

Using Integrative Therapies to Treat Women With Chronic Pelvic Pain

Melicien A. Tettambel, DO

Chronic pelvic pain is a common gynecologic complaint, affecting about 5% of American women. The differential diagnosis is broad, including many medical diseases, surgical indications, musculoskeletal problems, and somatic dysfunctions. Women are more affected than men by pelvic pain because their bodies are subject to more changes. These changes include a cyclic hormonal milieu, major alterations in biomechanics during pregnancy, psychosocial stress, and other modifications during and after childrearing, and more adjustments during menopause. Both medical and surgical approaches to management exist, but integrative modes of therapy address the body-mind-spirit continuum. Osteopathic manipulative treatment is a valuable option for many affected women from childbirth to menopause.

J Am Osteopath Assoc. 2007;107(suppl 6):ES17-ES20

The following anecdotal case scenario describes a patient who typifies the clinical presentation and treatment of a woman with chronic pelvic pain.

Case Presentation

Pamela, a 54-year-old woman, is seen in the office for a well-woman examination. Her last menstrual period was 16 months ago. Pam reports that she has occasional hot flashes, multiple joint aches, and dyspareunia. She is concerned that in addition to pelvic pain, she has low back pain, which she attributes to progressive weight gain fol-

lowing the births of her two children. These pains were also aggravated by a fall down eight stairs and two automobile collisions.

When questioned about her back and pelvic pain, Pam says that the initial episode of severe pain started after a difficult forceps delivery of her first child. She gained 40 pounds during that pregnancy. She had urinary incontinence for 8 months postpartum. Pam's second child was delivered 2 years later by cesarian section because "the baby's head was stuck in my pelvis." She did not have any more children because of pain, dyspareunia, and more weight gain.

Pam underwent a hysterectomy 10 years ago to address back pain. She was informed that she had adenomyosis. In spite of surgery, the pain persisted. Pam was unable to exercise because of pain; and she continued to gain even more weight. She saw her internist

to have her back pain evaluated. Pam did not have diabetes, thyroid disease, or rheumatoid arthritis; the cause of her pain was diagnosed as osteopenia and possibly fibromyalgia.

In addition to taking over-the-counter NSAIDs, Pam has also received prescriptions for a variety of medications to address her pain: antidepressants, narcotics, muscle relaxants, diet pills, and sleeping pills. She is concerned about the doses and number of her medications. In fact, Pam admits that she frequently self-medicates because she has so many pills from which to choose. She is concerned that her chronic physical problems are straining her marriage and that she may have a really serious condition that has not yet been diagnosed. Pam relates that she desperately wants to "get better."

Discussion

Osteopathic philosophy embraces an approach to wellness through knowledge of interrelationships of structure and function, and a search for the causes of patients' problems. When applied to addressing pain in female patients, osteopathic principles and practice offer a global approach to complex psychosocial and physical factors influencing development of chronic pain. Throughout her reproductive life, a woman's perception of pain is due to emotional factors linked to nociceptive stimuli. Also affecting such perception is a combination of peripheral pain signals integrated with the central nervous system and based on mood, circumstances, culture, and personal experiences.

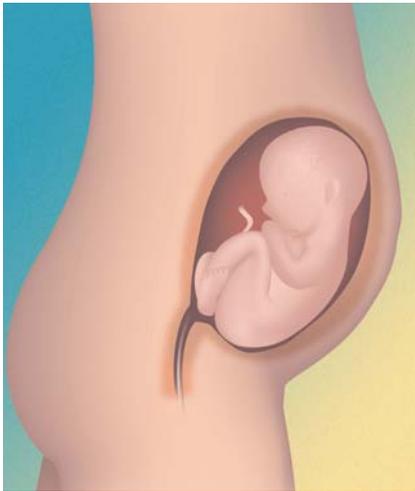
The female body has been uniquely designed for potential roles of child-bearing and caregiver, which make it subject to a variety of gynecologic and structural stresses. During pregnancy, a woman's physique changes to accommodate her growing fetus (Figure 1). After delivery, her body continues to adapt to her role of caregiver—lifting children, groceries, disabled or elderly adult family members. A variety of opportunities challenge her strength and the stability of her musculoskeletal system to influence pain and dysfunction of her pelvis.

Dr Tettambel discloses that she is unaware of any real or potential conflicts of interest regarding the subject matter of this article.

Address correspondence to Melicien A. Tettambel, DO, FAAO, FACOOG, Professor of Obstetrics/Gynecology, Department of Surgery, Section of Women's and Child Health, A. T. Still University—Kirksville College of Osteopathic Medicine, 800 W Jefferson St, Kirksville, Mo 63501-1443.

E-mail: mtettambel@atsu.edu

This continuing medical education publication is supported by an unrestricted educational grant from Purdue Pharma LP.



© 2007 Dreamstime.com



Figure 1. Alteration in female pelvic anatomy to accommodate growing fetus.

Incidence and Prevalence of Chronic Pelvic Pain

Chronic pelvic pain, a frequent complaint of women seen in clinical gynecology practice, is defined as cyclic or acyclic pain in the pelvis, persisting for 6 months or more, and severe enough to cause functional incapacity that requires medical or surgical treatment or both.¹ Chronic pelvic pain is the reason for approximately 10% of all gynecologic consultations, 40% of laparoscopies, and 10% to 15% of hysterectomies, thus representing a clinically significant public health problem.^{2,3} One in seven women has undetermined etiology of diagnosis of chronic pelvic pain.⁴

The exact incidence and prevalence of chronic pelvic pain in the United States are not well established. Estimates suggest that approximately 5% of American women are affected by chronic pelvic pain, but this prevalence increases to about 20% in women with a previous history of pelvic inflammatory disease (PID).⁵ In a recent prospective cohort study of women treated for chronic pelvic pain, the most common diagnoses were irritable bowel syndrome, adhesions, pelvic floor musculoskeletal disorders, and endometriosis.⁶

Anatomy and Structural Changes as Etiologic Factors

Chronic pelvic pain may be related to one or more of several etiologic factors, such as endometriosis, sequelae of PID, ovarian cysts, pelvic vascular congestion, myofascial pain syndrome, irritable bowel syndrome, interstitial cystitis,

nephrolithiasis, primary dysmenorrhea, postural alterations, musculoskeletal diseases, and somatic dysfunction.^{1-5,7,8}

The female body and pelvis are subject to considerable structural changes during development. During the years after menarche, the pelvis widens, gluteal muscles stretch, and there is internal rotation of the thighs, leading to lateral displacement of the patellas. During sporting activities, young women sustain knee and ankle injuries that can be attributed to ligamentous laxity, resulting from hormonal influences of the menstrual cycle. Some of these injuries can affect gait and contribute to structural pelvic pain.

Persistent internal rotation of the femurs may affect function of the pelvic diaphragm, putting women at risk for urinary stress incontinence in the future. Pregnancy (*Figure 1*) or weight gain may increase this risk. In health, the patellas are positioned over the second toes for proper balance when standing. In many women, because of lateral deviation of a patella, the ankle has decreased mobility, and the arch of the foot may become flattened. The structural changes of the lower extremity may become exaggerated in pregnancy and weight gain. Consequently, impaired gait can influence pain in the bony pelvis as a result of gravitational strain.

Females typically have looser ligaments than males. Women therefore need to develop muscle strength to keep their joints stable. Stronger muscles stabilize joints, reducing injuries and increasing ease of motion. Although

pelvic ligamentous laxity is desirable in pregnancy (to facilitate normal vaginal delivery), continuous laxity may contribute to organ prolapse and venous congestion in the nonpregnant woman. The sacrum is suspended between the ilia by ligaments. Falling on the buttocks or pelvis may restrict sacral motion and lead to pelvic pain, through ligamentous tension on the uterus or the perineal floor. If untreated, dyspareunia may result.

The lower part of the body has more muscles than the upper section. Poor muscular tone may increase lumbar lordosis and exaggerate anterior pelvic tilt, with resultant crowding of viscera into the pelvic bowl. Pregnancy also may exacerbate lumbar lordosis. Thoracic kyphosis may also become greater as the result of increased weight of the breasts. If muscular and ligamentous tensions are not addressed after delivery, poor posture resulting from these changes may contribute to pelvic pain.

Hormonal balance assists in becoming pregnant, reduces premenstrual syndrome, and promotes bone health. Estrogen strengthens bones, but it does not increase muscle mass or strength. Exercise interacts synergistically with estrogen to stabilize bones during the premenopausal years and thereafter. After menopause, with reduced estrogen production, weakness of the pelvic floor predisposes to urinary incontinence. Vaginal dryness and atrophy result in dyspareunia and incontinence during the postmenopausal years. Abnormal changes in spinal curvature (eg, loss of lumbar lordosis or pronounced thoracic kyphosis) may be a clinically significant risk factor in development of pelvic organ prolapse.⁹

Pelvic organs are connected functionally through shared common nerve pathways, not just by anatomic proximity. Bowel and bladder symptoms often accompany gynecologic symptoms such as dyspareunia, dysmenorrhea, vulvodinia, interstitial cystitis and irritable bowel. Bowel or bladder dysfunction may not represent end-organ disease, but a visceral pain syndrome with neuropathic upregulation resulting in release of substance P to aggravate inflammation and hyperesthesia.¹⁰ Disruption of the inferior hypogastric nerve plexus

during childbirth may result in re-nerivation changes that cause visceral pain years later. Quinn¹¹ found collateral nerve sprouting and chaotic distribution of nerve fibers when special stains were used on gynecologic pelvic surgical specimens.

Other causes of injury to the inferior hypogastric plexus, such as laparoscopic gynecologic surgery, cesarian section, pelvic infection, or motor vehicular trauma, may eventually result in chronic pelvic pain. Hysterectomy may be offered as surgical treatment for chronic pelvic pain when abnormal nerve regeneration from previous trauma is restricted to the uterus. Osteopathic manipulative treatment (OMT) directed to stabilizing the pelvic bowl or the structures contained within it (Figure 2) or both may prevent future pain syndromes, including chronic pelvic pain. The "Management" section includes examples of techniques that benefit pelvic stability.

Psychosocial Issues

Women with chronic pelvic pain frequently have psychological alterations and a life history that includes either one of the following alone or in combination: sexual abuse, family problems, divorce, or a history of violence.¹² Sexual impairment may result from chronic pain or from side effects of medication (eg, narcotics, tricyclic antidepressants (TCAs), antipsychotics) used to treat the pain.¹³ Arthritis pain or somatic dysfunction may be a deterrent to participation in coitus; or altered levels of hormones and libido may contribute to decreased sexual satisfaction. Medications used to treat a woman for resultant anxiety, depression, and pain may cause disorders of desire (barbiturates, antilipid medications β -blockers); fatigue, vaginal dryness (antihistamines); impaired arousal (anticholinergics, antihypertensives, benzodiazepines); or anorgasmic dysfunction (anorexic drugs—"diet pills," TCAs, amphetamines). Over time, a woman may feel loss of attractiveness to her partner and low self-esteem. These feelings increase as some women may gain weight as a result of taking antidepressants.¹⁴



Figure 2. Osteopathic manipulative treatment may help prevent future pelvic pain in women by stabilizing the pelvic bowl or the structures contained within it.

Although the chronicity of pelvic pain becomes the focus of a gynecologic visit, some women manifest other physical signs of stress. Muscle weakness, spasm, and pain from disruption of muscle contraction and relaxation become complaints of fatigue, back pain, face pain, bruxism, headache, or fibromyalgia, or a combination of these complaints.

Because many women tend to internalize stress, repeated alternation of muscle tension and relaxation may lead to nerve entrapment or alteration of circulation to muscles or other body structures.¹⁵ Weight changes also are modifying factors for posture, gait, and somatic complaints. Carrying extra pounds worsens spinal curves and stresses supportive structures of the pelvis, such as the extremities. When a woman loses or gains weight as a result of stress, she increases her risk for development of osteoporosis because of reduced calcium intake, altered estrogen production, and reduced bone mass (in menopause).

While dealing with the psychosocial aspects of chronic pelvic pain, many women struggle with changing moods and altered sleep cycles. These fluctuations also compromise the immune system and cause women to become fearful of other chronic diseases such as

chronic fatigue syndrome, myofascial pain syndrome, and fibromyalgia.¹⁶ Pain signals and other sensory inputs are processed at the cortical and subcortical levels, then amplified via central sensitization at the spinal cord level.¹⁷ In chronic pelvic pain, pain is not processed normally in the dorsal horn which then allows temporal summation of pressure sensations.¹⁶ Descending modulation from the brain-stem is impaired and contributes to excess spinal fluid levels of substance P and other neurotransmitters involved in nociception.

Lower than normal spinal fluid levels of serotonin, norepinephrine, and dopamine have also been associated with depressive syndromes.¹⁶ Sleep deprivation, depression (Figure 3), and pain may put a woman with chronic pelvic pain at risk for serious injury. For example, she may be running late for work, preoccupied by family concerns or finances, and/or unable to focus on herself because of "medication fog." Because of muscle pain and stress, she may become distracted and become involved in a motor vehicle accident, sustaining injuries, which lead to more pain, depression, and tension. Additionally, she may be taking one or more medications for the foregoing problems, some of which may have side effects that may alter her judgment or alertness. These factors may perpetuate the cycle.

Management of Chronic Pelvic Pain in Female Patients

Management of chronic pelvic pain in female patients may involve a multidisciplinary approach. Stabilization of anterior and lateral spinal curves through exercise or OMT that utilizes techniques of muscle energy, balanced ligamentous tension, myofascial release, and counterstrain assists muscles to keep the spine upright and sufficiently flexible to support good posture.

Some women have already tried surgery or medical management; others have pain that is difficult to manage because their perception of such discomfort may have exaggerated drug-induced adverse effects, making phar-



Figure 3. Depression along with sleep deprivation and pain may place a woman with chronic pelvic pain at risk of serious injury.

macotherapy difficult. For example, gonadotropin-releasing hormone agonists (leuprolide), which have been used for the treatment of adenomyosis, or endometriosis, are associated with an increased incidence of hot flashes, altered sleep pattern, or bone pain (or a combination of these effects).¹⁸

Women with multiple symptoms may require multiple medications, resulting in polypharmacy that makes it difficult to distinguish a patient's reported symptom from an adverse effect of one of many drugs. Sometimes, a patient may self-medicate because she has acquired a stockpile of medication. She may also become concerned that she may have a far more serious disease or cancer that has not been diagnosed, because she has not been able to satisfactorily resolve her pain.

Comment

Osteopathic physicians, by virtue of training and philosophy, are well prepared to participate in management of chronic pelvic pain in women by addressing emotional, psychological, and structural aspects of this complex phenomenon. Through their understanding of female anatomy and physiology, they can identify the biomechanical factors

and somatic dysfunction contributing to chronic pelvic pain. They can administer OMT, which attempts to normalize structure and function, to address chronic pelvic pain.

In the case presentation, Pam typifies a female patient who has long-standing pain due to gynecologic problems, psychological issues, and structural challenges. Extensive history taking, physical and gynecologic examination, along with medication review can be exhaustive processes. However, it is necessary to know the whole "story" and appreciate the entire "picture" for the practitioner to develop a successful comprehensive care plan that treats the whole patient, not just her symptoms.

References

1. Gelbaya TA, El-Halwagy HE. Focus on primary care: chronic pelvic pain in women. *Obstet Gynecol Surv.* 2001;56:757-764.
2. Mareta LD, Swanson DW, McHardy MJ. Three years follow-up of patients who were treated in a multidisciplinary pain management center. *Pain.* 1990;41:47-51.
3. Howard FM. Chronic pelvic pain. *Obstet Gynecol.* 2003;101:594-611.
4. Howard FM. The role of laparoscopy in the chronic pelvic pain patient. *Clin Obstet Gynecol.* 2003;46:749-766.
5. Steege JF, Metzger DA, Levy BS. *Chronic Pelvic Pain: An Integrated Approach.* Philadelphia, Pa: WB Saunders Co; 1998.
6. Lamvu G, Williams R, Zolnoun D, Wechter ME, Shortliffe A, Fulton G, Steege JF. Long-term outcomes after surgical and nonsurgical management of chronic pelvic pain: One year after evaluation in a pelvic pain specialty clinic. *Am J Obstet Gynecol.* 2006;195:591-600. Epub 2006 May 26.
7. Scialli AR. Evaluating chronic pelvic pain: a consensus recommendation. Pelvic Pain Expert Working Group. *J Reprod Med.* 1999;44:945-952.
8. Almeida EC, Nogueira AA, Candido dos Reis FJ, Rosa e Silva JC. Caesarian section as a cause of chronic pelvic pain. *Int J Gynaecol Obstet.* 2002;79:101-104.
9. Mattox TF, Lucente V, McIntyre P, Miklos JR, Tomezsko J. Abnormal spinal curvature and its relationship to pelvic organ prolapse. *Am J Obstet Gynecol.* 2000;183:1381-1384.
10. Sand P. Proposed pathogenesis of painful bladder syndrome/interstitial cystitis. *J Reprod Med.* 2006;51(3 suppl):234-240.
11. Quinn M. Obstetric denervation—gynaecological reinnervation: disruption of the inferior hypogastric plexus in childbirth as a source of gynaecological symptoms. *Med Hypotheses.* 2004;63:390-393.
12. Mathias SD, Kuppermann M, Liberman RF, Lipschutz RC, Steege JF. Chronic pelvic pain: prevalence, health-related quality of life, and economic correlates. *Obstet Gynecol.* 1996;87:321-327.
13. Wernecke U, Northey S, Bhugra D. Antidepressants and sexual dysfunction [published correction appears in *Acta Psychiatr Scand.* 2007;115:255]. *Acta Psychiatr Scand.* 2006;114:384-397.
14. Fleming MP, Paice JA. Sexuality and chronic pain. *J Sex Educ Ther.* 2001;26:204-214.
15. Gunter J. Chronic pelvic pain: an integrated approach to diagnosis and treatment. *Obstet Gynecol Surv.* 2003;58:615-623.
16. Waxman J. The best approach to relieving fibromyalgia symptoms. *Cortlandt Forum.* April 2005:28-36.
17. Rasmussen PV, Sindrup SH, Jensen TS, Bach FW. Therapeutic outcome in neuropathic pain: relationship to evidence of nervous system lesion. *Eur J Neurol.* 2004;11:545-553.
18. *MPR—Monthly Prescribing Reference.* New York, NY: Prescribing Reference, Inc; April 2007;23(4):164.

Editor's Note

Physicians are advised to check the full prescribing information for all the medications discussed in this article and keep current with all FDA advisories and warnings.