Evaluation and Differential Diagnosis of Dyspareunia

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Dyspareunia is genital pain associated with sexual intercourse. Although this condition has historically been defined by psychologic theories, the current treatment approach favors an integrated pain model. Identification of the initiating and promulgating factors is essential to reaching a successful diagnosis. The differential diagnoses include vaginismus, inadequate lubrication, atrophy and vulvodynia (vulvar vestibulitis). Less common etiologies are endometriosis, pelvic congestion, adhesions or infections, and adnexal pathology. Urethral disorders, cystitis and interstitial cystitis may also cause painful intercourse. The location of the pain may be described as entry or deep. Vulvodynia, atrophy, inadequate lubrication and vaginismus are associated with painful entry. Deep pain occurs with the other conditions previously noted. The physical examination may reproduce the pain, such as localized pain with vulvar vestibulitis, when the vagina is touched with a cotton swab. The involuntary spasm of vaginismus may be noted with insertion of an examining finger or speculum. Palpation of the lateral vaginal walls, uterus, adnexa and urethral structures helps identify the cause. An understanding of the present organic etiology must be integrated with an appreciation of the ongoing psychologic factors and negative expectations and attitudes that perpetuate the pain cycle. (Am Fam Physician 2001:63:1535-44,1551-2.)

O *A patient information handout on dyspareunia, written by the author of this article, is provided on page 1551.*

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Dyspareunia is genital pain experienced just before, during or after sexual intercourse.[1] Although this condition has historically been classified as a sexual disorder, an integrated and pain-model approach to the problem is gaining support. The current thinking about pain initiation and promulgation suggests an initial instigating factor that is then perpetuated by confounding factors.[2-6] These factors may be physical or psychologic. Patients with dyspareunia may complain of a well-defined and localized pain, or express a general disinterest in and dissatisfaction with intercourse that stems from the associated discomfort. Although dyspareunia is present in both sexes, it is far more common in women, with the pain initiating in several areas, from vulvar surfaces to deep pelvic structures.

This article reviews the various causes of dyspareunia and describes the historical and physical clues leading to these diagnoses. Treatment options are beyond the scope of this article.

Epidemiology

There are few reports of clinical trials relating to dyspareunia, and much of the literature derives from expert opinion. The lack of a single etiology for the pain contributes to the diagnostic difficulty. The incidence of dyspareunia depends on the definition used and the population sampled. In a national probability sample[7] assessing the prevalence of sexual dysfunction in the United States, women with dyspareunia comprised a smaller group than women with decreased interest in sex, orgasmic difficulties, lack of pleasure or arousal difficulties. The prevalence of dyspareunia in this sample was 7 percent. In a study of primary care practices,[8] the prevalence of dyspareunia was 46 percent among sexually active women, with dyspareunia defined as pain during or after intercourse. In a recent study[9] involving 62 women, postpartum dyspareunia was noted in 45 percent.

As many as 60 percent of women experience dyspareunia when the term is broadly defined as episodes of pain with intercourse.[10] Women with symptoms severe enough to

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require medical attention comprise a much smaller group. Many of those with persistent symptoms do not seek medical attention.[8,10]

PATIENT CHARACTERISTICS

Consistent characteristics of patients with dyspareunia are lacking. In one study,[7] increasing age and college education were associated with a lower likelihood of dyspareunia. In another study,[8] the incidence of dyspareunia was not associated with age, parity, marital status, race, income or educational level.

The most common pain with dyspareunia occurs during coitus, but some women experience pain afterward, while others report pain at both times.[8] Pain before coitus may result from irritation of the external genitalia or the vasocongestion that occurs during the excitement phase. Patients with dyspareunia are more likely than the general population to report pain with insertion of a tampon or digit, or during a gynecologic examination.[6]

Psychologic Issues and Considerations

Psychologic theory historically treats dyspareunia as a symbol of unconscious conflict, stemming from phobic reactions, major anxiety conflicts, hostility or sexual aversions.[4] The *Diagnostic and Statistical Manual of Mental Disorders,* 4th ed. (DSM-IV),[11] defines dyspareunia as a sexual pain disorder, a subcategory of sexual dysfunction. Dyspareunia is differentiated from vaginismus or problems resulting from inadequate lubrication. The pain must be persistent or recurrent, and cause marked distress or interpersonal difficulty. In one study,[5] only the onset of pain and its location were useful discriminators.

Because of the differences in classification and the multiple etiologies, it has been difficult to accurately and consistently describe comorbid psychologic characteristics. Dyspareunia has been associated with a more negative attitude toward sexuality, with more sexual function impairment and with lower levels of relationship adjustment.[6] Women with dyspareunia, not surprisingly, were found to have a lower frequency of intercourse and lower levels of desire and arousal, and to be less orgasmic with oral stimulation and intercourse.[7] Complaints of pain with sexual intercourse were also associated with low physical and emotional satisfaction, as well as decreased general happiness. Depression and phobic anxiety were noted more often in patients with dyspareunia compared with control subjects,[6] but other studies found no difference from norms with regard to psychopathology, marital adjustment or attitudes towards intercourse.[5,12]

Marital discord has been suggested as a major cause of dyspareunia, but whether the marital relationship suffered secondarily because of difficulty with sexual intercourse is unclear.[12] The results of one study[13] revealed that marital adjustment was inversely associated with dyspareunic pain rating and that only anxiety and marital adjustment were significant independent predictors of dyspareunic pain rating. Depression was not found to be a predictor when patients with dyspareunia were evaluated as a whole.[13]

Compared with patients with pelvic pain,[2] patients with dyspareunia did not report a current or previous history of physical or sexual

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abuse.[6,12] The role of previous sexual abuse in dyspareunia has been the subject of much study, but the results lack consistency because of methodologic flaws. There may be subsets of patients, such as those with sexual arousal disorders, with a higher sexual victimization rate.[7]

Given the lack of consistent study results, it is unlikely that currently available psychologic screening instruments would have a prominent role in the diagnosis of dyspareunia and related pain syndromes. A discussion of external factors, overall relationship satisfaction and current psychologic status may prove fruitful in certain patients, but its value is difficult to predict.

BIOPSYCHOSOCIAL APPROACH

This integrated pain model emphasizes that physical and psychologic factors may be instigating causes and reasons for perpetuation of the symptoms. The optimal approach incorporates social learning and operant conditioning models with pain, psychologic and physical conditions. The Learning theory suggests that erroneous or negative expectations of sexual intercourse are the result of absent or faulty learning.[4] The Developmental theory examines the impact of early influences on the formation of negative attitudes.[14] The Operant Conditioning model supposes that negative events occur (i.e., a woman has a painful sexual experience), which then cause a conditioned negative response. This result leads to further dissatisfaction and decreased response, and sexual activities then become painful. In the Operant Conditioning theory, the woman does not initially present with a set of negative expectations, feelings or attitudes.[4]

History

Obtaining a history is of paramount importance for a diagnosis, but the process may be hampered by the woman's embarrassment when discussing the topic. The manner of questioning requires a nonjudgmental approach, with a mixture of directed and open-ended questions. The history should include pain descriptors: duration, intensity, location, exacerbating and ameliorating factors, and any associated physical or psychologic components[15] *(Tables 1 and 2)*.[16] The physician distinguishes between primary and secondary dyspareunia based on whether the woman has ever had a history of successful sexual experiences. Previous treatments and the degree of response to them are important information. Not all physicians are comfortable or adept in dealing with this topic, and we must recognize our limitations and refer appropriately.

Unlike descriptions of patients with pelvic pain, patients with dyspareunia usually do not have a history of physical or sexual abuse.

Asking patients during routine office visits if they experience discomfort with sexual intercourse or if they find it pleasurable will assist in identifying women who need additional evaluation.

In order to assess appropriate treatment response, it is useful to determine the duration of the problem and if it is present with other sexual partners. It is unwise to assume that the patient is in a monogamous relationship or is heterosexual. The goals of the history are to identify medical or gynecologic causes of pain, to define the sexual problems and to gather psychosocial information *(Table 3)*.[16]

Physical

The pelvic examination may be deferred during the first office visit, depending on the intensity of the patient's discomfort. It is extremely important to allow the patient control over the situation, which means the patient must feel free to stop the examination at any time. Because many women do not have adequate knowledge of their genital structures or function, giving the patient a mirror during the examination involves her in the evaluation process and provides education.[15]

TABLE 1
Historical Clues to the Diagnosis of Dyspareunia

Clues	*Diagnostic considerations*
Pain descriptors	
Location	Entry versus deep pain differential
Onset	Entry versus deep pain Pain after intercourse points to pelvic congestion.
Pruritic or burning pain	Vaginitis; vulvodynia; atrophy or inadequate lubrication
Aching	Pelvic congestion
Single site or multiple sites—which site came first?	For example: patient had initial vaginitis or other painful event with entry pain, then developed vulvodynia or inadequate lubrication from decreased arousal resulting from the expectation of pain.
Situational or generalized (occurs only with certain partners/situations or with all encounters)	Psychologic considerations; DSM-IV category
Positional	Deep thrusting pain may be minimized with use of woman-superior positions or other position changes.
Lifelong or acquired	DSM-IV category
Historical questions	
Other sexual dysfunctions?	Arousal disorders may affect lubrication.
Previous treatments	Patient's perspective on the problem
Vaginal symptoms; discharge, odor	Vaginitis
History of STD	Adhesions and complication of pelvic inflammatory disease
History of HSV or HPV	Vulvodynia and vestibular vestibulitis
Obstetric history; lacerations, episiotomies or trauma	Postpartum dyspareunia (minority have pain at site of repair), adhesions, pelvic relaxation
Abdominal or genitourinary surgery, or radiation	Post-surgical changes; vaginal stricture or shortening; trauma to structures; inadequate lubrication
Prior gynecologic diagnosis: endometriosis, fibroids or chronic pelvic pain	Concomitant pain may be difficult to separate; often deep pain
Contraception (condoms, intrauterine device, gels, foams, sponge, caps, diaphragm)	Risk of pelvic inflammatory disease; trauma/irritation
Possible medical causes	
Chronic diseases	Diabetes; Behçet's syndrome
Medications	Decreased arousal and inadequate lubrication
Bowel or bladder symptoms	Genitourinary disorders; irritable bowel syndrome
Skin disorders	Vulvar dystrophies, sensitivities to lotions or other topical agents

DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, *4th ed.; STD = sexually transmitted disease; HSV = herpes simplex virus; HPV = human papillomavirus.*

Adapted with permission from Phillips, NA. The clinical evaluation of dyspareunia. Int J Impotence Res 1998; 10:S117-20.

TABLE 2
History Questions to Ask a Patient with Dyspareunia

Define dyspareunia and/or concomitant sexual dysfunctions.

Where is the pain located?

When is the onset of the pain? (before, entry, vaginal, deep or after)

Is it pruritic, burning or aching in quality?

What is the chronologic history? If multiple pain sites, which came first?

Is it situational or positional?

Has it been lifelong or acquired?

Are there other sexual dysfunctions such as arousal, lubrication or orgasmic difficulties?

What treatments have been attempted?

Explore potential gynecologic causes.

Are there vaginal symptoms, including discharge, burning or itching?

Does patient have a history of STDs, especially HSV or HPV?

Is there an obstetric delivery history of lacerations, episiotomies or other trauma?

Is there an abdominal or genitourinary surgical or radiation history?

Has the patient had prior gynecologic diagnoses, including endometriosis, fibroids or chronic pelvic pain?

What is the patient's current contraception method and is there any history of intrauterine device use?

Explore potential medical causes.

Is there evidence or history of chronic disease?

What are the patient's medications: alternative, prescribed, over-the-counter?

Is there alcohol or drug use?

Does the patient experience bowel or bladder symptoms?

Is there evidence of skin disorders such as eczema, psoriasis or other dermatitis?

Obtain psychosocial information.

What is the patient's view of the problem?

Has the problem been present in other relationships?

Are the partners able to discuss the problem? If so, what actions have they tried?

Is there any history of sexual or physical abuse?

To what extent are other life stressors a factor?

Is there evidence of depression or anxiety disorders?

What would be considered a satisfactory treatment outcome?

STD = sexually transmitted disease; HSV = herpes simplex virus; HPV = human papillomavirus.

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When tenderness is elicited during the examination, the physician can ascertain if this pain is similar to her dyspareunia. Special attention should be paid to the external genital structures, noting any lesions, leukoplakia or erythema. In patients with vulvar disease, the vulvar area may be exquisitely tender, and the patient may be unable to tolerate insertion of a speculum. The physician should carefully examine the vestibular area and Bartholin's ducts, Skene's ducts, urethra and meatus, using a moistened cotton-tipped applicator. Areas of erythema or tenderness should be noted. Some women have minute papillae of the vestibular skin, a normal variant that does not represent viral or other disease entities.

Following visual inspection, the physician next performs a vaginal evaluation with one finger before performing the bimanual evaluation to minimize confusion arising from abdominal tenderness. Muscular pain can be assessed with insertion of one finger at the introitus as the patient performs a series of contraction and relaxation exercises. Vaginis-

TABLE 3
Common Differential Diagnoses for Painful Sexual Intercourse

Diagnosis	*Clues*	*Etiology*	*Physical findings*	*Evaluation**
Dyspareunia	Pain at entry, vaginal or deep	Unknown; may be associated with other diagnoses listed in this table	No findings to suggest alternate diagnoses listed in this table	Consider psychologic evaluation.
Vulvodynia	Well-defined entry pain; vulvar pain, burning, irritation; poor response to prior treatments, symptoms with activities that put pressure on vulva (sitting or bicycle riding)	Frequently unknown; possibly infections or irritants	Unremarkable or mild erythema; markedly tender; leukoplakia, ulcerations, pigmented lesions or nodules are suspicious	Visual inspection; colposcopy and biopsy of suspicious area; apply acetic acid to highlight areas.
Vulvar vestibulitis (subset of vulvodynia)	Well-defined entry pain; painful inflammation of vulvar vestibular area; dull ache, burning or pruritus	Unknown	Flat, non-ulcerated erythema, intensity varies; margins distinct or vague; exquisite tenderness on touch of cotton-tipped applicator	Same as above
Vaginismus	Well-defined entry pain; involuntary spasm of introital muscles; difficulty with insertion of penis, tampons or digit	Unknown; conditioned response of musculature versus psychologic	Palpable spasm of vaginal musculature; difficulty inserting speculum	Physical; consider psychologic evaluation based on history.
Atrophic tissue or impaired lubrication	Well-delineated entry pain; vaginal pain; vaginal dryness, friction, irritation; difficulty and pain with penetration	Estrogen deficiency; arousal-phase difficulty; decreased lubrication and impaired vaginal barrel distention; surgery	Visual inspection of pubic hair, labial fullness, integrity of vaginal mucosa, vaginal depth; vaginal mucosal friability, fissures	Based on physical examination; discussion of foreplay, arousal-phase mechanics and expected sensations
Endometriosis and pelvic adhesions	Deep pain; cyclic pain with menses; complaint of "something being bumped into"	Unknown for endometriosis; prior surgery/infections for pelvic adhesions	Nodules; fixed uterus or adnexa	Laparoscopy
Adnexal pathology	Deep pain; may be localized to one side	Cysts; infections	Enlarged adnexa, tenderness or fixed	Laparoscopy
Retroverted uterus; pelvic relaxation; uterine fibroids	Deep pain	Anatomic position	Uterus retroverted, prolapsed or enlarged	Trial of position changes
Chronic cervicitis; pelvic inflammatory disease; endometritis	Deep pain	Infections	Discharge, lesions; cervical friability; uterine tenderness or cervical motion tenderness	Colposcopy; culture; laparoscopy
Pelvic congestion	Postcoital ache; deep pain; pelvic pain	Unknown	Unremarkable	Based on history
Urethral disorders; cystitis; interstitial cystitis	Suprapubic pressure, frequency, nocturia, urgency	—	Palpation tenderness along urethra or bladder	Urinalysis and urine culture (negative in interstitial cystitis)

**—Psychologic factors may be a part of the continued pain cycle and should be explored with all diagnoses.*

mus may be apparent during this examination, but one fourth of women who tolerate pelvic examinations or tampon insertion have involuntary spasms during coitus.[15] The lateral walls of the vagina should be palpated along the bladder and urethra anteriorly, and the posterior wall and fornices. Any tenderness or nodules, and the position of the uterus should be noted.

The vagina should be evaluated using a narrow and well-lubricated speculum. During assessment of mucosal integrity, the presence or absence of vaginal rugae, fissures or friable tissue should be noted. To assist in determining the degree of vaginal atrophy, the physician may use a scoring system, including such characteristics as skin elasticity, pubic hair, labial fullness and evaluation of the introital and vaginal depth.[16] Inspection of the cervix may detect dysplastic lesions or evidence of infection, which dictates further evaluation, including obtaining a Papanicolaou smear, cultures or wet mounts. The fornices should be palpated around the cervix for nodules suggestive of endometriosis, and may also be the etiology for fixed adnexa or may result from pelvic inflammatory disease.

Description by Disease or Condition

VULVODYNIA

The International Society for the Study of Vulvar Diseases classification of vulvodynia includes any type of vulvar pain.[17] The etiology is often elusive, although infection is a possibility. Alternatively, vulvodynia may be the result of a reaction to chemicals that sets up a cyclic pattern of irritation and tissue response, much like eczema. In the past, the lack of an underlying etiology has led to considerable frustration on the part of patients and physicians.

The diagnosis remains one of exclusion because underlying conditions such as diabetes or regional enteritis may produce similar symptoms. Behçet's syndrome is an idiopathic disease; patients may present with oral and genital ulcers that can cause vulvar pain. Lichen sclerosis must be excluded in addition to common infectious etiologies including Candida, bacterial vaginosis and trichomonas.

The patient typically has a history of multiple treatments with little or no relief. The earliest manifestations of dyspareunia occur with sexual contact, but the symptoms then increase to the point that the pain interferes with nonsexual activities. Erythema over the posterior portion of the vulva, especially around the Bartholin gland openings, may be the only visible evidence.[18]

The condition is now better recognized, and treatment options are available. The various classifications and treatments have been described elsewhere.[17]

VULVAR VESTIBULITIS

Vulvar vestibulitis, a subcategory of vulvodynia, is a chronic and painful inflammation of the vestibular structures. Inciting factors are unknown, but infections have been postulated. Candida and human papillomavirus (HPV) are found in some but not all cases.[19,20] Histopathology reveals inflammatory infiltrate. The characteristics of this condition are slightly more distinct than those of vulvodynia, with a localized area of pain to palpation or with vaginal penetration. Point tenderness elicited with a cotton swab is quite common. Flat, nonulcerated erythema of the vestibule may be focal or diffuse.[17]

VAGINISMUS

Although the DSM-IV[11] distinguishes between dyspareunia and vaginismus, when a patient presents with complaints of painful sex, she may be describing either condition or a combination of both. Vaginismus is involuntary spasms of the introital (bulbocavernosus) muscles.

Previous theories centered on psychologic etiologies, but recent discussions point to a conditioned response of the vaginal musculature.[4] Negative attitudes toward sex and sexual ignorance have also been associated with vaginismus. Insertions of a finger, penis or tampon are common triggers of the spasm.

INADEQUATE LUBRICATION

Inadequate lubrication in younger women is associated with an inhibited arousal phase, but estrogen deficiency predominates as a reason in older women. It is important to ascertain if the patient senses arousal and lubrication. Patients who lack adequate arousal may be counseled in foreplay techniques. Instability of the relationship and interpersonal conflict may contribute to lack of arousal.[21] Unfortunately, psychologic factors may now be part of a vicious circle. Although the lack of arousal and difficulty in lubrication initially stemmed from irritation or unsatisfactory sexual techniques, they then become a repetitive and expected component of coitus.[22]

Presacral neurectomy surgery for the treatment of chronic pelvic pain can interfere with the normal lubrication response. The couple with penetration difficulty because of inadequate lubrication will most likely have tried various agents, but some of these products are more suitable than others for satisfactory intercourse. A variety of water-based products (i.e., Astroglide, Replens) have been well received.

POSTPARTUM DYSPAREUNIA

The etiology for postpartum dyspareunia remains unclear. In one study,[9] 45 percent of the patients had entry pain, a small percentage had pain at the site of vulvar repair and the remaining 39 percent had nonfocal pain. Only a slight difference in pain existed between women having a first delivery versus those having a second delivery. Over one quarter of the women in this study who underwent cesarean section had pain, while 41 percent of lactating women had dyspareunia. The median time to resolution of the nonfocal dyspareunia was 5.5 months, and tenderness persisted up to one year.

Description by Pain Location

Pain may occur before entry, with entry or once the penis is in the vagina. The timing of the pain can provide clues to the etiology. *Table 4* and *Table 5* list the common diagnoses and associated conditions. In most studies,[5,6] the majority of women report pain with vaginal entry. In another study[8] of 248 women, deep pain accounted for more than one half of those presenting with dyspareunia, while pain at entry or pain at both sites were considerably less common. The discrepancies in study results may reflect different subgroups of patients.[8]

SUPERFICIAL/ENTRY DYSPAREUNIA

Entry dyspareunia may result from a variety of conditions affecting the labia or vestibule. A history of pain with entry is most commonly associated with vaginismus and inadequate lubrication from incomplete arousal.[12] Entry pain is also suggestive of atrophy, vulvodynia and transient causes such as fungal or bacterial vaginitis and vulvar dystrophies. Atrophic changes from inadequate estrogen levels may also cause entry dyspareunia, although the pain typically extends into the vaginal area as well.

TABLE 4
Differential Diagnoses for Dyspareunia

Dyspareunia
Vaginismus
Atrophic vaginitis and difficulty with lubrication
Vulvodynia
Vulvar vestibulitis
Infections
Human papillomavirus
Herpes simplex virus
Pelvic inflammatory disease
Chronic salpingitis, endometritis
Endometriosis, uterine fibroids, pelvic adhesions
Adnexal pathology
Retroverted uterus, pelvic relaxation
Chronic cervicitis
Pelvic congestion
Genitourinary
Urethral
Cystitis
Interstitial cystitis

TABLE 5
Conditions Associated with Entry and Deep Dyspareunia

Entry
Vulvodynia
Vulvar vestibulitis
Vaginismus
Vaginitis
Urethritis
Deep
Endometriosis
Pelvic adhesions
Adnexal pathology
Retroverted uterus
Chronic cervicitis, pelvic inflammatory disease, endometritis
Pelvic congestion
Urethral disorders
Both
Dyspareunia
Inadequate lubrication (typically entry pain)
Vaginal atrophy
Postpartum

Ulcerations and fissures are apparent with careful inspection. Herpes simplex virus (HSV) or HPV infections may cause superficial dyspareunia, although the impact of HPV in this situation is disputed.[20,23] Lesions associated with HSV are easily identified or the patient may report a history of previous eruptions with sexual pain limited to times of active infection. On examination, tenderness along the urethra or bladder suggests urethritis, urethrodiverticulum or urethral syndrome.[24]

DEEP DYSPAREUNIA

Atrophic changes and inadequate lubrication cause problems with dryness or friction with penile movement. The vaginal barrel may not distend and elongate in response to the arousal phase, and this may cause discomfort, particularly in certain positions or with penile impact on the cervix.

The pain associated with deep thrusting is often described as "something being bumped into." Etiologies include endometriosis, pelvic adhesions and pelvic congestion.[24-27] Adnexal pathology, endometritis and scarring from pelvic inflammatory disease are less frequent causes of dyspareunia. A minority of women with uterine retroversion and pelvic relaxation have pain.

The urinary system is also a source of dyspareunia. Cystitis or interstitial cystitis cause pain as the bladder fills. Reports of symptoms include suprapubic pressure, frequency, nocturia and urgency without dysuria. Dyspareunia may be part of the initial presentation, which then proceeds to a persistent chronic pain.[27] Inflammatory bowel disease and irritable bowel syndrome may cause dyspareunia, but they are more often associated with other diagnoses of chronic pelvic pain.[27]

Additional Studies

Examination of the labia, vagina and cervix is greatly enhanced with the use of a colposcope. Application of acetic acid highlights any acetowhite lesions but may cause the patient significant discomfort.

Vulvar biopsy is easily performed, especially with the use of a colposcope, to aid in the detection of areas of leukoplakia or acetowhite areas. Application of Monsel's solution, cautery or silver nitrate stick is usually sufficient for any minor bleeding caused by the biopsy. A fine suture may also be used to close the biopsy site, but this is rarely needed. In cases of true vestibulitis, results of the cultures and the biopsy are negative or reveal only reactive or inflammatory changes.[18]

The opinions and assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the Air Force Department or the Department of Defense.

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