# Chronic Pelvic Pain

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*Chronic pelvic pain is one of the most challenging gynecologic problems seen in primary care practice. Important causes of this problem include endometriosis, pelvic adhesions, chronic pelvic inflammatory disease, and the syndrome of chronic pelvic pain without obvious pathology. The diagnostic approach to chronic pelvic pain begins with a careful medical history and physical examination in conjunction with a comprehensive psychosocial assessment. Laboratory evaluation may include pelvic ultrasonography, psychometric testing, and diagnostic laparoscopy. Optimal management of these patients may require a multidisciplinary approach, integrating chronic pain management techniques with specific therapy.*

For the primary care physician, the female patient presenting with chronic pelvic pain represents a major clinical challenge. Unlike acute pelvic pain, which demands an urgent diagnosis, chronic pelvic pain is infrequently caused by a life-threatening disorder. The importance of chronic pelvic pain lies primarily in the long-term suffering and disability associated with this disorder.

The diagnosis and management of the patient with chronic pelvic pain is often a difficult and frustrating task, particularly for those patients in whom no organic cause can be identified. The enigmatic nature of this latter condition is reflected in the diversity of terms that have been used to designate such patients in the medical literature, which include "pelvic sympathetic syndrome," "pelvic congestion," "pelvic neurodystonia," "broad ligament neuritis," "spastic posterior parametritis," and "pelvic neuralgia."[1]

The clinical approach to patients with chronic pelvic pain has changed considerably over the past decade with the growing utilization of diagnostic laparoscopy as well as the application of the chronic pain model to patients with this problem. This paper will review the clinical aspects of chronic pelvic pain with a special emphasis on its psychosocial evaluation and management.

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## BASIC PAIN CONCEPTS

Pain is a multidimensional, existential phenomenon that can be conceptualized as consisting of neurophysiologic and psychosocial components. In general, the neurophysiologic factor is considered to be dominant in acute pain states, whereas the psychosocial factor is assumed to have greater importance in chronic pain states.

Acute pain begins with a noxious stimulus activating specialized nerve endings called *nociceptors* present on the involved structure. The pain signal produced is carried by afferent nerve fibers traveling in peripheral nerves to the spinal cord, where they synapse with neurons in the superficial layers of the dorsal horn. The pain signal is then relayed to supraspinal structures (eg, thalamus, brain stem reticular formation) by means of ascending fibers present in the spinothalamic and spinoreticular tracts.[2]

The pain input transmitted by the afferent nerve pathways is modulated by intrinsic analgesia systems of the central nervous system, the best studied of which is the opioid-mediated analgesia system (OMAS). The OMAS is a descending, pain-suppression system that involves endogenous opioids (called endorphins) acting at opiate receptors present at a number of sites, including the midbrain periaqueductal gray matter, the rostroventral medulla, and the dorsal horn. The analgesia produced by activation of this system is mediated, at least in part, by descending serotonergic pathways that inhibit the pain-transmission neurons concentrated in the dorsal horn.[2,3]

In both acute and chronic pain states, how the pain is perceived and how the patient responds to the pain is

TABLE 1. CAUSES OF CHRONIC PELVIC PAIN (PERCENT)

| Cause | Kresch[5] n = 100 | Goldstein[6] n = 140 | Frangenheim[7] n = 302 | Lundberg[8] n = 95 | Liston[9] n = 134 |
|---|---|---|---|---|---|
| No pathology | 17 | 14 | 24 | 39 | 76 |
| Endometriosis | 32 | 52 | 27 | 14 | 4 |
| Adhesions | 51 | 13 | 10 | 18 | 16 |
| Chronic pelvic inflammatory disease | — | 7 | 10 | 16 | — |
| Ovarian mass | — | 4 | 11 | 2 | — |
| Uterine myoma | — | — | 3 | 4 | — |
| Miscellaneous | — | 10 | 20 | 7 | 4 |

determined to a large extent by psychosocial and cultural influences. In addition, for patients with chronic pain, it is theorized that the pain behavior frequently becomes systematically linked to its environmental consequences, setting the stage for operant learning to occur.[4] If the pain behavior is reinforced a sufficient number of times by a favorable outcome (eg, avoidance of an unpleasant confrontation or task, sympathy from family members), the behavior can actually evolve to where it can continue even after the initiating pain stimulus lessens or disappears. The important implication of this possibility is that chronic pain, regardless of cause, has the potential for becoming a learned behavior perpetuated by environmental cues rather than by a persistent or recurrent noxious stimulus.

## CAUSES OF CHRONIC PELVIC PAIN

Chronic pelvic pain is best defined as pain localized to the pelvic area of at least six months' duration. The differential diagnosis that must be considered in such patients can be divided into three major categories: (1) gynecologic, (2) nongynecologic, and (3) chronic pelvic pain without obvious pathology.

### Gynecologic Disorders

Laparoscopic studies evaluating patients with chronic pelvic pain have demonstrated definite gynecologic disorders in 24 to 86 percent of cases (Table 1).[5–9] Endometriosis has been found in up to 52 percent of such patients and is thought to be a particularly important cause in the adolescent girl. Intraabdominal adhesions (particularly those that restrict the movement or distensibility of organs) are another important cause of pain and can be found in 10 to 51 percent of cases. Chronic pelvic inflammatory disease not infrequently will present as chronic pelvic pain and can be demonstrated in up to 7 to 15 percent of cases. Less common gynecologic causes of chronic pelvic pain include severe pelvic relaxation, fibroid tumors, uterine anomalies, and ovarian tumors.

### Nongynecologic Disorders

Nongynecologic disorders can occasionally present as chronic pelvic pain and must be included in the differential diagnosis. Principal considerations include gastrointestinal abnormalities (eg, irritable bowel syndrome, diverticulitis, Crohn's disease, hernia), orthopedic problems (eg, degenerative joint disease involving the pelvic girdle), and urinary tract disease (eg, chronic cystitis, ureteral obstruction, urethral diverticulum).

### Chronic Pelvic Pain Without Obvious Pathology

Despite a thorough evaluation (including diagnostic laparoscopy), no identifiable pathology is found in 14 to 76 percent of patients with chronic pelvic pain. Although a variety of theories regarding the pathogenesis of this syndrome has been proposed, none has been established as playing a major causative role. The psychogenic theory is the most popular of these, theorizing that the pain is a byproduct or manifestation of an underlying psychiatric disorder (eg, hysteria, depression, anxiety, hypochondriasis). Proposals advocating an organic basis for this syndrome include the following:

1. *Pelvic congestion.* Several investigators have proposed that chronic pelvic pain results from vascular engorgement and interstitial edema of the uterus and the broad ligament. Duncan and Taylor[10] suggested that such pelvic hyperemia was frequently precipitated by life stresses or the lack of orgasmic release.

2. *Traumatic laceration of uterine support.* Allen and Masters[11] hypothesized that chronic pelvic pain stemmed from lacerations of the broad and sacrouterine ligaments, usually occurring as the result of a traumatic obstetric delivery.

3. *Sclerocystic oophoritis.* This syndrome is found in the French literature and is characterized by chronic pelvic pain, menstrual irregularities, and recurrent functional ovarian cysts.[1]

4. *Pelvic myofascial syndrome.* Slocumb[12] recently reported that trigger points in the abdominal wall and the vaginal and sacral areas were responsible for 74 percent

of the patients referred to his clinic with undiagnosed chronic pelvic pain.

### Psychological Aspects of Chronic Pelvic Pain

Psychological studies of patients with the syndrome of chronic pelvic pain without identifiable pathology have generated a fairly distinctive psychosocial profile for patients afflicted with this disorder. Elements of this profile include the following:

1. Patients were apt to have had insecure, disturbed childhoods and to complain of maternal neglect.[10,13]
2. Patients had difficulty forming close relationships and generally felt inadequate or dissatisfied with their female roles (eg, marital, sexual, maternal).[10,13–15]
3. A stressful life event (eg, unhappy pregnancy outcome, marital or family crisis) frequently preceded the onset of pelvic pain.[10,13]
4. Patients tended to be neurotic and demonstrated a greater tendency toward depression, anxiety, hysteria, and hypochondriasis on psychometric testing.[13–16]
5. Sexual dysfunction, including frigidity, was frequently associated with the pain.[10,15]
6. Patients tended to be emotionally insecure with strong dependency needs and displayed great difficulty externalizing feelings of stress and hostility.[13,15,16]

Although such studies would tend to support a psychogenic cause for chronic pelvic pain without identifiable pathological conditions, caution should be exercised in the interpretation of the data. All of the psychological studies to date have been retrospective in nature and thus subject to all the biases and methodologic limitations inherent in that form of investigation. In addition, legitimate concern has also been expressed regarding the homogeneity and referral nature of the patients involved in the cited studies.[17] Finally, none of the studies satisfactorily answered the question of whether the psychological abnormalities described were the cause, the consequence, or simply premorbid characteristics that increase the likelihood of the development of a chronic pain state.

## HISTORY AND PHYSICAL EXAMINATION

Important information to elicit from the patient with chronic pelvic pain is given in Table 2. Although lacking specificity, these historical items can provide important clues to the correct diagnosis.

Characteristics that would suggest the possibility of endometriosis would include onset of pain during adolescence, infertility, deep dyspareunia, secondary dysmenorrhea, and improvement of pain while on oral contraceptives. Postoperative scarring with pelvic adhesions would be an obvious consideration in the patient with a history of abdominal-pelvic surgery, whereas the likelihood of chronic pelvic inflammatory disease (PID) would be increased in a patient with a prior history of acute PID. Classically, the patient with the syndrome of chronic pelvic pain without obvious pathology is between 20 and 40 years of age, notes the onset of the pain following an obstetric delivery, and complains of a dull ache in the pelvic area that is accentuated premenstrually and with deep vaginal penetration during coitus.[10]

**TABLE 2. HISTORICAL DATA USEFUL IN THE EVALUATION OF CHRONIC PELVIC PAIN**

| |
|---|
| Age |
| Characteristics of pain |
| Quality, location, radiation |
| Ameliorating and provocative influences |
| Associated symptoms |
| Gastrointestinal and urinary symptoms |
| Dysmenorrhea, dyspareunia |
| Abnormal uterine bleeding |
| Vegetative symptoms of depression |
| Obstetric history |
| Psychosocial impact of the pain |
| Lifestyle |
| Interpersonal relationships |
| Sexual history |
| Prior abdominal-pelvic surgery |
| History of pelvic inflammatory disease |
| Method of contraception |

All patients with chronic pelvic pain warrant a thorough psychosocial assessment regardless of whether the pain is thought to be primarily organic or psychogenic in origin. The patient's overall level of psychological function should be evaluated and premorbid factors that may have contributed to the development of a chronic pain state identified. In addition, the impact of the pain on the patient's interpersonal relationships should be elucidated as well as the changes in daily activities (eg, work, leisure) that have occurred as a result of the pain.[18]

Following the history, a careful physical examination should be performed, with a special focus on abdominal and pelvic findings. Patients with the syndrome of chronic pelvic pain without obvious pathological findings frequently have tenderness on pelvic examination but generally lack palpable abnormalities. A common finding in this syndrome is the elicitation of sharp pain upon stretching the sacrouterine ligaments by lifting the uterus forward.[10] Patients with secondary chronic pelvic pain can have normal pelvic examinations or can have palpable abnormalities that reflect the underlying disorder (ie, nodularity of the uterosacral ligament in the patient with endometriosis). In a study by Lundberg and associates,[8] a surprising 51 percent of patients with chronic pelvic pain and a normal pelvic examination were found to have

significant pathological findings on diagnostic laparoscopy.

## DIAGNOSTIC STUDIES

Laboratory studies traditionally obtained in the patient with chronic pelvic pain include complete blood count, erythrocyte sedimentation rate, urinalysis, and genital cultures. Pelvic ultrasonography is most likely to be of value in those patients with abnormalities (particularly a pelvic mass) on pelvic examination as well as perhaps in those patients in whom an adequate pelvic examination is not possible because of obesity or an inability of the patient to relax. For selected patients considered to have a nongynecologic origin for their pain, urinary tract studies (eg, intravenous pyelogram, cystoscopy) or gastrointestinal studies (eg, air-contrast barium enema, sigmoidoscopy) may be indicated. Similarly, hysteroscopy or hysterosalpingography may be required in patients with suspected intrauterine disease.

In general, diagnostic laparoscopy is felt to be the most valuable diagnostic test in the evaluation of chronic pelvic pain, and its usage has virtually excluded the need for exploratory laparotomy. Although a relatively safe procedure, it is not without risk; there are an estimated 4.6 major complications per 1,000 laparoscopies performed and 5.2 deaths per 100,000 performed.[19] Nevertheless, diagnostic laparoscopy should be strongly considered in all patients with unexplained chronic pelvic pain of more than six months' duration.[5]

Psychological testing is employed routinely by most pain management centers as an adjunct to the clinical interview. The Minnesota Multiphasic Personality Inventory (MMPI) is favored by many centers as a means of identifying those patients likely to require a more intensive psychological evaluation.[18,20] Abnormal MMPI scores commonly seen in patients with chronic pain include scale elevations in hypochondriasis, depression, hysteria, psychopathic deviance, and psychasthenia.[21] More specific questionnaires may also be of value; these questionnaires include the Melzack-McGill Pain Questionnaire and the Zung Self-Rating Depression and Anxiety Scales.[18,20]

## THERAPY

The management of the patient with chronic pelvic pain has two components: (1) general management of the psychosocial and somatic components of the patient's pain complaint, and (2) specific therapy directed at the underlying cause. For patients with chronic pelvic pain without identifiable pathological conditions, specific therapy is not available, and thus efforts are directed solely at pain management. Optimal treatment of the patient found to have organic cause requires management of the psychosocial component of the illness in conjunction with the specific therapy prescribed.

### Reassurance

Patients with chronic pelvic pain frequently manifest anxiety as a result of the fear that the pain is indicative of a serious, underlying disorder (such as cancer). The mere disclosure that either no pathological findings are present or that a treatable, benign disorder is responsible is oftentimes reassuring to the patient and of therapeutic benefit. In fact, Beard and associates[15] reported that reassurance following normal findings from a laparoscopic study resulted in improvement in nearly 30 percent of their patients found to have chronic pelvic pain without obvious organic cause.

In dealing with patients who lack an organic basis for their pain, the clinician must be careful to avoid implying that the pain is imagined or contrived.[17] Such a confrontation would serve only to polarize the physician-patient relationship, placing the patient in a position where she might actually feel obliged to defend or authenticate her pain. Instead, the normal findings should be presented to the patient in a positive, nonadversarial fashion, emphasizing her good fortune that the pain is not a harbinger of a serious, underlying disorder. In addition, she should be apprised that, as her pain is not serving a useful function, treatment of her problem is directed solely at management of the pain itself.

### Managing the Psychosocial Component

In managing the patient with chronic pelvic pain, the clinician must identify and address the psychosocial factors that may be contributing to the patient's pain experience. These factors are important not only because they may have been involved in the initiation of the pain, but also because they can actually perpetuate the patient's symptomatology. These factors can be conveniently divided into two categories: interpersonal and intrapsychic.

The elimination of interpersonal, positive reinforcers of pain behavior can occur on several fronts. Attention and expressions of sympathy from family and friends represent an important form of secondary gain derived from pain behavior; these significant others should be counseled to be more socially unresponsive to the pain complaint and to be more attentive when the patient displays well behavior.[4] In a similar vein, the physician should avoid relating to the patient in a pain-contingent fashion by seeing the patient on a regular, fairly frequent basis (not spreading out appointments when the patient shows improvement), by prescribing analgesics, when required, on a time-contingent basis (so the patient does not require

her pain to get relief with her medication), and by focusing on subjects other than the patients' illness during office encounters.[22] In the patient with marital discord, family conflicts, or sexual dysfunction, the chronic pain may be providing the patient with a solution to her problem by allowing her to avoid or modify the unpleasant situation or to manipulate the behavior of the other people involved. In such a circumstance, management of the chronic pelvic pain must include therapy directed at the interpersonal problem (eg, psychotherapy, assertiveness training, couples therapy, family therapy, sex therapy) if optimal results are to be achieved.

Intrapsychic factors that frequently become intertwined with chronic pain include depression, anxiety, and drug dependency. A high incidence of masked depression has been described in chronic pain patients, and these patients generally display an excellent response to tricyclic antidepressant therapy.[23] Anxiety is a powerful amplifier of the pain experience and can be reduced with one of a number of psychological techniques (eg, progressive relaxation therapy, biofeedback) or with a short-term course of anxiolytic therapy. Drug dependency is an issue that must be addressed in all patients with chronic pain requiring narcotic analgesics for relief; detoxification should be initiated once effective nonnarcotic therapeutic alternatives are found.[24]

## Managing the Somatic Component

Management of the somatic component of chronic pain generally involves measures designed to modulate (or eliminate) the pain signals transmitted and techniques for modifying the patient's interpretative response to the pain. A multidisciplinary approach is favored, utilizing both pharmacologic and nonpharmacologic treatment methods.[18,24]

Pharmacologic approaches to chronic pain include nonnarcotic analgesics (eg, salicylates, acetaminophen, nonsteroidal anti-inflammatory drugs), narcotic analgesics (eg, codeine, oxycodone, methadone), and tricyclic antidepressants.[24] Although indispensable in the management of acute pain, the role of analgesics in chronic pain is limited by the problems associated with its long-term administration (eg, analgesic nephropathy, drug addiction, increasing tolerance). Suffice it to say that narcotic analgesics, when required, are best thought of as interim therapy until such time that effective alternative therapy can be instituted. In addition to their antidepressant qualities, tricyclic antidepressants are also thought to have a central analgesic function and thus be of value even in chronic pain patients without an element of depression. Although the mechanism of this analgesic action remains speculative, it is theorized that tricyclic antidepressants may activate the OMAS by blocking reuptake of biogenic amines (ie, serotonin) in the central nervous system.[3]

Nonpharmacologic modalities have proven useful as both primary and adjunctive therapy for chronic pain. Transcutaneous electrical nerve stimulation (TENS) and acupuncture are two widely used methods of stimulation-produced analgesia that are felt to be of value in the symptomatic management of chronic pain. It is currently thought that such methods work by activating opioid- and nonopioid-mediated analgesia systems in the central nervous system.[2,24] Psychological techniques employed in the management of chronic pain include relaxation training, hypnosis, biofeedback, guided imagery, and meditation. These techniques can ameliorate pain by a number of possible mechanisms, including reduction of concomitant stress and anxiety, diversion of the patient's attention away from the pain, and promotion of an increased sense of self-control.[18,25] Other therapeutic options that may be useful in selected patients with chronic pelvic pain include myofascial trigger point injection and selective nerve blocks.[12,24]

Surgical procedures designed solely to relieve pelvic pain regardless of cause are generally reserved for those patients with disabling, intractable pain. The procedures employed have generally involved either interruption of afferent nerve pathways (eg, presacral neurectomy, paracervical uterine denervation) or extirpation of the presumably involved structures (eg, hysterectomy).[1,26,27]

## Specific Therapy

If an organic condition is found to be responsible for the patient's pain, specific medical or surgical therapy can be offered. Because many of the organic causes of chronic pelvic pain can also be found in patients without pain, a causal relationship should be established with reasonable certainty before operative intervention is recommended. Endometriosis can be treated either medically (ie, hormonal suppression with oral contraceptives or danazol) or surgically (eg, fulguration or excision of individual lesions, extirpation of involved structures). Surgical options in patients with pain related to pelvic adhesions include lysis of adhesions at laparoscopy and removal of the resectable organs (eg, uterus, tubes, ovaries) to which the adhesions are attached. A therapeutic trial of antibiotics is generally warranted in patients with chronic pelvic inflammatory disease, with surgical therapy reserved for those patients with persistent, incapacitating pain.

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