

# 12.1 Assessment, treatment strategies, and outcome results: perspective of pain specialist

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## Introduction

Obtaining a proper diagnosis and treatment is a major obstacle for women suffering from sexual pain disorders. In a recent epidemiologic investigation,<sup>1</sup> only 54% of women surveyed sought treatment for their chronic vulvar pain, and of those, 60% saw three or more clinicians while only 61% obtained a diagnosis. These statistics are particularly alarming, given that prevalence estimates for dyspareunia and vaginismus range from 12% to 21%<sup>1-4</sup> (see Chapters 2.1–2.4 of this book).

Why so few women consult for dyspareunia or vaginismus remains uncertain, but this may be due to discomfort in discussing such issues with their doctor. One likely solution is to make a sexual pain assessment part of the routine gynecologic examination (see Chapters 9.1–9.5). However, prevalence data also suggest that health-care physicians lack expertise in diagnosing sexual pain disorders.<sup>1</sup> This possibly reflects an oversight in medical training, but also probably stems from confusion arising from current classification systems and nomenclature. Within the literature, a various diagnostic labels are used to refer to dyspareunia, including vulvodynia, generalized and localized vulvar dysesthesia, dysesthetic vulvodynia, vestibulodynia, and vulvar vestibulitis syndrome. And while there appears to be some consensus regarding the use of the term

“vaginismus”, criteria for this diagnosis remain controversial and are inconsistently applied.<sup>5</sup> Most notably, terminology within the sexual pain literature is not used consistently and at times fails to discriminate among conditions with different symptomatology. As a result, authors and clinicians alike commonly use the same labels to refer to different kinds of genital pain.

## Classification

The five major classification systems with respect to sexual pain are as follows: that of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM),<sup>6</sup> that of the *International Statistical Classification of Diseases and Related Health Problems* (ICD-10),<sup>7</sup> the International Association for the Study of Pain’s Classification of Chronic Pain<sup>8</sup>, and ad hoc classifications proposed by the American College of Obstetrics and Gynecology,<sup>9</sup> and the International Society for the Study of Vulvovaginal Disease.<sup>10</sup> These systems differ on the range of problems covered, diagnostic criteria for these problems, and underlying theoretic approach.

The revised third edition of the DSM (DSM-III-R) introduced the term “sexual pain disorder” to classify dyspareunia

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and vaginismus under the category of sexual dysfunctions.<sup>11</sup> Today, the revised fourth edition of the DSM (DSM-IV-TR) has preserved this category, making dyspareunia and vaginismus the only pain conditions to be classified outside the category of pain or somatoform disorders.<sup>6</sup> Diagnostic criteria require that the sexual pain be specified as resulting from organic, psychologic, or mixed factors, lifelong or acquired, and global or situational. Ultimately very little discriminative diagnostic information is provided to make these distinctions. For example, what constitutes organic as opposed to psychologic causation is not specified, nor is any detail regarding the location, temporal duration, or quality of the pain. In addition, a woman who experiences a deep throbbing pain upon penile thrusting would obtain the same diagnosis as a woman who experiences a superficial burning sensation during vaginal insertion. Strictly speaking, according to the DSM-IV-TR, women who are not sexually active but experience pain during other activities involving vestibular pressure or vaginal insertion would not receive this diagnosis, as the pain is not interfering with sexual intercourse.

Interference with intercourse is also a central diagnostic feature for vaginismus in the DSM-IV-TR. Defined as an involuntary vaginal spasm that interferes with intercourse, pain is not required for the diagnosis of vaginismus. The ICD-10 and the American College of Obstetricians and Gynecologists<sup>9</sup> recommendations also identify vaginal spasm as the central criterion for a diagnosis of vaginismus. To date, however, very little empirical evidence exists for the validity of this diagnostic feature. Studies have failed to differentiate women with vaginismus from those with dyspareunia<sup>5</sup> or even healthy controls<sup>12-14</sup> by the presence of such a spasm. One study did find that women with vaginismus demonstrated increased pelvic muscle tonicity as compared with women suffering from dyspareunia and healthy controls, and also displayed more defensive and avoidance behaviors during pelvic examination.<sup>5</sup> The question of whether vaginismus constitutes a different clinical entity from other forms of dyspareunia or simply represents the extreme of a continuum remains unanswered.

Despite the limitations of the DSM-IV-TR system of classification in guiding the assessment and diagnosis of sexual pain disorders, this system is strikingly consistent with that of the ICD-10, which also classifies psychogenic dyspareunia and vaginismus as sexual dysfunctions,<sup>7</sup> while organic dyspareunia and vaginismus are classified as pain disorders. The implication is that if no physical findings can be found during medical examination, the disorder is necessarily of a sexual nature. The result is that too often women suffering from these conditions are similarly dismissed from the gynecologist's office with a referral to a sex therapist. While such a referral appropriately addresses the issue of sexuality in women suffering from pain during intercourse, the primary presenting symptom of pain is not being equally treated.

The International Association for the Study of Pain developed the Classification of Chronic Pain, which has inspired a new approach to the assessment and study of urogenital pain.<sup>8</sup> Within this classification system, pain is described according to

the following five dimensions: location, system involved, temporal pattern, self-reported intensity and duration, and etiology. Considerable empirical research now exists for all five of these dimensions, particularly with reference to vulvar vestibulitis syndrome. This condition is believed to be the most common form of dyspareunia among premenopausal women<sup>2,15,16</sup> and is characterized by severe pain upon vestibular touch or attempted vaginal entry,<sup>17</sup> as opposed to idiopathic vulvodynia, in which the pain is unprovoked. The majority of women with vulvar vestibulitis syndrome report the onset of pain with penetration,<sup>16</sup> exhibit increases in pain after successive clockwise cotton-swab palpations of the vestibule,<sup>18</sup> and show habituation to suprathreshold pain.<sup>19</sup> Self-reported pain intensities in women with vulvar vestibulitis syndrome are normally distributed, representing a continuum of pain rather than an all-or-none phenomenon.<sup>18</sup> Moreover, in comparing thresholds for touch and pain, pain thresholds in women with vulvar vestibulitis syndrome match touch thresholds in pain-free controls.<sup>19</sup> An assessment according to the Classification of Chronic Pain provides a wealth of clinically relevant information, even in the absence of obvious disorder. A consideration of these pain dimensions should be included as part of any thorough urogenital pain assessment. Although not included in the formal axes, the International Association for the Study of Pain also places great value on self-reported pain quality with the underlying assumption that similar pains may share similar etiology. In contrast, the DSM-IV-TR criteria for dyspareunia refer to a multitude of different pains, while, paradoxically, the category of vaginismus has little discriminative value.

The American College of Obstetrics and Gynecology and the International Society for the Study of Vulvovaginal Disease have attempted a more thorough classification of conditions causing urogenital pain. In 1997, the American College of Obstetrics and Gynecology released an educational bulletin<sup>20</sup> classifying vulvovaginal disorders according to the following four categories: lichen sclerosis, squamous cell hyperplasia, other dermatoses (including lichen simplex chronicus and lichen planus), and nonneoplastic epithelial disorders confined to the vulvar vestibule (including vulvar vestibulitis syndrome, vestibular papillomatosis, and idiopathic vulvodynia). This system of classification distinguishes vulvovaginal disease according to physical findings and also provides guidelines for the diagnosis and treatment of each, although any reference to vaginismus is lacking. Concerning the diagnosis of vulvar vestibulitis syndrome, the American College of Obstetrics and Gynecology suggests that evidence of inflammation and tenderness in response to pressure in inflamed areas, along with a clinical history, is sufficient for the diagnosis. However, the diagnostic criterion of erythema has received very little empirical support,<sup>18</sup> and the issue of inflammation remains a controversial one. Controlled histopathologic studies have revealed inflammatory infiltrates to be a relatively common finding in vestibular tissue,<sup>21-23</sup> while genetic evidence points to a dysfunctional inflammatory response in the pathogenesis of vulvar vestibulitis syndrome.<sup>24-26</sup> This condition therefore remains a

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diagnosis of exclusion when all other disorders have been ruled out, including idiopathic vulvodynia, although specific discriminative criteria are not provided for the latter.

In a newsletter,<sup>10</sup> the International Society for the Study of Vulvovaginal Disease recently circulated its newly formulated classification system for vulvar pain. In a dualistic approach similar to the DSM-IV-TR, vulvar pain is classified as due either to a specific disorder or to vulvodynia. The first category is further subdivided according to etiology as follows: 1) infectious; 2) inflammatory; 3) neoplastic; and 4) neurologic. Vulvodynia is categorized according to whether the pain is localized or not, and also whether the pain is provoked, unprovoked, or mixed. Under this newly proposed system, vestibulodynia, clitorodynia, and hemivulvodynia are provided as examples of localized pain, but no examples or official nomenclature are provided for the other criteria. It appears that in the absence of obvious disorder, vulvar pain is classified according to descriptive pain characteristics, similar to the International Association for the Study of Pain system. This represents a significant departure from the DSM-IV-TR, which would simply classify urogenital pain as psychogenic in the absence of obvious physical disorder. Although this approach does not make any specific mention of vaginismus, it encourages the careful assessment and diagnosis of pain regardless of physical findings.

### Assessment

As with any sexual dysfunction or pain disorder, a multidisciplinary approach to the assessment of dyspareunia and vaginismus is encouraged to allow for a more comprehensive evaluation. This requires a clinical interview by a mental health professional in addition to a thorough physical examination by a gynecologist and pelvic floor physiotherapist. Although this may not be possible in every health-care setting, a multidisciplinary approach is encouraged to validate the patient's experience of the pain and its interference with sexual and couple functioning, rule out and treat identifiable physical pathology, and identify possible exacerbating/attenuating factors and avenues for intervention. A multidisciplinary approach further allows the specialists to contribute their unique expertise to the understanding and evaluation of the problem in a complementary way.

#### The clinical interview

The clinical interview is essential when assessing any pain condition and should include questions on the history, onset, intensity, location, quality, and duration of the pain. If the pain is provoked, it is also important to assess which activities are likely to trigger it. Women with pain during intercourse in particular may have difficulty in identifying the location of the pain. In this instance, diagrams of both external and internal reproductive organs can be quite helpful. As pain is defined as

both a sensory and affective experience,<sup>8</sup> it is also important to assess both pain intensity and distress separately during the gynecologic examination and via retrospective reports. Some women may find even small amounts of pain distressing while others may report intense pain but not find it particularly upsetting. This information will help assess how the woman experiences and copes with her pain. Pain sensory and distress ratings should be assessed on a visual analog scale, which typically consists of a 10-cm line with verbal anchors labeling the ends from *no pain* at the left, to *unbearable pain* at the far right.<sup>27</sup> It is a well-established and validated pain measurement tool that has shown some advantages over simple verbal ratings, including sensitivity to changes in pain intensity and ratio scale properties.<sup>28</sup> Original formulations of the visual analog scale include simple paper-and-pencil administration; however, advances in technology have led to the development of an electronic version whereby pain ratings can be entered on hand-held computers.<sup>29</sup>

To obtain additional information regarding fluctuations in pain, a pain diary is a useful diagnostic and therapeutic tool (see Appendix).<sup>30</sup> This allows both patient and practitioner to track the fluctuations in pain with associated clinical phenomena, in addition to identifying potential antecedents to the pain and the success of current coping strategies. Like the visual analog scale, electronic diaries can facilitate the collection of clinical data.<sup>31</sup> Asking about past treatments, previous diagnoses, and remedies that helped or worsened the pain can also be informative.

Most importantly, when assessing patients with dyspareunia or vaginismus, it is crucial to determine the general impact of the pain on the patients' overall level of function. Is the pain threatening their sexual and relationship satisfaction? How has this affected their lives emotionally? Not surprisingly, women with dyspareunia report lower frequencies of intercourse and self-stimulation; lower levels of sexual desire, arousal, and pleasure; less success at achieving orgasm; and more negative attitudes toward sexuality than nonaffected women.<sup>32-34</sup> Unlike other non-genital pains, the inability to experience painless vaginal penetration may represent a threat to sexual and relationship satisfaction. Similarly, affected women report more catastrophizing with relation to coital pain than other noncoital pains,<sup>19</sup> in addition to difficulties with relationship adjustment and psychologic distress, including depression and anxiety.<sup>32</sup> Activities outside the realm of sexuality and intimate relationships may also be affected, such as gynecologic examinations, bicycle riding, tampon use, or even sitting for long periods of time.<sup>18,32</sup> Given the significant negative impact sexual pain disorders can have on multiple aspects of life, it is crucial to assess these in order to design an effective and targeted treatment plan.

#### The physical examination (see Chapters 6.5, 9.5, and 12.2)

Before proceeding with a physical examination, physicians should assess the intensity of the pain and explain to the patient that, in order to obtain a diagnosis, an attempt will be made to

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replicate this pain. Empirical research has shown the pain of dyspareunia to be similar in intensity to that of chronic back or cancer pain;<sup>17</sup> therefore, both patient and physician should be aware that the experience is likely to be quite painful and potentially upsetting. Though the busy rush of patients through a general or gynecologic practice often precludes spending much time with each patient, extra care should be taken in assessing a woman in pain to explain each procedure before it is conducted and to assess how she is managing throughout the examination. Medical practitioners must be mindful of how vulnerable the patient could feel, and allow her to control the pace. Failure to do so may further worsen the situation or, in some cases of vaginismus, be traumatic. Women with dyspareunia and vaginismus in particular may have been avoiding regular gynecologic examinations because of the pain, and thus may not know what to expect.

The physical examination should include a cotton-swab palpation of the vulva and a pelvic examination in an effort to replicate the pain. It is important to ask the patient to distinguish between pain and discomfort. If pain is felt during the examination, the physician should assess whether this is the same pain the patient is consulting for, and if not, how does it differ? A careful examination of the vulvar vestibule with vaginal cultures and/or biopsy where warranted is required to rule out infection and/or dermatosis.<sup>35,36</sup> When assessing vulvar disease, Foster has developed a characterization of lesion type as either macular (e.g., vulvar dermatosis); ulcer (e.g., vulvar neoplasia or herpes simplex); papule, nodule, cysts, or tumor (e.g., condyloma acuminata); pustule (Bartholin gland abscess); traumatic/anatomic (e.g., as a result of vaginal delivery); or neoplastic (e.g., vulvar intraepithelial neoplasia or melanoma).<sup>37</sup> Other conditions causing dyspareunia also need to be ruled out, including hypoestrogenism, endometriosis, ovaries in the cul-de-sac, fibroids, and pelvic infection.<sup>38</sup> Symptoms consistent with idiopathic, dysesthetic, or essential vulvodinia may also be caused by conditions such as pruritus vulvae or pudendal neuralgiae.<sup>39</sup> In assessing postmenopausal women with dyspareunia, it is important to assess carefully vulvovaginal atrophy and other anatomic changes experienced by aging women.<sup>40,41</sup> Dyspareunia may also result from pelvic or cervical surgery, radiotherapy, and pharmacotherapy;<sup>42</sup> therefore, a thorough medical history should be taken. In addition to the gynecologic examination, physiotherapists should assess the elasticity of the vaginal opening, pelvic floor muscle tonicity, and the patient's ability to isolate and voluntarily contract and release relevant muscle groups. Gynecologists and physiotherapists also have the unique ability to assess avoidance and fear behaviors during their examinations, such as vocalizations, crying, and closing legs and knee withdrawal in an effort to avoid the examination.

### Treatment and outcome

The treatment of sexual pain is largely hindered by the relative scarcity of randomized and controlled treatment outcome trials.

Without these, health professionals lack the information they need to treat their patients effectively and safely. Guided by dualistic diagnostic systems, clinicians have historically adopted treatment approaches starting with medical interventions, progressing to mental health ones when these fail, and finally surgery as a last resort. Medical interventions lie on a continuum from relatively minor to invasive methods, operating largely on a trial and error basis. Just about anything that can be applied to the vulva has been, in an effort to help patients suffering from various forms of dyspareunia (e.g. vulvar vestibulitis syndrome and idiopathic vulvodinia) and vaginismus. In most instances, there is no indication that these interventions are more effective than placebo, and some suspect that they could be iatrogenic.<sup>43</sup> Furthermore, many of these treatments are guided by etiologic theories of coital pain that have yet to be empirically validated.

In its 1997 educational bulletin, the American College of Obstetrics and Gynecology provided treatment recommendations for both vulvar vestibulitis syndrome and idiopathic vulvodinia (i.e. chronic vulvar pain).<sup>20</sup> Treatment recommendations for vulvar vestibulitis syndrome begin with local topical treatments (such as sitz baths), progressing to topical medical treatment involving corticosteroid, estrogen, or lidocaine cream, to oral medications such as calcium citrate, corticosteroids, or fluconazole. Should these interventions fail, progressively more invasive approaches are recommended, such as interferon injections, neurophysiologic treatments, and finally surgical excision via vestibuloplasty, or partial to total vestibulectomy. In patients with idiopathic vulvodinia, vestibulectomy is discouraged because it has been suggested to be less successful in this group of women.<sup>44</sup> Instead, the American College of Obstetrics and Gynecology recommends that these patients be treated with low-dose tricyclic antidepressants such as amitriptyline. Although the American College of Obstetrics and Gynecology recommendations accurately represent the hodgepodge of medical interventions that have been tried to treat dyspareunia and vaginismus, few of these approaches, with the exception of vestibulectomy, have received empirical support.

When medical interventions fail, women may be referred to a mental health professional such as a sex therapist. Sex therapy approaches range from psychoanalytic to the more commonly practiced cognitive-behavioral techniques. These often focus on impairment with intercourse and often assume poor adjustment and/or sexual knowledge on the part of the couple or elements of low sexual desire on the part of the patient. Others suggest impairment in sexual arousal leading to poor vaginal lubrication that causes pain, and likewise focus on improving sexual arousal. Behavioral strategies for dyspareunia and vaginismus also typically include some form of graded desensitization in combination with vaginal dilation with a heavy emphasis on relaxation training and anxiety reduction. More recent empirically proven behavioral strategies integrate a pain management component and focus on helping patients reconceptualize their dyspareunia or vaginismus as a pain problem influenced by

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behavioral, affective, cognitive, and relationship factors.<sup>45</sup> The partner is also encouraged to participate in these treatment efforts, as there is evidence that specific characteristics of romantic relationships are associated with pain and pain-related disability.<sup>46</sup>

### Topical creams

Topical creams represent the standard first-line approach to the most common forms of dyspareunia involving vestibular pain. Topical anesthetics applied prior to intercourse are believed to relieve discomfort enough temporarily to make intercourse possible. However, many patients have difficulty in applying the cream in the correct area, and some report a burning sensation upon application. If applied too close to intercourse, the cream may also have a numbing effect on the partner. Finally, should the cream provide the desired anesthetic relief during coitus, the woman may be inclined to engage in vigorous thrusting, which may result in exacerbated pain after the cream has worn off. Other topical treatments such as antifungal, antibiotic, antiviral, and corticosteroid creams are generally believed to be ineffective, although few clinical trials exist. In addition to nightly applications of anesthetic cream,<sup>47</sup> other topical preparations have been investigated, including nitroglycerine,<sup>48</sup> glyceryl trinitrate,<sup>49</sup> capsaicin,<sup>50</sup> and estrogen-based creams.<sup>51</sup> However, evidence from randomized, placebo-controlled trials is lacking. The importance of placebo-controlled outcome trials was illustrated in one double-blind, randomized, placebo-controlled study comparing the effectiveness of 4% cromolyn cream with placebo cream.<sup>52</sup> Both groups improved significantly with no differences in the degree of improvement between groups. In addition, 46% of patients in the placebo condition felt they had a 50% or greater reduction in symptoms.

### Oral medications

It has been suggested that excess oxalate in the urine irritates the vulvar epithelium, causing severe burning that can be relieved with calcium citrate tablets.<sup>53</sup> This theory, however, has never been supported by more than case reports. Acyclovir, an antiviral agent used in the treatment of genital herpes, has shown some promise in the treatment of idiopathic vulvodynia,<sup>50</sup> although it is rarely recommended to patients with sexual pain. This may be due to the fact that initial retrospective study results have not been replicated in a randomized, placebo-controlled treatment outcome trial.

Low-dose tricyclic antidepressants have been used widely in pain management. While some believe the use of amitriptyline is generally ineffective for women suffering from idiopathic vulvodynia, others have attempted to characterize the patients most likely to respond to this medication,<sup>54</sup> while yet another case study reported complete pain relief with nortriptyline.<sup>55</sup> Gabapentin, an anticonvulsant, has also been investigated in a small, uncontrolled treatment trial for idiopathic vulvodynia with promising results<sup>57</sup> that have yet to be replicated.

### Injections

Interferon injections have been attempted to treat dyspareunia. Administered either intramuscularly, intralesionally, or intradermally, interferon is generally injected into the affected area several times a week for approximately 4 weeks.<sup>58</sup> Success rates from nonrandomized trials varied from 16% to 88%.<sup>59</sup> Interferon is rarely used today and is not recommended for the treatment of dyspareunia in the absence of suspected human papilloma virus infection. The efficacy of submucous infiltrations of methylprednisolone and lidocaine,<sup>60</sup> and betamethasone and lidocaine for dyspareunia,<sup>61</sup> and botulinum toxin for vaginismus<sup>62</sup> has also been investigated in small uncontrolled and case studies with some success. However, additional research is needed to establish the safety and efficacy of these treatments.

### Surgical interventions

Vestibulectomy has been the most frequently investigated treatment for vulvar vestibulitis syndrome. This minor surgical procedure consists of the excision of the hymen and sensitive areas of the vestibule to a depth of approximately 2 mm, with some procedures involving the mobilization of the vaginal mucosa to cover the excised area.<sup>17,63,64</sup> Healing can take up to 8 weeks, after which women are instructed to resume intercourse gradually. To date, over 20 published studies exist reporting success rates ranging from 43% to 100%.<sup>59</sup> Most studies report success rates in excess of 60%, making vestibulectomy the treatment option with the best therapeutic outcome. Although many of these studies lack a control group, systematic pain measurement, or even an operational definition of therapeutic success, vestibulectomy has been validated in two randomized, controlled treatment outcome trials to date.<sup>65,66</sup> Recently, efforts have aimed at developing surgical techniques that are less invasive than total perineoplasty, with mixed results.<sup>67-69</sup>

CO<sub>2</sub> laser ablation of the vestibular area has also been investigated. This controversial modality, however, is believed to have potential aggravating effects, including delay in healing, chronic pain, scar tissue, and severe mucosal atrophy.<sup>70</sup> A flashlamp-excited dye laser believed, at the time, to have less negative consequences than the CO<sub>2</sub> technique has been used for selective photocoagulation of symptomatic vessels.<sup>71</sup> Although initial response rates seemed promising, this technique also resulted in negative effects; consequently, it is no longer used.

More recently, uterine suspension has been investigated in the treatment of dyspareunia and pelvic pain associated with uterine retroversion. This technique is motivated by the theory that deep dyspareunia may be the result of the penis colliding with the uterus and/or cervix. In a technique termed "UPLIFT" to denote uterine suspension and extraperitoneal ligament investment, fixation, and truncation, shortening of the ligaments that suspend the uterus results in a repositioning of the uterus in a slightly anteverted position.<sup>72</sup> This procedure takes approximately 12 min and is performed as same-day surgery. Although initial results seem promising for this and similar

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procedures, adverse effects have been reported.<sup>73</sup> Given the invasiveness of the procedure, more research is required to investigate the phenomena of "collision dyspareunia" and the effectiveness of uterine suspension as a safe and effective treatment option.

### Cognitive-behavioral approaches

Cognitive-behavioral approaches have received some of the strongest empirical support to date, particularly in the treatment of vulvar vestibulitis syndrome. These include multidisciplinary treatment programs incorporating techniques from sex and pain management therapy, in addition to biofeedback and pelvic floor physiotherapy. These approaches are often guided by clear and empirically supported rationales.<sup>74</sup> Similar approaches for the treatment of vaginismus, however, have been somewhat empirically neglected.

Biofeedback training represents a treatment option that has been developed for the treatment of dyspareunia based on the finding that these women suffer from increased muscle tonicity potentially contributing to their pain.<sup>5</sup> Through biofeedback training, patients are provided with direct visual feedback on their level of muscle tension via a vaginal sensor connected to a display monitor. They receive pelvic floor muscle training with respect to contraction, relaxation, and the acquisition of voluntary control over these. In one uncontrolled study examining the efficacy of biofeedback in a mixed sample of women with vulvar pain, subjective pain reports decreased an average of 83% after 4 months of training.<sup>75</sup> Another study examined the effectiveness of biofeedback in the treatment of women with moderate to severe vulvar vestibulitis syndrome where 24 of the 29 participants reported negligible or mild pain after treatment.<sup>76</sup> Biofeedback also constitutes an important component of pelvic floor physiotherapy, in which the physiotherapist works directly with the patient to help relieve muscle tonicity. Results from one study revealed a significant improvement in over 70% of patients evaluated for the treatment of vulvar vestibulitis syndrome, after an average 16 months of treatment by this technique.<sup>77</sup>

Elements of pelvic floor physiotherapy and biofeedback have also been integrated into more comprehensive behavioral strategies. One such approach was compared with or without surgical intervention in the treatment of 48 women with vulvar vestibulitis syndrome.<sup>65</sup> In the first phase of the study, 14 patients were randomly assigned to either treatment condition. The behavioral approach included components of psychosexual education, pelvic floor muscle exercises aimed at reducing hypertonicity, small hygienic changes, and individual or couple sex therapy where deemed appropriate. Participants also randomized to surgery underwent modified perineoplasty. Follow-up data indicated that both treatments were equally effective, all but two women reporting complete or partial improvement. Even for the two unimproved women, the pain was less of a problem. Similar results were obtained in a second nonrandomized phase of the study in which 34 women and their

partners were given the choice of treatment. Twenty-eight chose the behavioral intervention without surgery and evidenced similar improvements to those who chose surgery as well. The authors concluded that a behavioral approach should be the first-line treatment for vulvar vestibulitis syndrome, and that surgery should be used only as an adjunct in treatment-resistant patients.

In the only completely randomized, controlled treatment outcome trial for dyspareunia, group cognitive-behavioral pain management therapy was compared with vestibulectomy and biofeedback training in the treatment of vulvar vestibulitis syndrome.<sup>66</sup> In the behavioral treatment, patients were provided with psychoeducation on sexuality and pain, and with instruction on muscle relaxation, deep breathing, Kegel exercises and vaginal dilation, coping, communication, and cognitive restructuring, with the goal of increasing behaviors that decrease pain and facilitate sexual arousal and desire. A significant treatment effect was observed at post-treatment and 6-month follow-up in all three treatment groups; however, vestibulectomy resulted in approximately twice the pain reduction as the other two therapies. There was no treatment difference in overall sexual function and self-reported frequency of intercourse at the 6-month follow-up, and intercourse frequency for all groups remained below that for healthy women of similar age. All three groups continued to improve over time at a 2.5-year follow-up, and while vestibulectomy remained superior to the other two groups with respect to cotton-swab-induced vulvar pain in the gynecologist's office, women in the group therapy condition reported equal improvements in self-reported pain during intercourse.<sup>78</sup> These results suggest that the benefits of cognitive-behavioral group therapy may take longer to appear than surgery but can be just as great.

Similar randomized and controlled treatment outcome studies are lacking for vaginismus. A series of successful case studies has been published on behavioral approaches to the treatment of vaginismus; however, a review in 2004 of the literature found only two controlled studies.<sup>79</sup> One of the trials compared *in vivo* to *in vitro* forms of desensitization and found no difference in effectiveness between them,<sup>80</sup> while no data were supplied in the second publication, which allocated patients to waiting-list control, flooding, or systematic desensitization.<sup>81</sup> A third semicontrolled trial was also identified where patients were allocated to *in vivo* systematic desensitization (39), *in vitro* desensitization (10), or hypnotherapy (6) on the basis of a neurosis scores.<sup>82</sup> Treatment success ranged from 100% in the hypnosis group and 94% in the *in vivo* group, to 70% in the *in vitro* group.

Other treatment options for dyspareunia and vaginismus include pain management techniques, such as acupuncture and hypnosis. Although few studies currently exist, there are promising data on the effect of acupuncture on pain reduction and overall quality of life in women with vulvar vestibulitis syndrome.<sup>83</sup> A case study has also been published whereby hypnosis reduced pain and helped re-establish sexual pleasure in yet another patient with vulvar vestibulitis syndrome.<sup>84</sup> As with

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most medical treatments, however, randomized, controlled trials are needed to establish the effectiveness of these newer modalities.

### Summary

The multidisciplinary biopsychosocial approach to the assessment and treatment of dyspareunia and vaginismus has been the theme of this chapter. This model reflects the complexity of sexual pain. Even if the initiating pain could be reduced to an identifiable etiologic factor, it carries with it a snowball of physiologic, sexual, relationship, and cognitive-emotional sequelae that influence the maintenance of the sexual pain and significantly contribute to patient distress. Therefore, it is unlikely that any one magic pill, cream, or cognitive-behavioral technique will ever be found to cure all affected areas of function in women with sexual pain. The striking success of vestibulectomy does, however, contradict this assertion. Although surgical removal of the affected area is effective in reducing pain, the question of what happens to the other psychosocial components of dyspareunia and vaginismus when the pain has been removed has yet to be fully investigated. Some evidence suggests that reducing the pain does not necessarily restore sexual function.<sup>66</sup> At this stage of knowledge, it is therefore crucial to address the *whole patient* and all the factors that affect quality of life.

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## Appendix

### Pain diary

To fill out after engaging in an activity that caused genital pain (e.g., intercourse, finger insertion, etc.). The items in italics (11, 12, 13, 14, 15) refer only to pain experienced during sexual activities.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Day: \_\_\_\_\_ 2. Time: \_\_\_\_\_

3. Time of menstrual cycle \_\_\_\_ 4. Pain intensity (0 to 10): \_\_\_\_

5. Cause of the pain \_\_\_\_\_ 6. Duration of the pain: \_\_\_\_

7. Where were you? \_\_\_\_\_

8. What were you feeling and thinking just prior to the pain? \_\_\_\_\_  
\_\_\_\_\_

9. What were you feeling and thinking during the pain? \_\_\_\_\_  
\_\_\_\_\_

10. What were you feeling and thinking after the pain? \_\_\_\_\_  
\_\_\_\_\_

11. *How much time did you spend on sex play?* \_\_\_\_\_

12. *How aroused were you (0 to 10)?* \_\_\_\_\_

13. *How lubricated were you (0 to 10)?* \_\_\_\_\_

14. *Up to what point were you in the mood for sex (0 to 10)?* \_\_\_\_\_

15. *What was your partner's reaction to your pain?* \_\_\_\_\_  
\_\_\_\_\_

16. How relaxed did you feel (0 to 10)? \_\_\_\_\_

17. What did you do to try to reduce the pain? \_\_\_\_\_  
\_\_\_\_\_

18. How effective was this? (circle the appropriate number).  
0 = did not help at all    1 = helped very little  
2 = helped somewhat    3 = helped a lot  
4 = stopped the pain

Additional comments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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