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Understanding the Principles of Chronic Pelvic Pain

Chronic Pelvic Pain: An Introduction

Chronic Pelvic Pain (CPP) is one of the most common medical problems affecting women today. Diagnosis and treatment of CPP accounts for 10% of all out-patient gynecologic visits, 20% of laparoscopies, and 12–16% of hysterectomies at a cost of as high as $2.8 billion annually.

The personal cost to those suffering from CPP is even greater, affecting all aspects of their lives. Pain puts about 25% of affected women in bed for much of the day for an average of 2.6 days a month; 58% must at least cut down on their usual activity one or more days a month. Emotionally, 56% noted significant changes; 47% felt "downhearted and blue" some of the time. Intercourse is compromised with pain in almost 90% of CPP patients.

Nearly 15% (1 in 7) of all American women ages 18–50 suffer from CPP. Yet of these 9.2 million sufferers, a surprising 61% *still have no diagnosis*! Why is this problem of epidemic proportions so poorly understood? Why have treatments until recently often proved so unsuccessful? How can you know if the problem you have truly is chronic pelvic pain versus another type of pain problem?

What is Chronic Pelvic Pain?

The first step in solving this complex problem is to understand the definition of CPP and what factors must be present before this diagnosis can be made. Chronic Pelvic Pain is defined as any pelvic pain that lasts for more than six months.

Although acute pain may indicate specific active injury to some part of the body, chronic pain is very different. Often in CPP, the initial physical problem has lessened or even disappeared, but the pain continues because of changes in the nervous system, muscles, or other tissues.

This teaches us an important distinction:

- In acute pain, the pain is often a *symptom of underlying tissue damage*;
- In chronic pain, *the pain itself has become the disease*! Chronic pelvic pain is itself the diagnosis.

As this long-term, unrelenting pain process continues, even the strongest person's defenses may break down. This can result in associated emotional and behavioral changes. This symptom complex is termed "chronic pelvic pain syndrome".

There are six features common to all patients with chronic pelvic pain syndrome:

1) The pain has been present for six months or more;
2) Conventional treatments have yielded little relief;
3) The degree of pain perceived seems out of proportion to the degree of tissue damage detected by conventional means;

4) Physical appearance of depression is present (e.g., sleep disturbance, constipation, diminished appetite, "slow motion" body movements and reactions);

5) Physical activity has become increasingly limited; and

6) Physical activity has become increasingly limited; and

7) Emotional roles in the family are altered; the patient is displaced from her accustomed role (e.g., wife, mother, employee).

Thus, having associated psychological and behavioral symptoms with CPP is part of the typical expected evolution of chronic pelvic pain syndrome. Therefore, contrary to misguided beliefs, CPP is never "all in your head"; it is always a dynamic interaction of the *combined influences* of the mind, nervous system, and the body!

Can CPP Start One Place and End Up Somewhere Else?

Not only do emotional changes occur with the long-term tension of CPP, but also other organ systems beside that system where the pain originates become involved. For instance, we all can feel our muscles tense when we have pain — this tension can in turn cause changes in bowel and bladder function. It is therefore easy to imagine that long-term pain can cause more profound persistent problems in the muscles of the pelvis and adjacent areas, the urinary tract (bladder, urethra), the bowel, and even the overlying connective tissue and skin of the pelvic area. Often these secondary processes become the predominant problem, overshadowing the original disease process which may no longer even be detected.

Important principles:

1) By the time pain becomes chronic, multiple systems rather than a single problem is involved in the pain process. We must look for <u>all</u> the causes of CPP, not a single simple cause.

2) In searching for these causes, look *at*, then *beyond the female pelvic organs*!

How is Pain Perceived?

The older theory of pain ("Cartesian Theory") is still the basic concept that many doctors and patients alike use to explain pain perception. This theory stated that specific nerve fibers ("neurons") act almost like a simple electric-wire connection carrying pain signals from damaged areas through the spinal cord directly to the cortex of the brain where pain is perceived. We now know that this concept is an oversimplification.

A newer theory called the "Gate Control Theory" likely is somewhat closer to the actual manner in which pain is perceived. Uncomfortable signals arise from injured or adversely stimulated tissues and travel through specialized nerve cells to the spinal cord. Here, these signals can be intensified, reduced, or even blocked. The spinal cord acts as a functional "gate", letting through, blocking, or at least changing the nature of pain signals before allowing their transmission to the brain.

The gate itself is influenced by local factors (other nerve inputs in the spinal cord), and by descending signals from the higher brain centers. Thus, other internal influences through the spinal cord and brain (besides the pain itself), <u>and</u> mood <u>and</u> external environmental factors from the brain all affect the nature of the pain's impulse transmission, and therefore pain perception. If the gates are damaged by chronic pain, they may remain open even after tissue damage is controlled, the pain will remain despite treating the originating cause; this type of pain is termed "neuropathic" pain.

What Are the Basic Elements of CPP? How Do They Apply to Pain Therapy?

To understand how to approach the treatment of chronic pelvic pain, three basic elements to chronic pain should be considered:

Pathology at the Site of Origin

Obviously, if the original source of tissue injury remains, pain will continue. This is called *pathology at the site of origin* (e.g., endometriosis, adhesions, infection, etc.).

Referred (Antidromic) Pain

The *Referred (Antidromic) Pain Concept* is of critical importance. Two types of nerves exist: *visceral nerves* carry impulses from intra-abdominal and thoracic structures into the spinal cord, while *somatic nerves* innervate superficial tissues, muscle, and skin. Visceral nerves and somatic nerves may synapse (meet) with the same nerve cell in the spinal cord and in this way have an influence on each other. When visceral nerves are chronically stimulated with unrelenting pain, the impulse will spill over in a reverse manner into the somatic nerve, which will carry the pain impulse in reverse fashion to areas of the abdominal wall, pelvic muscles, and superficial tissues. Specific areas of tenderness develop at those sites termed "trigger points", or referred pain. Although the trigger points may begin as a superficial expression of internal (visceral) pain, they may evolve into the patient's main source of pain (see diagram). In some cases treatment of the trigger points may significantly reduce pain. In other cases, the visceral tissue injury must also be treated (surgical removal of endometriosis, adhesions, etc.).

Stimulation of visceral nerves can produce superficial tissue trigger points

Central Modulation by the Brain

The brain influences emotions and behavior and interacts with the spinal cord, modifying the perception of the visceral and referred pain. For instance, depression will allow more pain signals through to the brain. This is called *central modulation by the brain*. Central influences must also be treated with a variety of methods, including various psychological, physical, and pharmacologic (drug) therapies. *The simultaneous treatment of all levels of the pain process must be accomplished if there is to be any hope of success.*

How Do I Find Out if I Have CPP?

The history and physical examination (H&P) may tell us more about the reasons for your pain than any laboratory test or procedure. The H&P will also tell us which tests are appropriate for you specifically, and eliminate unnecessary testing.

History

Your ability to convey accurate, detailed, comprehensive information is directly related to how effective diagnostic evaluation and subsequent therapies may be.

In a single prolonged office visit, such a complex relaying of information may prove impossible and impose excessive stress on both you and your physician. Often, several shorter visits are more effective and productive.

To facilitate a "partnership in healing" between you and your physician, most pain practices first ask you to take the lead by conveying important information to the doctor's office *prior* to your first visit. This includes:

1) Obtaining all medical records of prior office, clinic, or hospital evaluations, and laboratory, radiological, psychological, and surgical testing. Any records of surgical treatments (including videotapes) are critical.

2) Carefully filling out a very detailed questionnaire concerning not only your pain problem, but also your entire medical, surgical, and family history. This will allow the physician to "know you well", even before you actually meet. It will not only speed the process of diagnosis and treatment, but will demonstrate how motivated you are in taking an active role in furthering your own care.

Completing the pain questionnaire also allows you the time to reflect and recall details otherwise missed during an interview and may allow you to more easily convey certain highly personal information that could be difficult for you to actually talk about. Lastly, this preliminary information frees the physician to immediately focus on those details you have already indicated are of the greatest significance.

Of great importance is an understanding of the past and present status of your pain and the chronology and how it developed. How and when did it begin? What actions or activities make it better or worse? Does it vary based on time of day, week, or menstrual cycle? Does it affect your sleep? Has it spread beyond where it was first noted? Is it associated with abnormal skin sensations, muscle or joint pain, or back pain? Is there any urinary pain or problems, constipation, diarrhea, or other bowel complaints? Has it affected your daily routine at home and at work? Has it led to emotional changes such as anxiety or depression? What have you personally done to attempt to alleviate the pain? What has your physician done? Have these been successful to any degree? What medications have you used in the past? What medications are you currently using? What do you think is causing your pain? What concerns you the most about your pain?

All questions on the pain questionnaire were designed to elicit information that will be valuable in diagnosis and treatment of your pain condition.

Physical Examination

The physical examination for chronic pelvic pain will differ from a standard gynecologic exam since it is designed to provide information far beyond the condition of the female genital structures (e.g., cervix, uterus, tubes, and ovaries). Since the pelvis serves as the critical supporting structure for the upper body and is the connection to the lower body, the condition of upper and lower body structures may affect the pelvis, and vice-versa. Observations are made concerning your posture, gait, back and abdomen, thighs, and upper legs. Considerable detail is sometimes necessary regarding the musculoskeletal system, such as looking for problems that could increase general pelvic floor muscle tension or affect specific muscles. Changes in skin sensation, numbness, or tenderness can give clues to the specific pelvic nerves involved.

The abdomen and pelvis will be thoroughly checked for trigger points. The examination often proceeds in a precise grid-like pattern. You may be asked to tense your abdominal muscles by lifting your head to allow the doctor to distinguish internal pain from external abdominal wall pain. Hernias will be noted.

Not only will the vulva be examined, but also the entire areas surrounding the vagina and rectum will be carefully evaluated. The area of the glands on the inside of the minor lips of the vulva (the *vestibule*) are often a source of the pain (*vestibulitis*) and will be evaluated by lighting touching different sections of this area with a Q-tip (see diagram).

Diagram for Q-tip test

Next, the vaginal area will be examined comprehensively, initially using only one examining finger rather than two (as in a standard

exam) in order to obtain more precise information. Areas of tenderness may relate to problems with specific muscles, nerves, urinary tract structures, or cervical and paracervical problems. Following this, the bimanual exam will be done adding the abdominal hand's pressure into the pelvic region as needed to delineate conditions involving the uterus, cervix, tubes and ovaries, and to some extent the abdominal wall.

A rectovaginal examination is needed to further clarify findings, placing a finger in the rectum and one in the vagina. Characteristic areas of nodularity and tenderness in the area below the uterus (*cul-de-sac*) and uterosacral ligaments may be perceived most effectively in this manner and often suggests the presence of endometriosis.

You may be asked to tense and relax pelvic and abdominal muscles during the examination to clarify findings, and to reveal certain disorders of pelvic support (e.g., uterine prolapse).

The pelvic examination is completed by insertion of the speculum into the vagina to check for possible lesions of the vagina or cervix, infection, or other visible abnormalities.

During the course of the pelvic exam, you should inform the physician if anything being done causes you pain, and especially duplicates the specific pain that has been troubling you.

Diagnostic Testing

Diagnostic studies such as blood tests, x-rays, and ultrasound examinations may be necessary. Occasionally, more sophisticated imaging techniques such as CAT scans or MRI's may be required.

Most recently, pain mapping techniques that utilize a small diameter scope (*microlaparoscope*) may be done in a properly setup office setting or outpatient operating facility. While you are awake and conscious, you will be asked if touching certain areas inside the pelvis cause you pain, and if this duplicates components of the chronic pain you feel. Carefully noting these areas "maps" the location(s) of your pain for subsequent treatment.

Follow-up microlaparoscopic procedures ("second look") may be necessary to evaluate how effective lysis of adhesions has been, or to recut those adhesions that may have reformed.

Therapeutic Approaches

Several important common philosophies guide the clinician's therapeutic approaches to treating chronic pelvic pain:

1) Pain and its perception is located in the *nervous system*, which includes <u>body</u> and <u>mind</u>; therefore pain is not exclusively "all in your body", nor is it exclusively "all in your head"! Therapies must be directed to <u>both</u> areas for effective treatment and reduction of pain.

2) <u>Multiple interactive problems</u> rather than a single problem are likely in CPP. The question is not what <u>treatment</u> is recommended, but what <u>treatments</u>.

3) The precise "percent" contribution of each pain factor to the total amount of your pain is difficult to assess. The initial factor that caused your pain, although important to locate and treat, may evolve into only a minor factor as pain becomes chronic, with secondary factors becoming more important. Therefore, all factors must be treated rather than just the ones you or prior physicians thought to be most important.

4) Improvement of your CPP may take considerable time, even though your physician is trying to give you relief as soon as possible. It took time for your pain to develop into the way it presents today. It may, therefore, take weeks to months for

this stepwise progressive improvement to occur. Relaxation and emotional support techniques can be helpful during these periods to help preserve your patience and positive state of mind.

5) Pain medications (*analgesics*) may be used during the early stages of treatment since many therapies may take time to give relief. These medications are, however, not the cure for your pain, but merely a temporary supportive measure until other therapies "kick in" with their relieving effects. Remember that all medications have potential side effects, especially the narcotic analgesics with their strong dependency potential. Most clinicians choose to use non-narcotic analgesics as a first choice, and some avoid narcotic analgesics completely.

6) A combination of medications may prove more effective than a single type of medication. Analgesics may be more effective if combined with different medications that have direct effects on mood and pain transmission, (e.g., certain antidepressants).

7) Pain medicines may not be given each time you complain of pain. This could reinforce your dependence on medication. A fixed time-schedule regimen of treatment called "*time-contingent therapy*" has proven far more effective in controlling pain than taking pain medicines whenever you feel the need.

   At each visit to the physician, you will be given prescriptions for a fixed amount of pain medication, and instructed to take a certain amount at regularly appointed time intervals. Should tolerance (decreased effectiveness to your current dose of medication) occur, it will be discussed at the next visit where changes in dose or particular medication can be made. As a rule, adjustments of pain medication will not be made by telephone. You must be seen with your clinic record in the office.

   Particularly with narcotic analgesics, a written contract is frequently made to avoid their misuse. Lost or stolen prescriptions will not be replaced. It is <u>your responsibility</u> to be sure that your prescriptions are safe. *Refills will not be given*. If it is discovered that you have obtained additional narcotics from other physicians without our permission, *you may be discharged from the doctor's care*.

   Although these guidelines may seem severe, the potential damage from drug misuse is so dangerous that firm measures are mandatory to protect your health (See Appendix A – Drug Contract).

8) Physical Therapy is an integral part of therapy for recognition of many chronic pelvic pain conditions. Your musculoskeletal system will be evaluated by a physical therapist during a comprehensive examination. Your posture, gait, abdomen, pelvis, and lower extremities will be checked. You will also have an "internal" exam. Information concerning abnormalities, muscle strength, tenderness, length, and flexibility will be noted. Trigger points (exquisitely sensitive muscular points) will be mapped.

   Therapy includes direct manipulative techniques externally and internally that will improve abnormal musculoskeletal physiology. Specific exercises to stretch or strengthen certain muscles or muscle groups may be advised and taught. Ancillary techniques may also be used, including the TENS (Transcutaneous Electrical Nerve Stimulation) unit, muscle stimulators, ultrasound, or various biofeedback modalities. Relaxation and breathing exercises may also be taught.

Effective treatment of trigger points may involve further consultation with the physician. A series of injections may be necessary to alleviate the source of pain.

9) Since it is often impossible to separate physical and emotional components of pain, adequate psychological evaluation and therapy is integral to successful pain reduction. Besides dealing with issues of anxiety, depression, work, and family dynamics, sleep disturbances and sexual dysfunction, sensitive issues of prior sexual or physical abuse. These are the common factors in chronic pelvic pain syndrome.

   Through a variety of modalities, you will be better able to cope with your pain. This will improve your quality of life, reduce disabilities, and help you to overcome depression and anxiety. This is accomplished through changing behaviors that compound your pain.

10) Your chronic pain has affected not only you, but also your immediate family. The specifics of how your pain affects them and how their perceptions of your pain affects you must be understood. Educating your family as to the nature of problems found, treatments advised, and possible outcomes will help your recovery.

11) Surgical evaluation and treatment of certain CPP disorders are used. Laparoscopic exams are often critical in determining factors contributing to your pain as well as sometimes treating them. Classically, disorders such as pelvic adhesions and endometriosis are noted and treated with laparoscopy under general anesthesia in an outpatient setting, usually sending you home the very same day. The particular surgical procedure(s) used will depend on the conditions discovered.

12) During the course of evaluation and therapies, you must see your physician or therapist at regular preset intervals rather than just when the pain gets worse. You may begin with weekly or monthly visits with increasing or decreasing frequency as determined by your progress. Failure to keep your appointments will prevent proper treatment. If you miss appointments and your pain level escalates, it will be more difficult to control the pain again.

Conclusion

You must at the very beginning of evaluation and therapy set realistic expectations for your treatment. Some chronic pelvic pain disorders cannot be completely resolved. Few patients are so resistant to a careful evaluation that significant pain reduction cannot be obtained. This may take time and often several modalities of therapy.

View successful management rather than elimination of your pain as your goal. Reduction of pain to low or barely noticeable levels which allows you to refocus your life away from pain and effectively resume your roles as wife, mother, and career woman is success!

Glossary

Acute Pain - pain that is episodic in nature, i.e., stubbing one's toe, having an accident, pain after surgery. Acute pain is temporary and centers on an injury.

Adhesions - fibrous structures that cause organs and structures which would not normally do so to adhere to each other.

Analgesics - a drug which eases pain without causing loss of consciousness.

Antidromic Pain (see Referred Pain)

Cartesian Theory - an older theory of explaining pain which states that the nervous system is basically like electrical wires, carrying signals from the site of injury to the brain.

CAT Scan (computerized axial tomography) - a diagnostic procedure more powerful than x-rays, but without the radiation.

Central Modulation by the Brain - the influence of emotion and behavior on your pain.

Chronic Pain - pain which lasts longer than 6 months.

Chronic Pelvic Pain - pelvic pain which lasts longer than 6 months. Chronic pelvic pain can appear without tissue injury, or remain after an original injury has healed. This is caused by changes in the nervous system, muscles, or other tissues. Chronic pelvic pain is itself a diagnosis.

Chronic Pelvic Pain Syndrome - a change in emotions and behaviors resulting from chronic pelvic pain.

Endometriosis - a condition in which tissue resembling the uterine lining occurs outside the uterus in various locations in the pelvic cavity.

Fibromyalgia - a chronic condition which causes widespread pain and profound fatigue along with other symptoms. Its effects are felt primarily in muscles, tendons, and ligaments throughout the body.

Fibroids - a benign tumor of smooth muscle and fibrous tissue occurring in the uterus and usually occurring in women in their 30's or 40's.

Gate Control Theory - a newer theory of pain which states that pain is transmitted through specialized nerve cells to the spinal cord, where the signals can be intensified, reduced, or even blocked. The spinal cord serves as a "gate" which can let pain signals through it, block them, or change them before transmission to the brain.

Laparoscope - a small instrument similar to a lighted telescope used for examining the pelvic area.

Levator - a muscle for elevating the organ or structure into which it is inserted.

Magnetic Resonance Imaging (MRI) - produces internal images by generating powerful magnetic fields.

Microlaparoscope - a smaller version of the laparoscope.

Neurons - nerve fibers which perceive and transmit pain.

Neuropathic Pain - pain caused by changes in the spinal cord or nerve fibers which produce an abnormal signaling mechanism.

Pain Mapping - a procedure in which the physician attempts to duplicate the pain that a patient experiences in order to locate the exact source of the pain. The procedure is done while the patient is sedated, but conscious.

Pathology - the structural and functional ways a disease may present itself.

Pelvic Floor - muscles and soft tissues composing the support for the rectum, vagina, and bladder.

Referred (Antidromic) Pain - pain felt in superficial tissues, muscles, and skin and is caused by chronic internal organ (visceral) pain "spilling over" into these areas.

Somatic Nerves - nerves in the superficial tissues, muscles, and skin.

Synapse - the point at which a pain impulse is transmitted from one nerve to another.

Time-Contingent Therapy - medication taken on a strict timetable independent of pain level in order to maintain a constant blood level of the drug.

Transcutaneous Electrical Nerve Stimulation (TENS) Unit - battery-generated electrical impulses which can block pain by closing a gate of transmission.

Trigger Points - microscopic motor-neuron units that become exquisitely painful (see Gate Control Theory).

Uterosacral Ligaments - supporting ligaments which join the uterus and sacrum.

Vestibule - the entrance to the vagina.

Vestibulitis - exquisitely sensitive areas surrounding the entrance to the vagina which may produce pain on penetration.

Visceral Nerves - nerves which supply all internal organs, including uterus, tubes, ovaries, intestines, etc. A division of the autonomic (involuntary) nervous system.

Appendix A - Sample Drug Contract

I, _____, have read the following agreement, and agree to abide by it if I am placed on time-contingent narcotics.

1) I understand that the narcotic and controlled drug prescriptions are my responsibility once they are placed in my hand. I understand that if anything happens to this prescription (i.e., it is lost, stolen, flushed down the toilet, etc.), I am personally responsible, and the Pain Treatment Center will not rewrite the prescription until the designated time that it is to be given.

2) I promise to stick with my time-contingent schedule. If my medications are prescribed on an every eight-hour basis, I will take these medications every eight hours. I understand that if I use more than the allotted amount, or use up my medication before my appointment date, no more pills will be given, and I will be expected to handle my situation without medication until that given appointment time.

3) I understand that narcotics prescriptions will not be phoned in to the pharmacy. I must appear for my given appointment time.

4) I understand that narcotic appointments will generally be given weekly or biweekly, and only on occasion will this period be extended. I understand that if I come in at an earlier date for an appointment, my medications will not be given until the date of the original appointment. The assigned appointment date or an agreement with the physician will be the only reason for any change.

5) I understand that if I develop another pain condition (i.e., a toothache, abdominal pain), I will see my local medical doctor/ dentist and not take the time-contingent narcotics that were prescribed by the Pain Treatment Center for my original problem for the new condition. I understand that I am not to use these narcotics for an emotional crutch, e.g., to get through a visit by grandchildren or a family reunion. These are to be used only on a time-contingent basis, and only for my pain complaint.

6) I understand that I am to obtain all my narcotics from the Pain Treatment Center physician. If I violate this contract, all medications from the Pain Treatment Center will thereafter cease.

7) I understand that the goals of the Pain Treatment Center will be to use the narcotics on a time-contingent basis, and, except in very unusual circumstances, to be weaned off these narcotics. These narcotics are to be used as a short-term — not a long-term — solution.

8) I have informed my physician of my past drug usage, including narcotics and alcohol, and any problems associated with this use.

9) I understand that there is a low risk of psychological dependence but greater risk of physical dependence and tolerance developing to this drug.

10) I understand that there is a possibility of impairment of thought processes, especially if this narcotic is combined with a sedative, a sleeping pill, or a tranquilizer.

11) I understand that if I become pregnant, a child will likely be physically dependent at birth if I continue on this medication.

I further understand that if I do not abide by these recommendations, the Pain Treatment Center may discontinue my use of any of these drugs. I also understand that if I have a problem with any of these contract recommendations, I can make an appointment to talk with the Pain Treatment Center physician and receive clarification before a problem or crisis arises.

_____ _____

Physician Date

_____ _____

Patient Date

The International Pelvic Pain Society will be glad to assist you in locating nearby resources for all aspects of your evaluation and care, including Physicians, Physical Therapists, Psychologists, and other health care professionals. Call (205) 877-2950 ((800) 624-9676 if in the U.S.), or visit our web site at www.pelvicpain.org and select either "Members" or "Physician Members".