition

CPPS has been defined as constant or recurrent pain in the pelvis of non-malignant origin that is present for at least 6 months (IBS for ≥3 months). In CPPS the pain is often accompanied by symptoms related to organs in the pelvis, without a proven infection or other obvious pathology (e.g. LUT, sexual, bowel, pelvic floor or gynaecological problems) (ICS 2002) [1,2,11]. The symptoms are often suggestive of dysfunction of one or more systems in the pelvis and are accompanied by negative cognitive, behavioural,

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sexual or emotional consequences with an important impact on the quality of life [2].

CPPS must be distinguished from chronic pelvic pain (CPP), which is non-malignant pain perceived in structures related to the pelvis and accompanied by similar symptoms as a consequence of a well-defined infection or pathology (e.g. infective pathology, endometriosis, haemorrhoids, anal fissure, pudendal neuropathy, sacral spinal cord pathology, vascular and cutaneous disease, or psychiatric conditions) [2,12]. The exclusion of confusable disease allows idiopathic pain conditions and CPPS to be defined [11,13].

Terminology

CPPS has been subject of many publications and changes in terminology during the past few decades. Examples are the International Association for the Study of Pain (IASP) taxonomy for pain; the International Society for the Study of Vulvovaginal Disease (ISSVD), defining vulvodynia; the recommendations for terminology by the ICS, describing the terminology for urological dysfunction and urogenital pain; and the European Society for the study of BPS (ESSIC) proposals, defining the bladder pain syndrome (BPS) [1,13,14].

Several guidelines [e.g. European Association of Urology (EAU) and ESSIC] subdivide the CPPS into different pathologies related to different organs and/or different causes of pain [11].

Recently, the EAU proposed a focus on pain mechanisms, integrating psychological, social and sexual dimensions of the problem, expanding on the organ-centred origin of complaints [15].

The UPOINT classification consists of six domains: urinary, psychosocial, organ specific, infection, neurological/systemic and tenderness [16–19]. The UPOINT classification highlights phenotyping the prostate pain syndrome (PPS) and BPS.

The Multidisciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) Research Network was launched by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) in 2008 with the aim of organizing a collaborative, whole-body approach to the study of CPPS. The CPPSs are described in Table I.

It is not always easy to determine which of the different syndromes is present because of the overlapping symptoms and the interrelations of the structures present in the pelvic region. The history, examination and investigations may allocate the pain as being perceived in a specified anatomical pelvic area (e.g. BPS, PPS, pudendal pain syndrome). Visceral pain can refer to a cutaneous site, and be accompanied by muscular hypertonicity [20,21], and emotional and autonomic responses [22].

Diagnosis and management of chronic pelvic pain

Specific disease-associated pelvic pain needs appropriate treatment according to designated disease guidelines. In CPPS, the variety of symptoms suggesting organ dysfunction simultaneously in multiple systems indicates the need for a multidisciplinary approach. The common innervation of the pelvic organs and cross-sensitization can partly explain the functional interference between systems [23,24]. Additional assessment may be necessary to provide supplementary information to facilitate a therapeutic diagnosis. Figure 1 shows an algorithm for the diagnosis and management of CPP.

Thorough clinical assessment: the four-step plan

The complexity and interactive aspects of CPPS imply the eventual need for multidisciplinary management. Once the diagnosis CPPS has been confirmed, a further clinical assessment can help clinicians to decide on therapeutic approaches. A thorough clinical assessment is described here, based on the four-step protocol for investigation of CPPS. The thorough clinical assessment aims to acquire the maximum amount of diagnostic information. Table II shows the four steps undertaken to obtain this information.

Step I: History with questioning about complaints in other systems

History taking will produce a list of symptoms that are often related to different pelvic organs. In CPPS a miction anamnesis, asking about frequency, urgency and nocturia, is needed. Bowel habits are investigated. Sexual complaints and impact of the symptoms on quality of life are evaluated. The patient is asked for a description of the pain (e.g. area, onset, presentation, burning feeling related to urination) and interfering factors of complaints. The pain description is scrutinized in detail (e.g. episodic versus constant, single versus several locations, time in relation to voiding, defecation and sexual activity, and bother) (Table III).

Questionnaires can be useful for evaluation [e.g. McGill, Pollard, National Institutes of Health – Chronic Prostatitis Symptom Index (NIH-CPSI), Interstitial Cystitis Symptom Index (ICSI), Pelvic Pain and Urgency/Frequency (PUF) questionnaires]. However, because of their specific properties, they do

Table I. Overview of the chronic pelvic pain syndromes.

Urological pain syndromes	
Bladder pain syndrome (BPS)[a]	Pain in the urinary bladder region, accompanied by at least one other symptom:
	Pain worsening with bladder filling
	Day-time and/or night-time urinary frequency
Urethral pain syndrome	Pain perceived in the urethra
Penile pain syndrome	Pain within the penis that is not primarily in the urethra
Prostate pain syndrome	Pain that is convincingly reproduced by prostate palpation
Scrotal pain syndrome	Pain localized within the organs of the scrotum; generic term when the site of the pain is not clearly testicular or epididymal
Testicular pain syndrome	Pain perceived in the testes
Postvasectomy pain syndrome	Scrotal pain syndrome that follows vasectomy
Epididymal pain syndrome	Pain perceived in the epididymis
Gynaecological pain syndromes	
Vulvar pain syndrome	Vulvar pain (according to ISSVD: vulvodynia is vulvar pain that is not accounted for by any physical findings)
Generalized vulvar pain syndrome	Pain/burning that cannot be consistently and precisely localized by point-pressure mapping
Localized vulvar pain syndrome	Pain that can be consistently and precisely localized by point-pressure mapping to one or more portions of the vulva
Vestibular pain syndrome	Pain that can be localized by point-pressure mapping to the vestibule or is well perceived in the area of the vestibule
Clitoral pain syndrome	Pain that can be localized by point-pressure mapping to the clitoris or is well perceived in the area of the clitoris
Endometriosis-associated pain syndrome	Pain with laparoscopically confirmed endometriosis, when the symptoms persist despite adequate endometriosis treatment
CPPS with cyclical exacerbations	Non-gynaecological organ pain that frequently shows cyclical exacerbations (e.g., IBS or BPS) and differs from dysmenorrhoea, in which pain is only present with menstruation
Dysmenorrhoea	Pain with menstruation
Musculoskeletal pain syndromes	
Pelvic floor muscle pain syndrome	Pelvic floor pain that may be associated with overactivity of or trigger points within the pelvic floor muscles or trigger points found in muscles, such as the abdominal, thigh and paraspinal muscles and even those not directly related to the pelvis
Coccyx pain syndrome	Pain perceived in the region of the coccyx
Gastrointestinal pelvic pain syndromes	
Irritable bowel syndrome (IBS)	Pain perceived in the bowel, according to the Rome III criteria
Chronic anal pain syndrome	Pain perceived in the anus
Intermittent chronic anal pain syndrome	Pain unrelated to the need to defecate or the process of defecation, that seems to arise in the rectum or anal canal
Pudendal pain syndrome	

[a]International Society for the Study of BPS (ESSIC) proposal.
CPPS = chronic pelvic pain syndrome; ISSVD = International Society for the Study of Vulvovaginal Disease.
Adapted from Engeler et al. [2].

not give the same information and the results must be interpreted separately for each questionnaire [25].

Step II: Evaluation of previous assessments and reports

Information from previous technical and specialist assessments needs to be looked at, including all radiographic examinations such as X-rays, magnetic resonance imaging, computed tomography and laboratory data [26]. These previous reports can indicate the presence of confusable diseases [13]. This initial evaluation, although time-consuming, is a good investment to elucidate the problem.

Step III: Thorough clinical assessment

This includes a clinical neurological assessment, palpation of the external sex organs and rectal/vaginal palpation.

Clinical neurological assessment. The clinical neurological assessment includes an examination of the

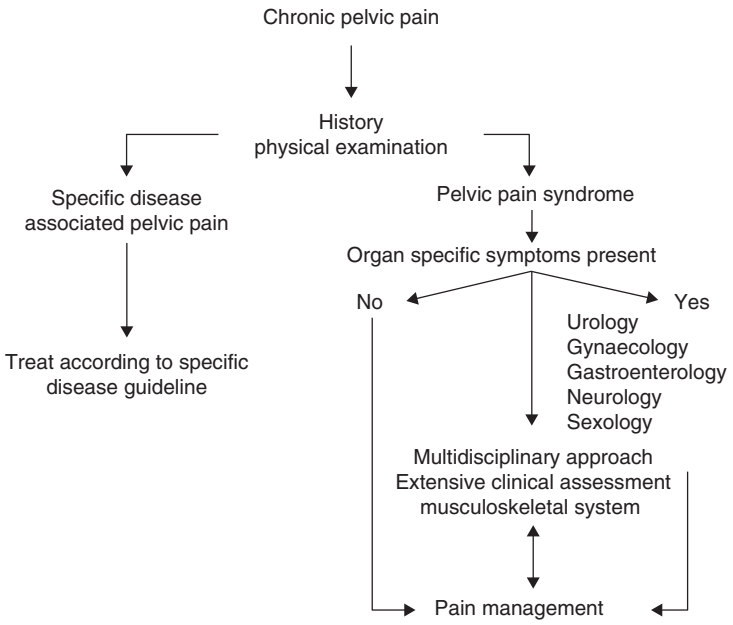


Figure 1. Algorithm for the diagnosis and management of chronic pelvic pain. (Adapted from Engeler et al. [2]).

lumbosacral plexus, evaluating motor and sensory functions, and reflexes, as described before [27].

The neurological assessment can be completed with manual neurodynamic testing indicating movement restrictions and mechanosensitivity of the peripheral nerves of the lumbosacral plexus. Nerve injury (e.g. neuropraxia, axonotmesis and neurotmesis) and polyneuropathy are contraindications to a manual approach. Clinical signs can be confirmed with electromyography (EMG); however, the absence of findings on EMG does not excluded pain of neuropathic origin. Electrodiagnostic evaluation of the sensory function determining current perception thresholds can be helpful in evaluating neuropathy and afferent nerve activity from the LUT [28,29].

Table II. Thorough clinical assessment: the four-step plan.

Step I	History with questioning for complaints in other systems
Step II	Evaluation of previous assessments and reports
Step III	Thorough clinical assessment
	Neurological
	Hernias
	External sex organs
	Small pelvis (rectal/vaginal)
Step IV	Extensive clinical assessment of the musculoskeletal system
	Full spine
	Pelvic girdle
	Muscles
	Tendons
	Pain points

Entrapment neuropathies share a common pathophysiology; that is, localized ischaemia and endoneurial oedema from mechanical pressure or longitudinal stress [30,31]. Peripheral nerve entrapment (e.g. mononeuropathy), compression or irritation of nerve roots forming the lumbosacral plexus may cause neuropathic pain. Neuropathic pain can present without evidence of nerve injury (e.g. EMG). In early nerve compression the symptoms are caused by vascular impairment, and initial changes occur at the blood–nerve barrier. The endoneurial space has no lymphatic drainage [30], making it susceptible to inflammation. Mononeuropathy can be an indication of a disturbed homeostatic endoneurial microenvironment, which indicates mechanosensitivity treatment when a nerve injury has been excluded by EMG. A minor neuropathy is a peripheral mononeuropathy in which EMG does not indicate a malfunction but in which the normal physiology of the nerve is disturbed.

The viscoelastic properties of nerve tissue allow them to accommodate a modest increase in length. Normal physical stresses upon a nerve during limb movement may be sufficient to provoke mechanosensitivity suggesting peripheral sensitization. Peripheral nerve sensitization can be present even in the absence of altered EMG [31,32].

Mechanosensitivity may occur in almost all peripheral nerves of the lumbosacral plexus, and can be assessed and treated with a neurodynamic approach,

Table III. Overview of symptoms in different systems in chronic pelvic pain syndrome.

System	Symptoms
Urological	Pain worsening with bladder filling
	Mictional pain
	Frequency
	Urgency
	Nocturia
	Voiding dysfunction
	Bladder dysfunction
	Penile pain
	Prostate pain
	Scrotal pain
	Pelvic floor dysfunction
	Urinary incontinence
Gynaecological	Vulvar pain (according to ISSVD: vulvodynia)
	Pelvic pain with cyclic exacerbations
	Period-related pain
	Dyspareunia
Musculoskeletal	Musculoskeletal pain of pelvic area (e.g. pelvic floor muscle pain)
	Pain increasing while sitting
Gastrointestinal	Bowel symptoms (e.g. constipation, diarrhoea)
	Pain in anal area or perceived in rectal canal
Pudendal	Perineal pain perceived in perineal area (e.g. burning)

ISSVD = International Society for the Study of Vulvovaginal Disease.

restoring the circulation within the nerve with gliding and tensioning techniques [33–35]. Gliding means the ability of a nerve to move aside to the surrounding nerve bed during limb movement, and is also termed "displacement" [31]". This approach has also been described for upper limb peripheral mechanosensitivity testing [36]. Neurodynamic testing also includes manually applied moderate stress testing by increasing the length of the nerve by limb movement (tensioning). Neurodynamic tension testing or local palpation can reveal the existence of minor neuropathies [33,34]. Locally applied gentle palpation of the nerve itself can show peripheral mechanosensitivity as well. Neurodynamic assessment can reveal minor neuropathies and is important when treating chronic pain [37,38]. The neurodynamic tests of the lumbosacral plexus can indicate mechanosensitivity and be considered as an abnormal impulse generated site maintaining sensitization. Applying a brush and pointed stimuli to the painful area can indicate allodynia or hyperalgesia.

Mechanosensitivity in the lumbosacral plexus can be confirmed by local palpation or by neurogenic tension tests at the level of the sciatic, iliohypogastric, ilioinguinal, genitofemoral, obturator, lateral cutaneous femoral, perineal and dorsal, and the medial, lateral and inferior cluneal nerves. Increased pain during the "straight leg raise" may indicate neuropathic pain of the sciatic nerve. If lying on the back provokes pain due to hip extension combined with internal rotation at the level of the groin or genital organs this can suggest a minor neuropathic problem at the level of the ilioinguinal nerve (L1) or genitofemoral nerve (L1–L2). Ilioinguinal and genitofemoral nerve mechanosensitivity can be shown by palpating the internal and external inguinal annular ring. When an increase in pain occurs during hip extension with adduction, a minor neuropathy of the lateral cutaneous femoral nerve (L2–L3) may be indicated. Increased pain in the adductor region with hip abduction may reveal a minor neuropathy at the level of the obturator nerve (L2–L3–L4).

The pudendal pain syndrome should be considered as increased mechanosensitivity of the pudendal nerve, after exclusion of pudendal injury by EMG. Pudendal neuropathy has been defined as a specific disease or pathology (nerve injury) with pain as a result and is not an indication for neurodynamic treatment [39].

Extensive neurodynamic testing aspects and palpation procedures of the lumbosacral plexus peripheral nerves are described in Table IV.

Clinical assessment for hernias. Patients with an abdominal, inguinal or femoral hernia sometimes manifest with CPP, groin pain or pain in the sex organs. Inguinal and femoral hernia can be distinguished by palpation and asking the patient where it provokes pain. Hernia at the level of the external or internal inguinal ring can also often be found by palpation. With palpatory provoked pain of the abdominal wall, hernias at the level of the Spighelian line and umbilical hernias must be excluded [40]. In some cases a hernia can be diagnosed by palpation and/or using the standing Valsalva manoeuvre, or with light flexion of the trunk in the standing position. The diagnosis can be confirmed by echographic examination and, if needed, radiography. Some hernias only manifest with the Valsalva manoeuvre with the trunk in the anterior position and are missed during echography, because this examination is usually conducted with the patient lying on the back. Carnet's sign (increased pain upon tensing the abdomen) can indicate abdominal wall pain [41].

Palpation of the external sex organs. The external sex organs are examined for rash, secretion, abscess formation, perineal fistula, atrophic disorders and signs

Table IV. Overview of neurodynamic tests of the lumbosacral plexus.

				Palpation	
Nerve(s)	Root	Pain area	Neurodynamic test	Area	Approach
Iliohypogastric	L1	Hypogastric and lat. gluteal	Hip ext. and endorot.	Hypogastric	EA, BM, VA
Ilioinguinal	L1	Inguinal	Hip ext. and endorot.	Inguinal ring, spermatic cord, scrotal	EA, BM, VA
Genitofemoral	L1–L2	Sup. 1/3rd ant. femoral, inguinal, scrotal, vulvar	Hip ext. and endorot.	Inguinal ring, spermatic cord, scrotal	EA, BM, VA
Lat. fem. cut.	L2–L3	Lat. aspect of thigh	Hip ext. and add.	Med. ASIS	EA
Obturator	L2–L4	Lower med. aspect of thigh, above knee	Hip abd.	Obturator foramen	RA
Femoral	L2–L4	Ant.–med. aspect of thigh	Hip ext.	Inguinal, lat. femoral artery (hip ext.)	EA
Saphenous	L2–L4	Ant.–med. aspect of leg and infrapatellar	Hip ext. and plantar flex., ev. ankle	Med.–inf. patella, ant. of med. malleolus	EA
Sciatic	L4–S3	Gluteal, post. aspect leg and lat. foot	Hip flex., add., endorot. and ev./inv. ankle	1/2 Between major trochanter and coccyx	EA
Post. fem. cut.	S1–S3	Post. aspect of thigh	Hip flex., add., endorot.	Med. post. aspect of thigh	EA
Tibial	L4–S3	Med. malleolus, plantar, calcaneal	Hip flex. add., endorot. and dorsal flex./ev. ankle	1/2 Popliteal fossa	EA
Sural (tibial)	S1–S2	Post.–lat. aspect of calf, lat. aspect of foot	Hip flex. add., endorot. and dorsal flex./ev. ankle	Post. lat. malleolus	EA
Peroneal (com)	L4–S2	1/4th Sup. ant.–post. aspect of lower extremity	Hip flex. add., endorot. and dorsal flex./ev. ankle	Post. aspect of sup. head of fibula	EA
Peroneal (super)	L4–S2	Post.–lat. aspect of lower extremity and dorsum of foot	Hip flex. add., endorot. and dorsal flex./ev. ankle	Foot dorsum	EA
Peroneal (deep)	S4–S2	Lower extremity and triangle between 1st and 2nd toes	Local palpation is indicated	Triangle between 1st and 2nd toes	EA
Pudendal[a]	S2–S4	Perineal floor	Local palpation is indicated	Pudendal canal	RA
Perineal[a]	S2–S4	Perineal floor	Local palpation is indicated	Perineal floor	EA
Dorsal[a]	S2–S4	Dorsal aspect of penis, clitoris	Local palpation is indicated	Dorsal aspect of penis	EA
Lat. cluneal	L1–L3	Post. aspect of iliac crest	Heterolat. side bending spine, hip flex./endorot.	Post.–lat. aspect of iliac crest	EA
Med. cluneal	S1–S3	Post.–inf. sacral area	Heterolat. side bending spine, hip flex./endorot.	Post.–med. aspect of sacrum	EA
Inf. cluneal	S1–S3	Sciatic tuberosity	Local palpation is indicated	Inf.–lat. sciatic tuberosity	EA

[a]Must be evaluated by palpation.
fem. cut. = femoral cutaneous; lat. = lateral; post. = posterior; med. = medial; inf. = inferior; sup. = superior; ant. = anterior; ext. = extension; endorot. = endorotation; add. = adduction; abd. = abduction; flex. = flexion; ev. = eversion; inv. = inversion; ASIS: anterior superior iliac spine; EA = external assessment; BM = bimanual palpation; VA = vaginal assessment; RA = rectal assessment.

of trauma. In male patients, the clinician should palpate the testes, epididymis, spermatic cord and penis, and search for a scrotal mass. In women, palpation of the labia, vestibular glands and the urethra is included, and localized genital pain points must be differentiated from generalized vulvar pain.

Palpation of the small pelvis (rectal/vaginal assessment). The pelvic floor function is evaluated, distinguishing the function of the urogenital diaphragm, the levator muscle and the anal sphincter. A score of power, endurance and exhaustion is noted (Oxford scale) [42,43]. When on-demand relaxation is a problem, voiding or defecation problems may be suspected, indicating the need for uroflowmetry and further bowel assessment. Table V shows the digital evaluation scoring system for pelvic floor functioning.

With palpation the pain can be differentiated to the level of the pudendal canal or the area of the obturator foramen. The sacrotuberous and sacrospinous ligaments can be sensitive, indicating ligamentary stress

Table V. Oxford scale.

Force	0 = no contraction
	1 = very weak vibration without movement
	2 = movement without transfer
	3 = transfer without resistance
	4 = transfer with little resistance
	5 = transfer with strong resistance
Endurance	The contraction of maximal force must be held for 5 s
Exhaustion	This endurance test must be repeated:
	Five times
	With a rest period, twice as long between every contraction

Adapted from Isherwood and Rane [42].

or neuropathic pain of perforating cutaneous branches. Coccygeal pain must be determined and may be accompanied by pelvic floor hypertonia. Pain can be differentiated using palpation at different parts of the pelvic floor and indicated pain points. Sacrococcygeal joint instability must be excluded and can be confirmed with X-rays of the patient in standing and sitting positions [44].

Figure 2 shows the myofascial pain points as described by Anderson et al. [45].

Step IV: Extensive clinical assessment of the musculoskeletal system

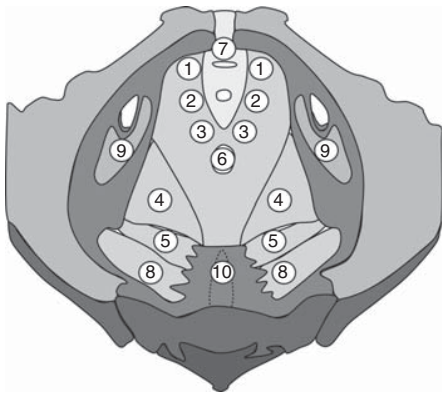
The clinical assessment of the musculoskeletal system in patients with CPP can be enhanced in different postures and is not restricted to the pelvis. Next to posture, movement limitations need to be confirmed at the level of the complete spine and pelvis. The posture is observed in the standing, lying and sitting position. The patient is asked to indicate the area of the pain [47,48]. Spinal mobility is assessed with palpation, and through active and passive movements. Asymmetry in the amplitude is noted, as well as the presence of a unilateral shorter lower limb or scoliosis. The joint play of the sacroiliac joints, the pubis and the sacrococcygeal joints is assessed. The greater trochanter and the ischial tuberosity are palpated to indicate ischial or trochanteric bursitis. In the buttock area a minor neuropathy of the inferior cluneal nerve must be differentiated from tendonitis. Osteogenic pain can indicate periostitis.

The variety of symptoms in CPPS is often accompanied by articular restrictions or muscular pain (e.g. low back pain, pelvic girdle pain), indicating the need for an extensive assessment of the musculoskeletal system. Referred pain, hypertonic muscular aspects and articular movement restrictions may maintain the vicious circle of symptoms related to CPPS. Differentiating all the symptoms in multiple systems, including clinical signs in the musculoskeletal system, may be a more appropriate approach to dealing with CPPS in a holistic context.

Discussion

Questionnaires must be used to follow up and describe the symptoms, although there is no specific questionnaire for CPPS. A physical examination could be criticized because of the subjective interpretation of signs. However, it provides interesting information and should be seen as an additional tool for the assessment of many enigmatic pain syndromes. Further research is needed to confirm the results of neurodynamic tests and palpatory findings.

The evaluation described in steps III and IV is highly recommended. However, not all of the suggested measures can be undertaken by urologists, except for some highly specialized experts.



1. Anterior levator ani, superior portion (puborectal)
2. Anterior levator ani, middle portion
3. Anterior levator ani, inferior portion (puborectal)
4. Middle levator ani (iliococcygeus)
5. Coccygeus/ischio-coccygeus
6. Sphincter ani
7. Prostate area
8. Piriformis
9. Obturator internus
10. Coccyx area

Figure 2. Myofascial trigger points of the small pelvis. (Adapted from the "Stanford protocol", in Wise and Anderson [46]).

A multidisciplinary team, including gynaecologists, neurologists, neurophysiologists, proctologists, sexologists and psychologists, is needed to deal with CPSS. An osteopath/physical therapist can help to assess the patient in a holistic way, paying attention to the interference between visceral and musculoskeletal symptoms (e.g. pelvic girdle pain, low back complaints, pain points and fascial movement restrictions).

In conclusion, this review emphasizes the importance of a thorough clinical assessment for CPPS. Initial efforts require an investment to avoid fragmented, multiple visits with poor results over many years. The "four-step plan" can be useful, indicating further approaches to find additional possibilities for treatment in a multidisciplinary approach. The importance of musculoskeletal pain is often underestimated. Peripheral neuropathic origins sustaining the chronic pain state need more attention. Additional neurodynamic assessment could help to deal with the problems of CPSS. Specialized centres are needed, and when the thorough clinical investigation gives negative results, the multidisciplinary team must be consulted.

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