

# Surgical management of neuroproliferative-associated vestibulodynia: a tutorial on vestibulectomy with vaginal advancement flap



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## Problem

Sexual dysfunction is a far-reaching problem impacting the lives of countless women and is often overlooked, misdiagnosed, and under-reported.<sup>1</sup> Sexual pain is a nebulous term that can create unease for practicing clinicians lacking proper training to appropriately manage this clinical conundrum. In 2015 at a conference sponsored by 3 societies centered on female sexual health, new nomenclature was proposed referred to as the “2015 classification.”<sup>2</sup> The proposed classification centered on 2 categories: vulvar pain due to a specific disorder and vulvodynia, or idiopathic vulvar pain.<sup>2</sup> The incidence of vulvodynia has been reported to range from 11% to 28%, with gross under-reporting a known limitation to incidence studies.<sup>1–3</sup>

Provoked vestibulodynia is a neuroproliferative disorder associated with a dramatically increased density of pain fibers in the vestibular endoderm.<sup>4</sup> When the underlying etiology is

Provoked vestibulodynia is an often underdiagnosed and mismanaged medical condition that impacts the lives of many women. When symptoms are due to a dramatically increased density of pain fibers in the vestibular endoderm, the condition is referred to as neuroproliferative-associated vestibulodynia. Unfortunately, assessment of pain fiber density can only be performed after surgery during histologic examination. First-line therapies for this condition often include topical or oral medications targeting hyperalgesia and allodynia at the vulvar vestibule. However, in the setting of refractory disease, surgical treatment should be considered. The surgical video (Video 1) highlights anatomical landmarks as well as key surgical steps when performing a vulvar vestibulectomy with a vaginal advancement flap for the treatment of neuroproliferative-associated vestibulodynia. Surgeons should have a thorough understanding of pertinent vulvar anatomical landmarks before performing this procedure (Figure 1). The goal of vulvar vestibulectomy, as described in this video, is to excise the entirety of the vestibule containing the pathologic density of afferent pain fibers. This tutorial serves to identify key anatomical landmarks including Hart's line as well as outline the meticulous dissection required for successful completion of this procedure. We describe our surgical instrumentation as well as provide insight into steps that can be taken to minimize postoperative morbidity.

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presumed to be related to this neuroproliferation, the condition is appropriately referred to as neuroproliferative-associated vestibulodynia (NAV). Diagnosis of NAV requires histologic examination with an increased density of C-afferent nociceptors present.<sup>4</sup> Clinical symptoms involving allodynia and hyperalgesia at the vestibule are nonspecific, making a clinical diagnosis of NAV often unreliable. First-line treatments for this provoked vestibulodynia often include topical or oral medical remedies targeting the allodynia and hyperalgesia at the vulvar vestibule.<sup>5</sup> Other supported remedies include injections, proper vulvar hygiene, physical therapy, dietary changes, acupuncture, hypnotherapy, and cognitive behavioral therapy.<sup>5</sup> It is only when these treatments fail that the appropriately selected patient should be

counseled on surgical management with vestibulectomy.<sup>5</sup>

King et al<sup>4</sup> report that in appropriately diagnosed women presumed to have NAV, nonsurgical therapies are significantly more likely to fail compared with vestibulectomy. Women with presumed NAV who elected not to undergo surgery continued to report greater levels of sexual dysfunction and vulvar pain compared to those patients who underwent surgery.<sup>4</sup> This finding is highly significant, as it supports the decision to offer first-line surgical treatment in the appropriately selected patient. However, vulvar vestibulectomy is an underperformed surgery with a variety of techniques.<sup>5</sup> It is paramount to have a deep understanding of the vestibular anatomy and surgical technique to provide the best care for the women we serve.

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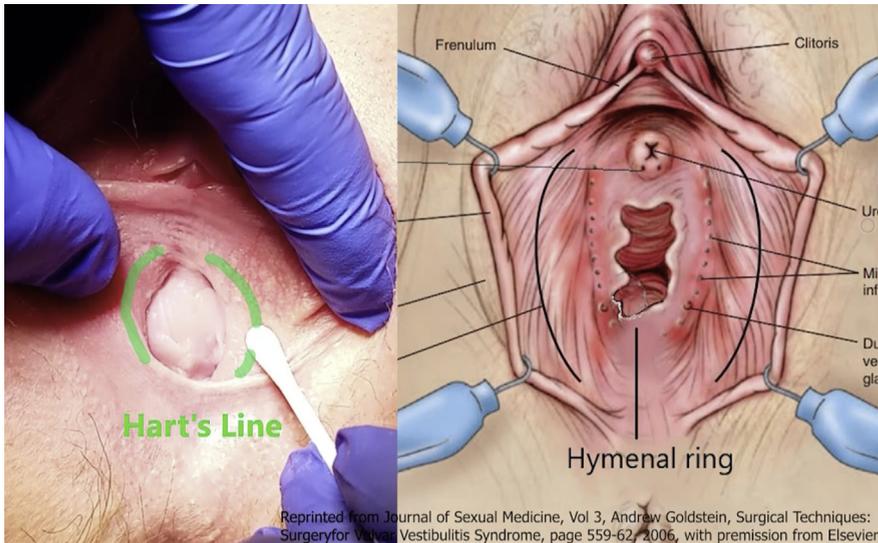
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**FIGURE 1**  
Basics of vulvar anatomy for performing vestibulectomy



Reprinted from Journal of Sexual Medicine, Vol 3, Andrew Goldstein, Surgical Techniques: Surgery for Vulvar Vestibulitis Syndrome, page 559-62, 2006, with permission from Elsevier

Surgeons should have a thorough understanding of pertinent vulvar anatomy illustrated in this figure before performing a vulvar vestibulectomy. Permission for use of this figure has been granted by the publisher (Elsevier) of the original article.<sup>6</sup>

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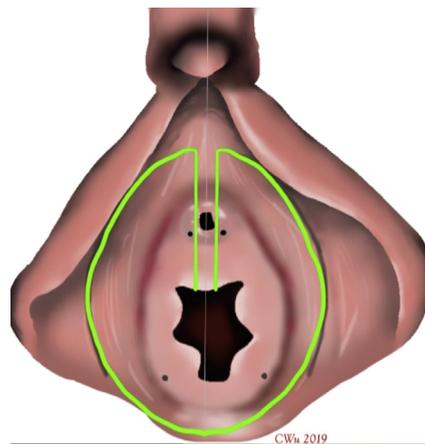
**FIGURE 2**  
Outlined tissue to be excised during a vulvar vestibulectomy



Shown is the area of the vestibule to be excised during a vulvar vestibulectomy highlighted with a surgical marker.

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**FIGURE 3**  
Rendered outline of excision for vulvar vestibulectomy



Rendering of the tissue to be excised during a vulvar vestibulectomy. This figure demonstrates the relevant vulvar anatomy as it relates to the tissue being excised.

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**Our Solution**

In this surgical video tutorial (Video 1), we highlight a surgical technique when performing a vestibulectomy with a vaginal advancement flap for refractory NAV. The video highlights key anatomical landmarks (Figure 1)<sup>6</sup> that surgeons should understand before performing this procedure. We provide detailed instructions for identifying Hart's line (Figure 2) as well as outline the course of dissection to safely perform this procedure (Figure 3). Our dissection technique stresses meticulous attention to detail, and we provide recommendations to minimize operative bleeding and postoperative pain. Vestibulectomy should focus on removing as much vestibule as possible and ensuring sufficient dissection depth into the vagina to remove as many afferent pain fibers as possible. Lastly, we demonstrate our technique for a tension free vaginal advancement, which will help restore anatomy following the procedure. This video provides a defined and reproducible procedure that can benefit many women in need. ■

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