

CONTEMPORARY OB/GYN®

Is pelvic floor myalgia causing your patient's dyspareunia?

Proper evaluation of a key muscle group can identify pelvic floor myalgia—an often unsuspected but highly treatable cause of insertional dyspareunia and pelvic pain. An expert tells how to proceed with diagnosis and treatment.

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Contemporary OB/GYN



Sexual pain disorders among women are important, widespread, but poorly understood. Sexual dysfunction affects nearly half (43%) of all American women, according to an analysis of data from a 1992 study of sexual behavior. Lack of desire and pain were cited most often in this study (the National Health and Social Life Survey).¹ Backing up these findings, a recent large population-based survey in New England showed that 15.7% of women had vulvodynia, and several studies have described the widely diverse ways in which women with vulvar pain manifest that pain.²⁻⁴

As you probably know only too well, providing comprehensive care to women complaining of sexual pain is challenging for most busy ob/gyns because most managed care-oriented schedules don't leave you enough time for a detailed evaluation and sensitive discussion. A classification system based upon a careful and orderly evaluation of these complaints provides a framework for treatment and research. Even though idiopathic localized (vestibulodynia, or vulvar vestibulitis syndrome) and generalized (dysesthetic vulvodynia) vulvodynia make up the bulk of vulvar pain disorders, you must also carefully evaluate and discern symptoms that result from anatomic variations, dermatologic conditions, Bartholin gland disorders, infectious diseases, and *pelvic floor myalgia*.⁴

The problem of superficial dyspareunia appears to come up frequently when women consult an ob/gyn for unrelated matters. For example, a general ob/gyn practice in Portland, Ore., found that vestibular pain occurred in 15% of patients over a 6-month period, while a more recent prospective observational study of 400 women from West Hertfordshire, UK, found that the prevalence of vestibulitis varied from 2.9% to 9.8%, depending on how stringent the diagnostic criteria and the method of ascertaining pain were.^{5,6} However, since vulvar vestibulitis is defined by two physical signs (localized erythema and point tenderness) and one symptom (pain with vaginal entry), it is unclear how many of the women in these studies were functionally impacted by insertional pain. Investigators still don't completely understand the relationship between vestibular pain and entry dyspareunia.

Myofascial pain or vaginismus is defined as myalgia of the levator ani muscle group (pubococcygeus, iliococcygeus, and coccygeus). Women having this cause of vulvodynia present with increased pelvic floor muscle tone and tenderness. They often complain of dyspareunia with difficult vaginal penetration or deep burning pain of the pelvis or vagina. While their muscle pain can be isolated, it can also coexist with other vulvar pain conditions. At our university referral practice, about half of all new patients with vestibulodynia whom we evaluate also have co-existing vaginismus.⁴

Pelvic floor (levator) myalgia is an important and frequently unrecognized condition. But the good news is that it's highly treatable. My goal here is to assist clinicians evaluating women with insertional dyspareunia, pelvic pain—or both—in the proper evaluation of the pelvic floor muscles and to review treatment options.

How do the pelvic floor muscles work?

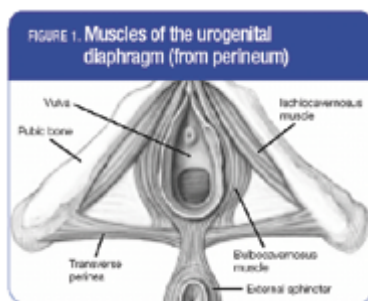
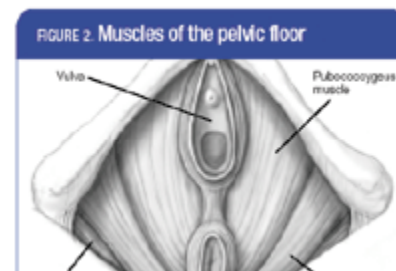


Figure 1. Muscles of the urogenital diaphragm (from perineum) Illustration: Amy Collins/Art & Science, Inc.

The thin skeletal pelvic floor muscles typically receive scant attention during gross anatomy courses in medical school and in gynecology textbooks. Because dissection of these muscles is tedious, most students and clinicians focus attention on the more obvious and physiologically active internal pelvic structures.

Two layers of muscles exist: the superficial urogenital diaphragm (bulbocavernosus, iliocavernosus, and transverses perineae) shown in Figure 1 and the deep levator ani (pubococcygeus, iliococcygeus, and coccygeus) muscles seen in Figure 2. While the urogenital diaphragm group rarely presents in pain

syndromes, the structure and function of the levator ani are more



complicated. In quadrupeds, the levator ani group is the tail-wagging muscles (more about that later). In bipedal mammals, however, the levator ani group provides support to pelvic and intra-abdominal organs to accommodate the challenges of gravity in an upright posture. That's why humans and other apes don't have tails.

The thin skeletal muscles of the levator ani group function much like the diaphragm in that both are under voluntary and involuntary control. *Voluntary* control of the muscles permits control of bladder and bowel function (or insertional sex) at socially acceptable moments. On the other hand, *involuntary*—or automatic—activation of these muscles occurs when intra-abdominal pressure increases (standing, coughing, bouncing, etc.) or in response to anxiety or stress. Gynecologists recognize the role of the pelvic floor muscles primarily when dysfunction leads to urinary and fecal incontinence. Weakness or damage to the muscles can occur due to nerve injury or rupture during vaginal delivery. Since these skeletal muscles are under voluntary control, conditioning regimens (Kegel exercises) can strengthen weak muscles and restore function.

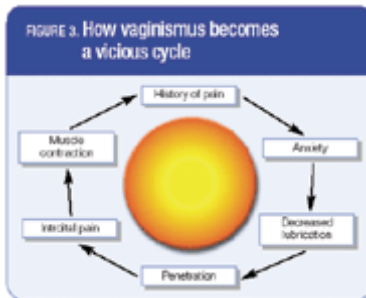


Figure 3. How vaginismus becomes a vicious cycle. Source: Modified from Lamont⁷

Not surprisingly, the levator ani group can undergo pain processes common in other muscle groups, including hypertonus, myalgia, overuse, and fatigue. Pathologic hypertonus and myalgia are often a late development in an insidious chronic process of progressive dysfunction. More than 25 years ago, Lamont presented a model that describes the development of vaginismus (Figure 3).⁷ A variety of events (poor lubrication, anxiety, a vulvar dermatosis, infection) might initiate sexual pain. This leads to anxiety with the next attempt at insertional sex. If pain occurs with this encounter, the cycle is reinforced. Reflex muscle tightening occurs, leading to overuse strain, the buildup of lactic acid, and pain. Considering that these muscles represent the tail-waggers, it's tempting to speculate on their connection to our limbic (emotional) cortex. Just as a Labrador retriever wags her tail when she is happy, and pulls her tail between her legs when stressed, these emotive muscles undergo reflex contraction in response to a stressful situation. In a sexual

situation the result of this anticipatory contraction may be painful insertion, or vaginismus.

Often, by the time a patient walks into your office, the originating factor that kicked off the cycle of pain may no longer exist, leaving an isolated case of levator myalgia. Frequently, however, vestibulodynia (vulvar vestibulitis) *does* exist. Whether the levator myalgia resulted from—or is the actual cause of—the localized vulvodynia becomes a "chicken or the egg" conundrum. In most cases, both conditions warrant treatment.

Clinical evaluation of the pelvic floor muscles

To evaluate a woman for the presence of pelvic floor myalgia, you must first identify and control any focal vestibular tenderness using the "Q-tip" test (Figure 4). Expose the vulvar vestibule and use a small cotton-tipped applicator to assess for focal tenderness. If surface pain is identified, you can eliminate it with topical 4% aqueous lidocaine. We use large swabs to liberally apply the liquid to the tender areas. Although liquid lidocaine will not absorb well through the keratinized tissue of the labia majora or perineum, the thin, nonkeratinized epithelium of the vestibule will quickly accept the local anesthetic. In a busy practice, consider treating the entire vulvar vestibule using several lidocaine-soaked swabs or a saturated gauze sponge. Leave the lidocaine in place while you see another patient during the 3 to 5 minutes required to produce adequate surface analgesia. Then re-examine the vestibule with the cotton swab, and touch up any areas that remain painful.

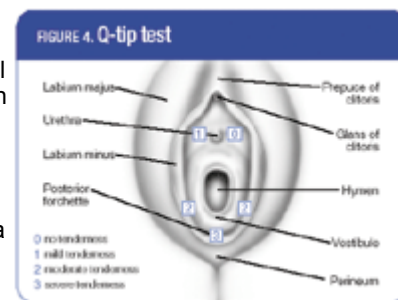
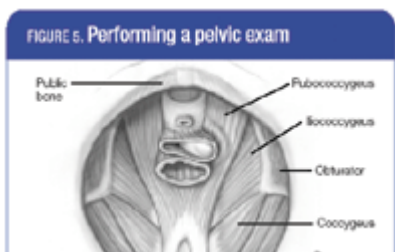


Figure 4. Q-tip test: A cotton-tipped applicator is used to assess for localized vulvodynia. Illustration: John DeNapoli



Once the surface pain is under control, you can evaluate the pelvic floor (Figure 5). Like any physical exam skill, proficiency at pelvic floor examination takes practice. I recommend practicing the exam on normal healthy women during routine annual exams to help you understand the typical range of normal pelvic floor tone and muscle control.

To examine the pelvic floor, insert a single index finger of the right hand through the vaginal introitus. With your palm down, the band-like

thickness of the right pubococcygeus should be readily discernable at about 8 o'clock. Palpate the entire muscle from its origin on the pubis to the insertion on the coccyx. With practice, the discrete bands of the iliococcygeus and coccygeus muscles are palpable dorsocaudally above the pubococcygeus as you insert your finger further into the vagina. It may help you to think three-dimensionally during the exam by recalling that the iliococcygeus originates on the arcuate tendon (white line) of the pelvis overlying the obturator internus, and the coccygeus inserts on the ischial spine, a common obstetric landmark. I pronate my right hand further to examine the muscles of the left side. If you're left-handed, you may wish to perform the exam in a mirror-image fashion, starting with the left pelvic sidewall.

Palpate and assess the pubococcygeus, iliococcygeus, and coccygeus on both the right and left sides for tone and tenderness from origin to insertion at rest and during an active contraction. Ordinarily, palpation of these muscles should be pain-free, both in the relaxed state and during an active contraction. To isolate the levator muscles in a contraction and avoid contractions of the buttocks, I ask patients to "tighten the muscles you would use to stop the flow of urine." Often, a patient is unable to voluntarily contract and relax the pelvic floor muscles. In extreme cases, significant hypertonus and myalgia may prohibit internal examination even with a single finger.

Over the years I have evaluated several women who paradoxically would relax muscles when they tried to contract them—and vice versa (tightened muscles when instructed to relax). As you might expect, during an intimate encounter, this reverse signaling could result in vaginismus and painful penetration. Treatment is the same as with hypertonus.

By supinating the examining hand, it is also possible, with practice, to recognize and palpate the right obturator internus. The left is more difficult for a right-handed ob/gyn, but can be assessed through either extreme pronation or supination. You can activate the obturator internus—a muscle frequently involved in chronic pelvic pain complaints—by asking a patient to abduct and internally rotate the ipsilateral leg against light pressure. Dorsocaudal to the coccygeus, the piriformis may be palpable to an experienced examiner with long fingers.

Treating pelvic floor myalgia

Physical therapy is the recommended treatment for vaginismus. The challenge for many practices is finding a physical therapist with the necessary experience and sensitivity to approach these patients. However, in recent years, more and more physical therapists have become trained and gained expertise in managing pelvic floor complaints by treating incontinent patients. The American Physical Therapy Association has a special interest section for Women's Health and maintains a Web site (<http://www.womenshealthapta.org>) with resources and training for members, as well as a list of providers. Membership in this organization is a good way to determine whether your therapist is up-to-date with the skills needed to evaluate and treat these patients. The same techniques used to evaluate and strengthen pelvic floor muscles using biofeedback techniques are useful in treating hypertonus and vaginismus.

Because vulvar vestibulitis often co-exists with vaginismus, most research efforts have evaluated these conditions together. In one prospective study, 22 of 28 subjects with vulvar vestibulitis who were followed for 6 months responded well to physical therapy and electromyographic biofeedback.⁸ In a randomized trial of treatment options for vulvar vestibulitis, another researcher saw pain significantly diminish among women treated with physical therapy.^{9,10} In addition, a case series of 14 women with vulvar vestibulitis found better success rates with vestibulectomy among women with vaginismus who had been treated preoperatively with physical therapy.¹¹

Vaginal dilators are an alternative approach, particularly when access to a skilled physical therapist is limited. Made of silicone or plastic and available in a variety of sizes (Figure 6), they enable a woman to gain confidence, knowledge, and awareness of her vagina and pelvic floor muscles in the privacy of her own home. I often introduce the concept of dilators by stressing their inert, emotionless status as a desirable characteristic. In contrast to an encounter with a sexual partner, dilators should trigger neither disappointment nor resentment. The goal of vaginal dilator therapy is strictly clinical; to discover what triggers the pelvic floor muscles to contract and to develop strategies to keep the pelvic floor relaxed and soft. With increased knowledge about her body's response, the woman becomes able to gently introduce dilators of progressively larger sizes into the vagina. With this knowledge and confidence, the insertion of dilators becomes comfortable and routine,



Figure 6. Vaginal dilators : These silicone vaginal dilators are designed for home use in treating levator myalgia. This alternative approach is particularly useful in regions with limited access to a skilled physical therapist. Source: Used with permission of Soul Source Enterprises, Portland, Ore.,

and that skill is then transferred to her sexual activities.

www.soulsourceenterprises.com.

When vaginal dilators are combined with psychosexual counseling, success rates exceed 97%.¹² Less is known about the success of vaginal dilator therapy when an experienced, supportive sexual therapist is not available to assist in managing this condition. In that event, wait to prescribe this therapy until after you've taken extra time to review the correct technique for a patient's home use of vaginal dilators. To reinforce the concept of relaxation, we use an instruction sheet and audiotape. The tape is available for purchase through the program in Vulvar Health of the Center for Women's Health at OHSU [http://www.ohsuhealth.com/cwh/services/vulvar_health.htm] (see "Instructions for at-home dilator therapy for vaginismus"). Finding a good sexual therapist can be tricky. Consult with colleagues to explore resources in your own community. Although both the American Association of Sex Educators, Counselors, and Therapists (<http://www.aasect.org>) and The American Board of Sexology (<http://www.sexologist.org>) maintain Web sites, not all qualified therapists belong to these organizations. You should meet with or call any therapist whom you have not used before to discuss treatment goals and approach to care.

A novel—and off-label—approach involves botulinum toxin type A (BOTOX) to selectively reduce muscle tension.^{13,14} Although the preliminary data from small case series are encouraging, long-term effects and the possibility that overtreatment could cause pelvic organ prolapse or incontinence should limit the use of BOTOX for pelvic floor myalgia to clinical trials.

The treatment of women with sexual pain disorders represents one of the most rewarding aspects of gynecologic care. Restoring sexual function improves quality of life and fosters long-term stable relationships. A careful office evaluation of the pelvic floor can identify pelvic floor myalgia, a highly treatable cause of dyspareunia.

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- Employ clinical practice guidelines.
- Integrate evidence-based medicine into clinical practice.
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- Assess when to refer patients to a subspecialist.

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Target audience

Obstetrician/gynecologists and women's health practitioners.

Disclosures

The author (Jeffrey T. Jensen, MD, MPH) of this article reports no relationships with companies having ties to this field of study. The author (Jillian Romm, RN, LCSW) of the "Patient Information" instructions reports no relationships with companies having ties to this field of study. Editors Judith M. Orvos and Elizabeth A. Nissen disclose that they do not have any financial relationships with any manufacturer in this therapeutic category.

Article at a glance

- Even though idiopathic localized and generalized vulvodynia make up the bulk of vulvar pain disorders, also look for symptoms that result from anatomic variations, dermatologic conditions, Bartholin gland disorders, infectious diseases, and pelvic floor myalgia.
- A careful office evaluation of the pelvic floor can identify pelvic floor myalgia, an often overlooked cause of dyspareunia that's highly treatable using physical therapy, vaginal dilator therapy—and even BOTOX (an off-label use of BOTOX).
- The same biofeedback techniques for strengthening pelvic floor muscles for incontinence patients are useful in treating hypertonus and vaginismus.
- The goal of vaginal dilator therapy is strictly clinical: to discover what triggers the pelvic floor muscles to contract and to develop strategies to keep the pelvic floor relaxed and soft.

Patient Information

Instructions for at-home vaginal dilator therapy for vaginismus*

A vaginal dilator can help you gain confidence, knowledge, and awareness of your vagina and pelvic floor muscles in the privacy of your own home. It will help you discover what triggers these muscles to tense up; then you can focus on ways to relax the muscles and keep them soft. As you learn more about how your pelvic floor muscles respond, it'll be easier for you to gently introduce dilators of progressively larger sizes into your vagina. Confidence comes with practice, and soon inserting dilators will become comfortable and routine. Then you can transfer that skill to your sexual activities.

Select a time and place when you can have privacy to practice. Begin by liberally lubricating the dilator and your vulva, to ensure that the dilator will be slippery and easy to insert. Before inserting the dilator, notice your body. With your mind's eye, scan your body for any areas of tension, paying particular attention to your abdomen, buttocks, and thighs. When you feel that you are relaxed, slip the dilator that you are working with gently into your vagina. If you notice any discomfort, burning, or tightening, attempt one of these strategies that have been recommended by patients:

1. Follow your out-breath as you let go and soften the muscles of the pelvic floor. It appears to be easier to relax the muscles when the body is in the relaxation phase of the breath cycle. (Several women have told us that they count aloud as they exhale.)
2. Visualize your vagina and pelvic floor in a state of softness. A patient offered this image: "I imagine my vagina is made of stretchy elastic that can expand at my will. I picture my vagina enlarging to accept the dilator."
3. Carefully attend to the messages you are receiving from your body. Keep your belly soft and open to your breathing, keep your legs comfortably limp and relaxed, and keep your breathing easy and gentle. This will allow for gentle and gradual relaxation of the pelvic floor muscles.

Practice with the dilator for about 15 minutes per session, every other day. When the dilator that you are currently using is no longer a challenge, you can progress to the next larger dilator. Follow the manufacturer's recommendations for cleaning and storage.

When you are using the dilator that is approximately the size of your partner's penis, you may consider adding intercourse to your sexual sharing. Initially you will feel more comfortable using positions for intercourse where you feel that you have the most control of the pacing, depth, and intensity of penetration.

If you feel "stuck," unable to work with the dilator comfortably, or if you think there may be some unresolved personal or relationship issues, consider consulting a psychotherapist who has expertise in sexual therapy. He or she should be familiar with vaginismus and vulvar pain conditions and be able to assist you in progressing through the vaginismus treatment program.

*And related conditions.

Created by Jillian Romm, RN, LCSW, these instructions for at-home dilator therapy are the same ones used at the Oregon Health & Science University Program in Vulvar Health.