

# Chronic Pelvic Pain: A Frustrating Scenario

P Deeksha, P Vivek, A Prashant, R Vani, Pratapkumar

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## Abstract

Chronic pelvic pain (CPP) is a poorly understood, often neglected but important area of gynecological practice. Chronic pain is not simply an acute pain that has not been cured. It results from damage within the pain pathway and that's why, even after removal of the initial stimulus pain continues to trouble. Careful history taking, meticulous examination and relevant investigation are three cornerstones for evaluating a patient with CPP. The principle of management is simultaneous treatment of pain and the cause of pain, with a multidisciplinary approach.

## INTRODUCTION

Chronic pelvic pain (CPP) is a poorly understood, often neglected but important area of gynecological practice. One of every ten patients in gynecologic clinic, 12-19% of hysterectomies and around half of all diagnostic laparoscopies are attributed to chronic pelvic pain,<sup>1</sup> a condition that often presents a frustrating scenario for both the patient as well as for the treating physician.

## DEFINITION

Royal College of Obstetricians and Gynecologists defines CPP as “intermittent or constant pain in the lower abdomen or pelvis of at least six months duration, not occurring exclusively with menstruation or intercourse and not associated with pregnancy”.<sup>2</sup> However, because of delay in seeking medical help and then getting appropriate referrals, there has been a trend toward patient evaluation within three months.<sup>3</sup> Incomplete relief with prior therapy, pain out of proportion to pathology, psycho-social impairment and multi-organ involvement, if associated, converts chronic pelvic pain into chronic pelvic pain syndrome (CPPS).

## CHRONIC PAIN IS DIFFERENT

Acute pain is a symptom of underlying tissue injury or disease and it serves as a normal protective mechanism, thus mobilizes the individual to take prompt action to relieve it. Removal of the factors that stimulate nociceptors, relieve acute pain. While chronic pain, is not simply an acute pain that has not been cured. It results from damage within the pain pathway and that's why, even after removal of the initial stimulus pain continues to trouble.

## ETIOLOGY

Pelvis in reality ‘a Pandora's box’, with urinary system anteriorly and gastrointestinal system posteriorly, in-between is the reproductive system. All these three are nicely wrapped and packed with loose areolar tissue, muscles, fascia and the bones all around. Pelvic pain can arise either from the viscera or the musculoskeletal tissue surrounding it. (Table: 1)

Figure 1

Table 1 :Etiology of Chronic Pelvic Pain

		Causes
1.	Gynecological	
	Cyclic	endometriosis, anomalous genitals with cryptomenorrhea, Asherman's syndrome, intrauterine contraceptive devices, leiomyoma, adenomyosis, pelvic congestion syndrome, mittelschmerz, ovarian remnant syndrome, residual ovary syndrome, chronic functional cyst
	Non Cyclic	Endometriosis, post operative or postinflammatory adhesions, pelvic congestion, ovarian neoplasm, pelvic relaxation
2.	Gastro-intestinal	Irritable Bowel syndrome, recurrent partial bowel obstruction, GI cancers, diverticulitis, hernia, recurrent appendiceal pain
3.	Urinary	Interstitial cystitis, Urethral syndrome, recurrent cystourethritis, ureteral diverticulitis, bladder carcinoma, ureteral obstruction, pelvic kidney
4.	Musculo-skeletal	Scoliosis, kyphosis, spondylolysis, spondylolisthesis, spinal injuries, osteoporosis, coccydynia, fibromyalgia, myofascial syndrome
5.	Systemic	acute intermittent porphyria, connective tissue diseases, lymphoma, neurofibromatosis

## CONCURRENT MULTIPLE PAIN GENERATORS

The concept of concurrent multiple pain generators or ‘twin syndrome’ was first evolved in 2002.<sup>4</sup> According to this concept there can be many pathologies together that are contributing to CPP. So, even after confirmation of one disease if patient still complains of pain one shouldn't think ‘everything is in her head’, as there can be a co-existent

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pathology or pathologies, that need evaluation and treatment. (Table: 2)

### Figure 2

Table 2: Concept of concurrent multiple pain generators in Chronic Pelvic Pain

Twinning Syndromes							
Evil Twins	Endometriosis	IC					
Evil Triplets	Endometriosis	IC	PCS				
Evil Quadruplets	Endometriosis	IC	PCS	VVS			
Evil Quintuplets	Endometriosis	IC	PCS	VVS	PFTM		
Evil Sextuplets	Endometriosis	IC	PCS	VVS	PFTM	IBS	
Evil Septuplets	Endometriosis	IC	PCS	VVS	PFTM	IBS	FM

[Interstitial Cystitis (IC), Pelvic Congestion Syndrome (PCS), Vulvovestibulitis (VVS), Pelvic Floor Tension Myalgia (PFTM), Functional Bowel Disease (IBS), Fibromyalgia (FM)]

## EVALUATION

Careful history taking, meticulous examination and relevant investigation are three cornerstones for evaluating a patient with CPP. Classical teaching in medicine says that, history and examination reveals diagnosis in 90% of cases. In no case is this axiom holds more true than in a case of CPP.

## HISTORY TAKING

Whenever taking history, patient should be treated with respect and necessary time should be spent, so that a trusting relationship is created between the doctor and the patient. (Table: 3)

### Figure 3

Table 3: Stepwise history taking in a case of Chronic Pelvic Pain

History	Relevance
1. Age	Reproductive age group
2. Parity	Infertility, Nulliparity – endometriosis, PID Multiparity – pelvic relaxation, osteopenia
3. Occupation	Long standing, heavy weight lifting – pelvic congestion syndrome
4. Pain History (pneumonic – ODD PAINS)	Onset: usually gradual or insidious Duration: more than 3 to 6 months Distribution: pain mapping Precipitating event: surgery, accident, death of loved one Aggravating or relieving factors: defecation, coitus Intensity: visual analog scale Nature: sharp shooting, dull aching Symptoms associated: bowel-bladder symptoms
5. Treatment History	medical, surgical, physiotherapy, psychiatric
6. Personal History	addiction, drug abuse, bladder-bowel habits, sleep pattern, contraceptive use, sexual relations, social life, physical or sexual assault
7. Menstrual History	dysmenorrhea, menorrhagia or other menstrual abnormalities, premenstrual symptoms
8. Family History	endometriosis, cancers, depression or other psychiatric problems
9. Obstetric History	number of pregnancies and their outcome, abortions (how, why, when); antenatal problems like excessive weight gain, proper calcium intake; mode of delivery (vaginal or cesarean); details of delivery (duration, instrumentation, episiotomy); postnatal period, breast feeding, interval between successive pregnancies

Detailed pain history is the heart and soul of good history taking in CPP. To label a patient as CPP 3 months (SOGC)3 or 6 months (RCOG)2 duration is required. It should be kept in mind however, when the patient comes with long standing

pain with multiple diagnostic procedures or therapeutic interventions already failed, this group of patient needs more patience, care and explanation. Onset is usually gradual or insidious, but sometimes it may date back to a precipitating event like accident or surgery. Cyclicity usually denotes pain of gynecological origin but it is not a rule, as irritable bowel syndrome (IBS) and interstitial cystitis (IC) also show premenstrual exacerbations. CPP is usually not well localized; it is a diffuse dull ache in the lower abdomen, pelvis, gluteal region and low back. "Pain mapping" (figure: 1) is very helpful, in establishing the location and getting idea about possible pathology. Up to 60% of women with CPP also have headache, and up to 90% have backache. A pain map showing pain both on the ventral as well as dorsal aspect suggest pain originating from a visceral source while pain mapped only on the dorsal back suggests some orthopedic cause. Intensity of pain is rated on the visual analog scale. 'No pain' and 'worst possible pain' form the two ends of this scale (figure: 2). Nature or quality of pain should be sought. Neuropathic pain is sharp and piercing while muscular pain is a dull ache which becomes sharp and lancinating with change in position. Relation to position changes, pattern during activities, and diurnal variation should be asked. Chronology of pain might also be helpful in making a diagnosis. As pain in endometriosis to begin with is dysmenorrhea, which involves the luteal phase with progression of the disease and finally becomes a constant pain throughout the cycle. Associated symptoms like diarrhea, constipation, urgency, frequency; aggravating factors like coitus, prolonged standing; and relieving factors like defecation; might also provide a clue.

### Figure 4

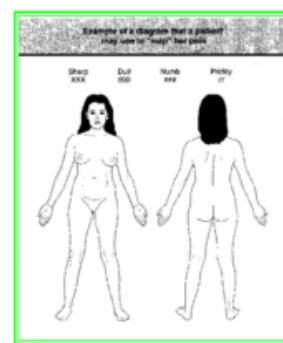


Figure: 1 Pain Map

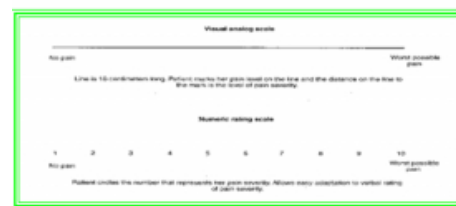


Figure: 2 Visual Analog Scale

Physical examination: Examination of a patient with CPP should be gentle but thorough. Meticulous way will be examining the patient in four steps: standing, sitting, supine, and pelvic examination (Table: 4).

**Figure 5**

Table 4: Stepwise examination in a case of Chronic Pelvic Pain

Physical Examination		
A.	STANDING	Gait, Posture, Pubic symphysis, Groin, iliac crests, Greater trochanters, Hip joints, Sacroiliac joints, Muscle tenderness, Tender points, Trigger points
B.	SITTING	Posture, Sitting forward flexion test, Deep tendon reflexes
C.	SUPINE	Hernial site evaluation, Light abdominal palpation, Carnett's test, Traditional abdominal examination
D.	PELVIC EXAMINATION	Inspection of vulva, Cotton tipped swab evaluation, Single digit examination, Speculum examination, Bimanual examination, Rectovaginal examination

**A) STANDING PHYSICAL EXAMINATION**

As soon as the patient enters the room, watch how she walks in. Abnormality in gait suggests musculo-skeletal element in spine or back. Typical CPP posture is one in which there is increased lumbar lordosis and anterior pelvic tilt with difficulty reversing lumbar curve on forward bend. All this is due to shortened psoas muscle, tight lumbar extensors, lengthened and weak abdominals likely with trigger points. Pubic symphysis should be palpated for tenderness suggesting pelvic girdle relaxation, rectus muscle inflammation, or injury at its fascial insertion, osteitis pubis or osteomyelitis. Though inguinal as well as femoral hernias are not common in women, still one can not afford to forget examining the groin to rule out these possibilities. Symmetry is observed by placing flattened palms on superior aspect of bilateral iliac crests. Hip joint is examined for tenderness or deformity. Sacro-iliac joint tenderness is elicited by placing the thumb over the dimple just medial to posterior superior iliac spine (PSIS) and exerting pressure, while the patient is asked to bend forward. It may also be elicited by compressing two iliac crests together. Tenderness of lumbar paraspinals, iliopsoas, iliacus, gluteals, piriformis is tested.

Trigger points are areas of discrete hyperalgesia, when palpated with fingertip pressure, elicit sharp pain that can refer to distant dermatome. These myofascial trigger points are caused by nerve entrapment, muscle stress or overuse and most likely are associated with local ischemia that promotes release of vasoactive substances that activate nociceptors to cause pain.

Fibromyalgia syndrome (FMS) is characterized by widespread muscular aching and on physical examination

multiple tender points are present in many locations. Presence of 11 tender points out of 18 (9 bilateral) confirms the diagnosis of FMS.

**B) SITTING PHYSICAL EXAMINATION**

Any abnormality in posture while the patient is sitting is noted. If standing forward flexion is positive, patient is now asked to bend forward in the sitting position. Forward bending becomes painless, as the pelvis becomes fixed, in sacroiliac joint pathology while in cases of prolapsed intravertebral disc; pain is perceived in sitting forward flexion too. Knee jerk and ankle reflex are also best observed in sitting posture.

**C) SUPINE PHYSICAL EXAMINATION**

Hernia sites (groin, incisions) are once again looked for at this step especially if presence of hernia is noted in standing posture. Usually as soon as the patient lies down hernias disappear on their own. Patient is then asked to cough or do valsalva maneuver and cough impulse can be felt. It is important that both inguinal regions are examined, as inguinal hernias are often bilateral. Palpation of all quadrants of abdomen is done systematically to find out any area of tenderness. If tenderness is found at any particular point, Carnett's test is then performed, to have an idea of its origin. This test is used to distinguish abdominal wall tenderness from visceral tenderness. While the examiner palpates the area of tenderness, patient voluntarily tenses the abdominal muscles by raising her head or legs. If pain is increased it suggests, pain of abdominal wall origin and if it is decreased or unchanged the pain is most likely of visceral origin.

Lastly patient still in the supine position, traditional abdominal palpation, percussion and auscultation is done for distension, masses, ascites, guarding, rigidity and bowel sounds. Any abnormality in this suggests a more likely acute pathology.

**D) PELVIC EXAMINATION**

Vulva is inspected carefully for any growth, ulcer, sinus, discharge, scratch marks suggestive of pruritus vulva. With a swab stick vestibule, cervical os, cervical tissue and paracervical tissues are palpated in successive steps to find out any tender spot. In posthysterectomy cases vaginal cuff is checked for tender points.

Single digit examination (monomanual – monodigital examination) is then performed in which, with the index finger of right hand bulbocavernosus and transverse perinei muscles are palpated. Entering inside the vagina then levator

ani is palpated, at the level of ischial spines. Posteriorly piriformis and coccygeus while on the lateral walls obturator internus is examined. Same finger is then swept on to the anterior vaginal wall to feel for tender point in the trigonal area as well as urethral area. External os, cervical tissue and vaginal fornices are then palpated followed by uterus and adnexal area. As the last step of this examination coccyx is palpated – coccyx can be moved upto 300 posteriorly without pain. But if this range of motion is limited or painful it suggests coccydynia.

Speculum examination is done in similar fashion as routinely done in gynecological practice to look for vaginal walls, portio vaginalis of cervix, and the external os. Next step is bimanual pelvic examination to feel position, size, consistency of uterus, and any pathology in the adnexal area. Rectovaginal examination is done to feel for nodularity or tenderness especially in the rectovaginal septum. Muscles like piriformis and coccygeus are better palpated by this maneuver rather than through the vagina.

Though the examination seems detailed but still it is important to understand that this is only a screening procedure, so that proper referrals can be made to an appropriate specialty.

### INVESTIGATIONS

CPP owes a long list of causes, so investigations should be individualized depending upon history and physical findings. These investigations should be done in an effort to find out the cause; however after finding a cause, twinning syndrome should be kept in mind.

If pathology originating from reproductive system is suspected by the history and examination, cervical cytology and if required swab culture should be obtained, while performing pelvic examination.

Transvaginal ultrasound (TVS) has a sensitivity and specificity of 34 and 100% respectively, for detection of endometriosis and pelvic adhesions. The addition of soft marker analysis (like - ovarian mobility, site specific tenderness), improved sensitivity to 87%, with a reduction in specificity to 76%, and a high negative predictive value of 84%.<sup>6</sup> This suggests that vast majority of patients with abnormal scan based on the absence of hard and soft markers are unlikely to have significant pelvic pathology and can be spared laparoscopy and its attendant risks.

Studies have reported effectiveness of transrectal ultrasound

in the diagnosis of rectovaginal or deep pelvic endometriosis with a sensitivity of 97-100%.<sup>7,8</sup>

Recently a new technique called sonovaginography where saline is introduced into the vagina using a catheter during TVS, has been described with promising results.<sup>9</sup>

Laparoscopy as thought earlier or still used by many practitioners is not a panacea for CPP. Around 60-80% of patients undergoing laparoscopy for CPP have no intra - peritoneal pathology. If minimal endometriosis is found, only one third will have resolution with surgical therapy<sup>10</sup> and if adhesions are found, adhesiolysis is beneficial in only 40%.<sup>11</sup>

Conscious laparoscopic pain mapping (CPLM) or patient assisted laparoscopy (PAL) is an evolving technique especially helpful for pinpointing the source of pain. Intravenous anxiolytic and opioid are administered preoperatively and local anaesthesia is given at trocar insertion sites. A smooth tip probe is used to first palpate areas that are often non-tender to assess the patient's general level of comfort. Patient is asked to score her discomfort using a numeric rating scale. Any focal area of endometriosis, adhesions and fibroids should be probed and the patient asked specifically if it reproduces her symptom. In addition, diagnostic superior hypogastric plexus block can be performed under direct laparoscopic visualization and the pelvis then remapped, to determine if painful areas are supplied by the hypogastric plexuses. Such information is useful in predicting the effectiveness of presacral neurectomy.

Venography is done in cases suspected of pelvic congestion syndrome (PCS) by history, ovarian point tenderness on examination and ultrasonographically visible dilated ovarian veins.

If symptoms and signs are suggestive of IBS, complete blood count differential count, erythrocyte sedimentation rate (ESR), serum electrolytes are recommended to rule out inflammatory bowel disease, as IBS is a diagnosis of exclusion. Stool examination should be done to look for ova and cyst, occult blood. Sudan staining is done to rule out steatorrhea. Colonoscopy should always be performed, so that any growth or tumor is not missed. It will also help to tell if there are signs of inflammation.

When there is suspicion of IC, potassium sensitivity test is a good screening test. It is called positive if there is pain and urgency after intravesical instillation of 40 ml of potassium

chloride. This pain caused by positive test should be alleviated by intravesical instillation of 20-30 ml of 1% lidocaine or 0.5% bupivacaine. Cystoscopy with hydrodistension causes mucosal hemorrhages (glomerulations), in patients with IC. Bladder biopsy can also be performed in doubtful case and to rule out carcinoma.

X-ray, magnetic resonance imaging (MRI) and bone mineral density (BMD) are the screening tools for musculoskeletal pathologies.

### MANAGEMENT

CPP is best managed with a multidisciplinary approach, which means activities that involve the efforts of individuals from a number of disciplines – gynecologist, anesthesiologist, psychologist, medical internist, orthopedician, physiotherapist.

The principle of management of CPP is simultaneous treatment of pain and the cause of pain. Different modalities of treatment often work better, when combined together. If one option is tried at a time, patient may experience only partial relief, leading her to discredit treatment and spiral further down into CPPS.

### PAIN MANAGEMENT

Medical options for management of pain are non steroidal anti-inflammatory drugs (NSAIDs) and opioids.

Empiric use of NSAIDS is among the first line treatments recommended in most publications. Ibuprofen, naproxen, diclofenac sodium, and mefenamic acid are among the commonly used drugs.

CPPS is usually treated with opioids, like morphine sulphate, methadone, fentanyl, oxycodone alone or in combination with other drugs, in non palliative circumstances.

Surgical options available for pain relief are neurectomies and in case of CPP it has to laparoscopic.

a) Laparoscopic uterine nerve ablation (LUNA) - Pain impulse from the uterus and upper vagina travels through the Frankenhauser's paracervical plexus to the inferior, middle, and superior hypogastric plexus, to the lumbar and lower thoracic sympathetic chain, then to the spinal cord via the dorsal root at T10-L1 level. Therefore 'central' pelvic pain could be alleviated by transaction of the paracervical nerves or superior hypogastric nerves. LUNA aims to destroy the

paracervical nerves that run parallel to the utero-sacral ligaments. It is a relatively easy operation and is suitable for cases of mild endometriosis and adenomyosis with dysmenorrhoea, and primary dysmenorrhoea not responding to medical treatment. Reported success rate is around 70-80%.<sup>12</sup>

b) Presacral neurectomy (PSN) - Laparoscopic presacral neurectomy is reserved for intractable dysmenorrhoea, deep dyspareunia and sacral backache. It is technically more difficult to perform and anatomical variation of the nerve plexus could explain cases of failure. Long-term complications involving bladder and bowel dysfunction have been reported.

c) Ovarian sympathectomy - Lateral pelvic structures receive their innervation mostly via nerve fibres traversing the infundibulopelvic ligaments. Thus, for lateral pelvic pain, ovarian sympathectomy could theoretically alleviate the pain. However it is rarely performed because of the high risk of vascular complication and its squeal on ovarian functions.

Other modalities which can be used for pain management are neurolytic therapy, antidepressants, psychotherapy, physiotherapy, acupuncture, acupressure and transcutaneous nerve stimulation (TENS).

### MANAGEMENT OF THE CAUSE

Endometriosis – Endometriosis can be treated medically with continuous combined contraceptive pills; oral, depot or intrauterine progestins; danazol or GnRH agonists. Surgical options are laparoscopic laser treatment of endometriotic implants, adhesiolysis, or chocolate cystectomy. Finally if fertility is not a concern, in the face of failed medical and conservative surgical therapy, hysterectomy with or without oophorectomy may be considered. In accordance with SOGC practice guidelines hysterectomy with bilateral salpingo-oophorectomy is regarded as the most effective treatment for CPP with endometriosis. But whenever we are considering definitive surgery for pain management in addition to a woman's desire to maintain fertility, we should always consider her age, severity of symptoms, and the site of major endometriotic involvement.

Adhesions - Laparoscopic adhesiolysis is the treatment of choice. Adhesiolysis has variable but encouraging results (67-85%) in the relief of chronic pain. At the end of adhesiolysis placement of lactated Ringer's solution in the pelvis prevents further formation of adhesions.

Irritable bowel syndrome – IBS responds to dietary manipulations; like elimination of lactose, sorbitol, fructose and avoidance of gas producing foods. Drug treatment depends on the symptoms. Antispasmodics are given for pain relief, laxatives for constipation and antidiarrheals if the main symptom is diarrhea. GnRH analogues may help in minimizing long term use of other prescribed medications. 3

Interstitial cystitis – Treatment options for IC include intravesical instillation of dimethylsulfoxide (DMSO), pentosan polysulfate sodium (PPS), bacillus Calmette-Guerin (BCG); surgical treatment can be done by hydrodistension, and augmentation cystoplasty. Oral therapy like cyclosporine, nifedipine, L-arginine, hydroxyzine are still under trial.

Pelvic congestion syndrome – PCS is one very important diagnosis in 'laparoscopy negative' cases of CPP. High dose medroxy progesterone acetate (MPA) might help as a venoconstrictor. Ovarian vein ligation and ovarian vein embolization is the definitive management. Where nothing works hysterectomy may still be of help.

### CONCLUSION

Whatever has been done in the field of CPP till now is like a small island, surrounded by a vast sea with unknown limits, which is waiting to be explored.

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**Author Information**

**Pandey Deeksha, MS**

Assistant Professor of Obstetrics & Gynecology, Kasturba Medical College & Hospital

**Pandey Vivek, MS**

Assistant Professor of Orthopaedics, Kasturba Medical College & Hospital

**Adiga Prashant, MD**

Assistant Professor of Obstetrics & Gynecology, Kasturba Medical College & Hospital

**Ramkumar Vani, M.D.**

Professor of Obstetrics & Gynecology, Kasturba Medical College & Hospital

**Pratap Kumar, MD**

Professor and head of the department of Obstetrics & Gynecology, Kasturba Medical College & Hospital