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Dyspareunia: Etiology, presentation, and management

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Abstract: *Dyspareunia in women is a recurrent pain in the genital and/or pelvic area associated with sexual intercourse. Dyspareunia is associated with increased risk of sexual dysfunction and relationship distress, and it may impact an individual's confidence, self-image, and self-esteem. Pain resulting from dyspareunia can be superficial or deep; it can range from intermittent to continuous and dull to sharp. Regardless of presentation, many women are reluctant to report symptoms to providers, making it an underreported yet common condition. The onus lies with practitioners to form trusting and safe relationships with patients in which such discussions are possible. A knowledgeable practitioner can encourage disclosure and improve outcomes for patients with dyspareunia.*

Keywords: dyspareunia, endometriosis, genital pain, gynecologic conditions, painful intercourse, pelvic pain, postpartum dyspareunia, sexual dysfunction, vulvodynia, women's health

Dyspareunia in women is described as recurrent pain, either in the genital area or pelvic area, associated with intercourse. Research conducted in the US indicates that between 7% and 58% of women suffer from dyspareunia.[1] According to the American College of Obstetricians and Gynecologists, the prevalence is even higher, with a rate of up to 75% of women experiencing painful intercourse during their lives.[2] Although the focus of management is identifying and treating the cause, pain relief—which is possible for women with this condition—is also critical.[1]

Women with dyspareunia are at increased risk of developing sexual dysfunction; relationship distress; and decreased confidence, self-image, and self-esteem. In addition, women suffering from dyspareunia are at risk of anxiety, depression, and delaying treatment of primary or secondary clinical conditions.[3] The pain associated with dyspareunia can be superficial or deep, and it can range from intermittent to continuous and dull to sharp. It can be easily identified, or it can be difficult to pinpoint or describe.

Due to patient reluctance to disclose symptoms, the onus lies with healthcare providers to put patients at ease and form a relationship based on trust that enables disclosure.

Regardless of presentation, many women with dyspareunia are reluctant to report their symptoms to medical providers. Dyspareunia is therefore underreported despite its prevalence. Research has found that only 10% of women suffering from dyspareunia recognize it as sexual dysfunction.[3] Others have simply felt "too embarrassed," "too busy," "worried about wasting the [provider's] time," and "worried what the [provider] might find" to report symptoms.[4,5] Due to patient reluctance to disclose symptoms of dyspareunia and the discomfort around discussing sexual issues, the onus lies with healthcare providers to put patients at ease and form a relationship based on trust that enables the disclosure process.

The use of the words "woman" and "her" throughout this article refer to cisgender women and their conventional pronouns. The considerations for transgender women are outside of the scope of this article.

Anatomy and physiology

The vulva is the female genitalia's outermost region. It serves as the focus of female sexual response and guards entry to the vagina and the urethra. The ilioinguinal nerve (anterior labial branches) provides sensory innervation of the anterior third of the labia majora, whereas a branch of the pudendal nerve (posterior labial branches) provides sensory innervation of the posterior two-thirds. The A-delta and C-fibers in the vulva nerve branches serve as nociceptors. A few terminal sensory fibers in the labia minora may also play some role in pain perception.

Classification

Dyspareunia is classified based on four primary factors: onset, frequency, location, and cause.[6]

Onset

Onset is classified as either primary or secondary. Primary onset describes dyspareunia that begins with the first sexual experience. Primary onset causes include congenital abnormalities, psychosocial causes, sexual abuse in childhood, fear of intercourse, or painful first intercourse.[1] Secondary onset is used to describe dyspareunia that begins after the woman has had previous pain-free sexual function.

Frequency

Frequency is persistent or conditional. Persistent symptoms appear with all partners under all conditions. Conditional symptoms occur only with certain partners, positions, or stimulation.[1] Both physical and psychological factors could cause either persistent or conditional pain.

Location

Location of dyspareunia can be classified as superficial (or insertional) or as deep. When the woman describes sharp, burning, or stinging pain at or near the vaginal introitus or vestibule on penetration, it is generally called superficial or insertional dyspareunia.[1] The vulva and its surrounding structures are typically involved in superficial or insertional dyspareunia. Deep dyspareunia is a term used to describe pain felt within the pelvis and associated with deep penetration within the vagina.[1]

Cause

Various causes underlie dyspareunia.[1,3,4,6-10] Although causes are usually physical, psychological factors may be involved in those cases in which investigation does not find a physical cause.[1] When all possible physical causes and comorbidities have been excluded, healthcare providers must consider psychological factors in the event of continuing dyspareunia. More information about causes follows below in "Etiology."

History and physical exam

Healthcare providers should establish a secure, judgment-free atmosphere that acknowledges that addressing sexual topics may be difficult. Providers should ask patients to describe when and under which circumstances, including which sexual activities, their pain and other physical symptoms are aggravated.[7] The provider should also obtain history of sexual dysfunction and previous treatments and assess for history of sexual assault or rape, sexual abuse, or intimate partner violence. Obtaining detailed past medical, obstetric, and surgical histories; performing a medication reconciliation including evaluating for the use of supplements; and determining the patient's use of personal hygiene products will aid in development of the clinical picture.[7] *Box 1* provides a list of additional suggested history questions to ask patients to aid in classifying dyspareunia, pinpointing possible underlying causes, and navigating management.

Prior to starting the physical exam, the provider should acknowledge that the patient may be fearful of or anxious about experiencing pain. The provider should explain the importance of the pelvic exam and offer the patient a mirror so they can identify specific areas of discomfort.[7] The exam begins with assessment of the external genitalia for signs of atrophy, inflammation, ulcers, lesions, or trauma. Dermatologic disorders such as lichen sclerosis or vaginal atrophy may be identified during this portion of the exam. The speculum exam is performed to assess for infection, inflammation, lesions, ulcerations, discharge, or atrophy of the vagina or cervix. If discharge or lesions are present, then a sample should be obtained for microscopy or microbiology testing to rule out bacterial vaginosis, a sexually transmitted infection, or other causes of cervicitis or vaginitis. A cotton swab is utilized to test for provoked pain of the exterior genital tissues by applying pressure to the mons pubis, labia majora, labia minora, clitoral hood, interlabial sulcus, and perineum. Pressure is then applied with the tip of the cotton swab to the vestibule in a clockwise manner: 2:00, 4:00, 6:00, 8:00, and 10:00. The patient is asked to rate their pain in each of these locations so that the provider can determine improvement in provoked pain with subsequent exams.[11] The provider may also identify erythema and tenderness on exam around the hymen and vestibule, which is a common finding in vulvodynia.[7]

The provider should then proceed to the manual exam to determine hypertonicity of the pelvic floor which would indicate pelvic floor dysfunction. Patients may have difficulty relaxing their abdominal and pelvic floor muscles during this portion of the exam, and some patients may experience rebound tightening at completion of the exam.[11] The provider palpates the vagina through 360 degrees with a lubricated single

Box 1. Specific history questions

Regarding the pain:
- Where is the pain?
- When does it occur? Does the pain occur during insertion, superficial penetration, or deep penetration?
- How would you describe the pain? Sharp, dull, burning, cutting, stabbing, throbbing?
- How long does it last?
- How long has the pain been a problem?
- Is there any position that makes it worse or makes it better?
- Is there anything that you take, use, or do that makes the pain better? (If yes, the provider should ask for name, amount, and frequency.)
- Do you have genital or pelvic pain with other sexual or nonsexual contact (for example, during tampon insertion, pelvic exam, finger insertion, oral sex, or urination)?

Regarding sexual history:
- Do you look forward to sex?
- Have you had the same pain with different partners? Different positions?

Regarding relationships:
- How is your relationship with your current partner?
- Is the pain you experience affecting your relationship?
- Has anyone ever made you feel unsafe, frightened, or insecure in your home? Has or does anyone hurt you physically, sexually, or emotionally?

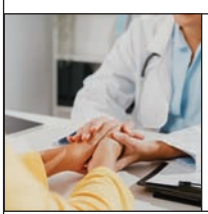
Regarding psychosocial aspects:
- Do you have any fear, guilt, or shame related to sex?
- Do you have any self-image or body image issues?
- Are you concerned about your appearance or weight?
- Do you have a history of sexual abuse or rape (at any age)?
- Do you suffer from anxiety or depression?

digit to assess the pelvic floor muscles (levator ani, obturator internus, and piriformis) to determine whether tension or pain occurs (unilaterally or bilaterally). The provider may encounter tightening of the introitus around their finger, tightening of the pelvic floor, and contraction of the perineum when applying pressure.[11] These findings may be indicative of, and a contributing factor to, the woman's dyspareunia. The provider should complete the exam with a bimanual exam inserting a second finger into the vagina to assess for urethral, bladder, cervical, uterine, and adnexal pain by palpating slowly.[7] When the uterus is carefully shifted cephalad, the patient may experience pain if uterine prolapse or retroversion is present. Rectovaginal or uterosacral nodularity may be identified during rectovaginal exam in women with deep dyspareunia, particularly those with rectal pain or dyschezia.[7]

Etiology

Causes of superficial dyspareunia

Superficial or insertional dyspareunia can arise due to various causes. For example, superficial dyspareunia can be seen in patients with vulvodynia, a chronic pain condition of the vulva, and vaginismus, an involuntary response of the body causing spasms of the vaginal wall muscles. Other causes, including congenital abnormalities such as vaginal agenesis or imperforate hymen, can also make penetration painful.[1,7,8]



Three common causes of dyspareunia are vulvodynia, postpartum changes to or effects on the body, and endometriosis.

Superficial or insertional dyspareunia can be a result of a decrease in lubrication. Decreased lubrication can be caused by a drop in estrogen levels after menopause, after childbirth, or during breastfeeding.[12-14] In addition, certain medications may decrease sexual arousal, which can in turn cause decreased lubrication leading to painful intercourse. Such medications include antidepressants, antihypertensives, sedatives, antihistamines, and certain oral contraceptives.

Injury, trauma, or irritation to the vaginal area from an accident, pelvic surgery, female circumcision, or episiotomy are other possible causes of painful sex. Infection in the genital region or of the urinary tract can be another cause of pain or discomfort. Women suffering from eczema or other dermatologic problems in the genital area may experience painful intercourse as well.

Causes of deep dyspareunia

Dyspareunia with deep pain is usually associated with deep penetration and might be worsened with certain positions. Scarring from previous pelvic surgery, such as a hysterectomy, can be a cause. Radiation therapy and chemotherapy for cancer treatment can also cause changes that make sex painful, such as low estrogen levels, scarring of the vagina, or changes in the size of the vagina.[15] Other conditions, such as endometriosis, pelvic inflammatory disease, uterine prolapse, retroverted uterus, uterine fibroids, cystitis, irritable bowel syndrome, pelvic floor dysfunction, adenomyosis, hemorrhoids, and ovarian cysts, can also be associated with dyspareunia.[6-9,15]

Most common causes

Typically, the cause of a patient's dyspareunia can be determined through a comprehensive health history (including sexual health history) and physical exam. Three common causes of dyspareunia are vulvodynia; postpartum changes to or effects on the body (resulting from, for example, trauma during delivery, pelvic floor dysfunction, or breastfeeding); and endometriosis. The remainder of this section focuses on these three common causes of dyspareunia and management recommendations.[7]

Vulvodynia. Vulvodynia is described as idiopathic, dysfunctional vulvar pain that has been present for at least 3 months and is not caused by an inflammatory or neuropathic disorder.[11] Vulvodynia is considered to be a central sensitization syndrome, a type of chronic pain syndrome. Examples of other central sensitization syndromes include fibromyalgia, irritable bowel syndrome, and myalgic encephalomyelitis (chronic fatigue syndrome).[16] Psychosocial issues that commonly present in patients with vulvodynia include childhood or adulthood sexual and/or physical abuse, anxiety, depression, and other sexual dysfunction.[7] Patients with vulvodynia typically experience superficial or insertional dyspareunia. Vulvodynia is classified as generalized or localized and as provoked (caused by insertion or contact), unprovoked (spontaneous), or mixed. Symptoms are further classified as primary (started at the first provocation

such as first sexual intercourse) or secondary (pain occurs with provocation after a period without symptoms or pain). The provider should also identify a pattern of the patient's pain, such as persistent, constant, intermittent, immediate (occurring during the provocation), and delayed (occurring after the provocation). Vulvodynia symptoms can include scorching, tearing, aching, or stabbing of the vulva or structures such as the clitoral hood and vestibule.[7,16] Many patients with vulvodynia have weakened pelvic floor muscles on physical exam. It has been suggested that pelvic floor dysfunction, which is commonly caused by weak pelvic floor muscles, puts strain on the nerves that pass through and around these muscles.[7]

Postpartum dyspareunia. Postpartum dyspareunia can be caused by trauma during childbirth, pelvic floor dysfunction, and breastfeeding. It can involve superficial, deep, or both types of dyspareunia, depending on when and where the trauma occurred. Postpartum dyspareunia caused by trauma during delivery is often due to healing or poorly healed vulvar, vaginal, and perineal lacerations. Vacuum-assisted delivery, the use of forceps during delivery, and episiotomy during delivery can be associated with prolonged dyspareunia. Pelvic floor dysfunction can occur because of the pressure of the fetus on and physiologic changes to the pelvic floor muscles during pregnancy and/or delivery.[7] Painful sex while breastfeeding may be due to decreased estrogen levels in response to increased prolactin to support breast milk production. Decreased estrogen to the vaginal tissues results in decreased libido, decreased lubrication, and poor elasticity of vaginal tissues.

Endometriosis. Endometriosis affects more than half of women living with chronic pelvic pain and is often characterized by dyspareunia and dysmenorrhea. Dyspareunia experienced with endometriosis is typically deep pain. Endometriosis can also lead to infertility and has been associated with depression and anxiety.[17,18] Patients with endometriosis often experience missed days of work; missed social events; and disruption in relationships, both physically and emotionally. Studies have also indicated that patients with endometriosis who experience pelvic pain have significantly higher levels of depressive symptoms compared with patients with endometriosis who do not experience pelvic pain.[18]

Endometriosis occurs when cells of the endometrium travel outside of the uterus and implant on surfaces of other organs or structures of the pelvic cavity, such as the ovaries, fallopian tubes, uterus, bowel, and bladder, or even outside of the pelvic cavity, such as on or in the abdominal wall.[19] The inserted cells proliferate and grow into a web of tissue causing adhesions that connect the organs and tissue of the pelvis, resulting in the pulling, pressure, and tearing sensations experienced by patients. Laparoscopy is the gold standard for diagnosis of endometriosis.

Management

The appropriate management of dyspareunia can be established after diagnosis of the cause.[7] Management may include pharmacologic and nonpharmacologic interventions, including cognitive behavioral therapy, counseling, and physical therapy.[11] The goal of management is to develop a plan of care for the patient that addresses both the psychosocial and physical attributes associated with painful sexual intercourse.[7]

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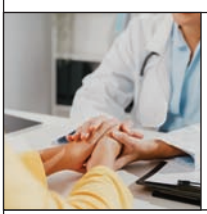
Vulvodynia

Vulvodynia is associated with several other conditions, such as interstitial cystitis, fibromyalgia, anxiety, depression, and posttraumatic stress disorder, as well as with a history of abuse.[7] Successful treatment of vulvodynia includes management of other comorbidities. The two pillars of counseling a patient diagnosed with vulvodynia include empathy and education.[11] Educating the patient to avoid perfumed soaps, perfumed vaginal hygiene wipes, perfumed paper sanitary napkins, vigorous cleansing, abrasive underwear, and tight clothing will help guide them in proper vulvar care. The patient should avoid using hot water during cleansing and apply a topical natural emollient or moisturizer such as olive oil. The patient should also be instructed to always use a water-based lubricant without perfumes, flavors, or other irritants during intercourse.[11] Pelvic floor physical therapy is a nonpharmacologic management option that has been proven to be helpful in the treatment of vulvodynia

secondary to pelvic floor dysfunction.[7] The patient may also consider psychotherapy to work through her experience of living with dyspareunia and any previous trauma she may have endured.[11] Cognitive behavioral therapy has proven to be a helpful tool when treating the patient with dyspareunia.[7] The patient may also want to consider having her partner attend psychotherapy with her to explore other ways they can continue to enjoy intimacy and have a healthy relationship even at times when penetrative intercourse may not be feasible due to the pain the patient is experiencing.[11]

Medications most often used to treat vulvodynia include topical treatments and oral neuromodulators.[11,16] Topical 2% lidocaine can be used prior to intercourse and applied using a soft cotton swab.[7] In educating patients about the use of topical lidocaine, providers should explain that lidocaine gel or ointment may cause a burning sensation on initial application. For patients whose sexual partner has a penis, the patient should be educated that the partner may experience numbing of the penis with intercourse when topical lidocaine has been applied. Oral intercourse should also be avoided with lidocaine use. Topical estrogen cream is a treatment option for vulvodynia that is exacerbated by thin or dry vulvar tissues. If a compounding pharmacy is available, other topical options include compounded gabapentin or vaginal muscle relaxants.[7] Oral medications that may be used alone or in combination with topical treatments include gabapentin, pregabalin, tricyclic antidepressants such as amitriptyline, serotonin and norepinephrine reuptake inhibitors (SNRIs) such as duloxetine and venlafaxine, and selective serotonin reuptake inhibitors (SSRIs).[11] Amitriptyline may be effective and is the most common oral treatment used by providers caring for patients with vulvodynia. Amitriptyline cannot be prescribed with an SNRI or SSRI due to the risk of serotonin syndrome. It is imperative that providers be aware of potential drug interactions with other medications the patient is taking when prescribing oral neuromodulators.[11] Finally, vestibulectomy, a surgical intervention, may be an option for patients with uncontrolled vulvodynia who do not respond to less invasive treatment.[11]



Proper screening for sexual dysfunction is important to include in the postpartum exam, as dyspareunia and fear surrounding sexual activity can exacerbate other postpartum anxieties or depression.

Postpartum dyspareunia

Postpartum dyspareunia is experienced frequently after childbirth when the couple resumes penetrative sexual activity. Postpartum dyspareunia may occur as a result of factors such as trauma during delivery, pelvic floor dysfunction, and decreased estrogen to the vaginal tissues during breastfeeding. Dyspareunia due to trauma should be evaluated by a provider and may require surgical repair. Pelvic floor dysfunction due to the physiologic changes that occur during pregnancy and childbirth may be successfully treated through pelvic floor physical therapy.[7] Topical estrogen cream can be used for a short period of time to treat the vaginal dryness and atrophy that can occur during the hypoestrogenic state of the postpartum period.[20] Patients should be advised that barriers made of latex such as condoms, cervical caps, or diaphragms should not be used for 72 hours after the use of an estrogen cream as the cream can cause breakdown of the integrity of the barrier device.[21] The patient and her partner should also be educated on the use of lubricants whenever they are sexually active.[7] The postpartum period is a time of great adjustment for the patient and her partner. Proper screening for sexual dysfunction is important to include in the postpartum exam, as dyspareunia and fear surrounding sexual activity can exacerbate other postpartum anxieties or depression.

Endometriosis

Management of endometriosis includes use of medications, nonpharmacologic options, and surgical intervention. The decision of how best to treat the patient presenting with endometriosis may depend on the patient's desire for future pregnancy and considerations of adverse reactions, complexity, and cost of treatment.[17] The goal of therapy is suppression of endometrium growth and ovarian suppression.[20] Typical first-line pharmacotherapy options include nonsteroidal anti-inflammatory drugs (NSAIDs), combination hormonal contraceptives (CHCs), and progestin-only contraceptives. NSAIDs can improve the pain of endometriosis-associated dysmenorrhea

and are most often used in combination with a CHC or progestin-only contraceptive.[20] NSAIDs inhibit prostaglandin synthesis but do not control the growth of endometrial tissue or suppress ovulation and are generally used for symptom control only.[17] CHCs and progestin-only contraceptives decrease prostaglandins and treat endometriosis by suppressing the growth of the endometrium and suppressing ovulation.[17] These medications are easy to initiate, have limited adverse reactions, and are easy to discontinue if the patient wishes to consider pregnancy soon. However, after the patient stops taking medication, it is likely that symptoms will return.[17]

The provider should reevaluate the efficacy of first-line management options by monitoring for improvement in the patient's pain 3 months after initiation. If the patient does not experience adequate pain relief, then second-line treatment options are available, including gonadotropin-releasing hormone (GnRH) agonists, GnRH antagonists, danazol (a synthetic androgen), and aromatase inhibitors.[20]

The most commonly used GnRH agonists include goserelin and leuprolide. Goserelin is administered by subcutaneous injection and leuprolide is administered by I.M. injection; they result in endometrial atrophy through a decrease of estrogen via suppression of the pituitary-ovarian axis.[20] These medications are effective; however, they can only be used short term, have adverse reactions similar to menopausal symptoms, and can be costly. These medications cause bone loss over time and therefore require add-back therapy as well as calcium supplementation.[17] Elagolix, a GnRH antagonist, and relugolix/estradiol/norethindrone acetate, a combination of a GnRH antagonist, estrogen, and progestin, are newer oral options to treat endometriosis-associated pain by reducing estrogen through suppression of follicle-stimulating hormone and luteinizing hormone. GnRH antagonists are associated with adverse reactions similar to GnRH agonists such as hot flashes, insomnia, nausea, mood changes, and bone loss, and they therefore can also only be used short term.[17] Danazol is a synthetic androgen that is no longer commonly used because of its androgenic effects including hirsutism, acne, deepening of the voice, and weight gain.[17] Aromatase inhibitors, use of which is off-label for treatment of endometriosis-related pain, are reserved for patients with severe endometriosis that does not respond to other commonly used treatment options as well as for patients who continue to have endometriosis pain well after menopause.[17]

Laparoscopic endometriosis surgery, in which the surgeon removes adhesions and endometrial implants causing pain, may also be a treatment option. Surgical intervention is most often reserved for patients who are having poorly controlled pain after trying pharmacologic, nonpharmacologic, and nonsurgical treatment options.[20] Pain associated with endometriosis may also respond to nonpharmacologic therapies such as massage therapy, pelvic floor physical therapy, and acupuncture. Dietary changes including reducing red meat and increasing green vegetables, omega-3 fatty acids, and turmeric have also been studied as potential options for improving pain related to endometriosis; data on their effects are limited.[17]

Conclusion

Dyspareunia is a complex condition that affects the physical and mental well-being of many women from reproductive age through postmenopause. Providers caring for women should be educated about dyspareunia and its treatment options beyond pain control to include psychological and social factors.[22] The astute provider inquires about the patient's sexual health during both routine, preventive visits and problem-focused visits; this includes asking questions about symptoms such as pain or behaviors such as avoidance of sex. The history and physical exam of a patient presenting with complaints of dyspareunia should be thorough yet compassionate. Patients should be assured that management options are available for dyspareunia that may include medications, surgical interventions, pelvic floor physical therapy, and mental health support. Management may also include interventions such as cognitive behavioral therapy and counseling for the patient and their partner.[11] Sexual health is a primary element of overall health, and treating sexual dysfunction caused by dyspareunia may improve patients' quality of life. NP

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