

## NVA Research Update E- Newsletter

March – April – May 2017

[www.nva.org](http://www.nva.org)

---

### Vulvodynia

#### **Women without vulvodynia can have a positive 'Q-tip test': a cross sectional study.**

Vieira-Baptista P, Lima-Silva J, Beires J, Donders G.

*J Psychosom Obstet Gynaecol.* 2017 May 17:1-4. doi: 10.1080/0167482X.2017.1327519.

<https://www.ncbi.nlm.nih.gov/pubmed/28511610>

**BACKGROUND:** Vulvodynia is a frequently missed pathology, often confused with vaginismus. The Q-tip test (QTT) is fundamental for the diagnosis; however, there is lack of data about its performance in asymptomatic women. **OBJECTIVE:** This study intended to evaluate the QTT for painful vestibular spots in asymptomatic women. **METHODS:** Q-tips were gently pressed at different areas of the vulvar vestibule to obtain a 0-10 score representing the pain felt. This was performed in 267 consecutive patients presenting to the gynecology outpatient clinic for reasons other than vulvovaginal complaints. A questionnaire was done to evaluate the possibility of unrecognized vulvodynia. **RESULTS:** Out of the 267 women, 18 (6.7%) fitted the diagnosis of vulvodynia and were excluded from the analysis. Of the remaining 249, 41 (16.5%) had a positive QTT. We could not find differences in the sexual activity rate between women with and without a positive QTT. No demographic differences could be found between the two groups. Only depression was more common in women with a positive QTT [31.7% (13/41) versus 10.8% (21/208),  $p=.001$ ]. **CONCLUSIONS:** Asymptomatic women can have painful vestibular spots in the absence of vulvodynia. A positive QTT cannot be considered equivalent to vulvodynia, highlighting the need for extensive workup of these women before that diagnosis can be assumed.

## **Do Vulvodynia TCM Patterns Differ by Pain Types? Beginning Evidence Supporting the Concept.**

Schlaeger JM, Cai HY, Nenggui X, Steffens AD, Lin W, Wilkie DJ.

*J Altern Complement Med.* 2017 May;23(5):380-384. doi: 10.1089/acm.2015.0353. Epub 2017 Mar 15.

<https://www.ncbi.nlm.nih.gov/pubmed/28294632>

**INTRODUCTION:** Vulvodynia affects a maximum of 14 million U.S. women; however, it has not been adequately characterized. Traditional Chinese Medicine (TCM) offers pattern diagnoses that may be considered vulvodynia phenotypes and may guide the development of more targeted treatments.

**OBJECTIVES:** In women with vulvodynia, to explore relationships between the TCM patterns and pain.

**DESIGN/METHODS:** In an exploratory study, 36 women diagnosed with vulvodynia had a TCM assessment and completed the Short Form McGill Pain Questionnaire (SF-MPQ). **RESULTS:** All 36 women were diagnosed with one of the two TCM patterns (excess heat [n = 28] or excess cold [n = 8]). Although not statistically significant, (1) the excess heat pattern group had a higher mean sensory score ( $14.4 \pm 6.0$ ) and mean affective pain score ( $4.1 \pm 2.8$ ) (more pain) compared with the mean sensory score ( $13.3 \pm 5.9$ ) and mean affective score ( $3.3 \pm 1.8$ ) of the excess cold pattern group; (2) there was a higher mean score for neuropathic sensory descriptors in the excess heat pattern group ( $1.55 \pm .58$ ) compared with the excess cold pattern group ( $1.16 \pm 0.72$ ); and (3) there was a higher mean score for nociceptive sensory descriptors in the excess cold pattern group ( $1.23 \pm 0.45$ ) compared with the excess heat pattern group ( $1.14 \pm 0.62$ ). The difference in the hot-burning mean score between the two TCM pattern groups was statistically significant ( $t [34] = 6.55, p < 0.0001$ ). **CONCLUSION:** Intriguing trends were observed in the pain scores for the two TCM pattern groups. The possibility that TCM pattern groups have different types of pain (neuropathic vs. nociceptive) deserves further research in larger samples. If these exploratory findings are confirmed, the characterization of TCM patterns could lead to new treatments for vulvodynia.

## **Women with vulvodynia: awareness and knowledge of its care among student healthcare staff.**

Törnävä M, Koivula M, Helminen M, Suominen T.

*Scand J Caring Sci.* 2017 May 19. doi: 10.1111/scs.12455.

<https://www.ncbi.nlm.nih.gov/pubmed/28524242>

**BACKGROUND:** Many women with vulvodynia are women of fertile age, and this syndrome may cause many physical and psychosexual functional disorders. Women with vulvodynia often find that healthcare professionals seem to demonstrate a lack of awareness about the syndrome and its care. These issues have not been previously studied among student healthcare staff. **AIM:** To investigate awareness and knowledge about vulvodynia and its care among staff in the student healthcare sector in Finland.

**METHOD:** The study design was cross sectional. A survey instrument called 'Awareness and knowledge of vulvodynia and its care' was developed for this study and was used for data collection. The data were collected from a web-based survey conducted with student healthcare professionals (N = 191, n = 79) in all 13 student healthcare units in Finland. Descriptive statistical methods were used to describe the connections between the factors associated with awareness of vulvodynia and its care. Ethical standards were followed throughout the study. **RESULTS:** The primary results of the study indicated that the respondents had somewhat good awareness of how to identify vulvodynia and somewhat poor awareness of the treatments for vulvodynia. Participants' awareness of the meaning of encountering patients, as well as the information and support they provided, was good. Based on the knowledge test, knowledge of vulvodynia and its care was estimated to be poor. The respondents' experience-based skills in treating vulvodynia and education about vulvodynia were mostly associated with better awareness and knowledge about vulvodynia and its care. **CONCLUSION:** The student healthcare staff

who meet and care for women of fertile age have irregular awareness and knowledge of vulvodynia and its care. The creation of educational programs to develop such awareness and knowledge is recommended to obtain a standard quality of care for all women with vulvodynia.

## Provoked Vestibulodynia

### Heightened Pelvic Floor Muscle Tone and Altered Contractility in Women With Provoked Vestibulodynia.

Morin M, Binik YM, Bourbonnais D, Khalifé S, Ouellet S, Bergeron S.  
*J Sex Med.* 2017 Apr;14(4):592-600. doi: 10.1016/j.jsxm.2017.02.012.  
<https://www.ncbi.nlm.nih.gov/pubmed/28364981>

**BACKGROUND:** Pelvic floor muscle (PFM) dysfunctions are reported to be involved in provoked vestibulodynia (PVD). Although heightened PFM tone has been suggested, the relative contribution of active and passive components of tone remains misunderstood. Likewise, alterations in PFM contractility have been scarcely studied. **AIMS:** To compare PFM tone, including the relative contribution of its active and passive components, and muscular contractility in women with PVD and asymptomatic controls. **METHODS:** Fifty-six asymptomatic women and 56 women with PVD participated in the study. The PVD diagnosis was confirmed by a gynecologist based on a standardized examination. **OUTCOMES:** PFM function was evaluated using a dynamometric speculum combined with surface electromyography (EMG). PFM general tone was evaluated in static conditions at different vaginal apertures and during repeated dynamic cyclic stretching. The active contribution of tone was characterized using the ratio between EMG in a static position and during stretching and the proportion of women presenting PFM activation during stretching. Contribution of the passive component was evaluated using resting forces, stiffness, and hysteresis in women sustaining a negligible EMG signal during stretching. PFM contractility, such as strength, speed of contraction, coordination, and endurance, also was assessed during voluntary isometric efforts. **RESULTS:** Greater PFM resting forces and stiffness were found in women with PVD compared with controls, indicating an increased general tone. An increased active component also was found in women with PVD because they presented a superior EMG ratio, and a larger proportion of them presented PFM activation during stretching. Higher passive properties also were found in women with PVD. Women with PVD also showed decreased strength, speed of contraction, coordination, and endurance compared with controls. **CLINICAL IMPLICATIONS:** Findings provide further evidence of the contribution of PFM alterations in the etiology of PVD. These alterations should be assessed to provide patient-centered targeted treatment options. **STRENGTHS AND LIMITATIONS:** The use of a validated tool investigating PFM alterations constitutes a strength of this study. However, the study design does not allow the determination of the sequence of events in which these muscle alterations occurred-before or after the onset of PVD. **CONCLUSION:** Findings support the involvement of active and passive components of PFM tone and an altered PFM contractility in women with PVD.

## **Treatment of Secondary Vestibulodynia with Conjugated Estrogen Cream: A Pilot, Double-Blind, Randomized Placebo-Controlled Trial.**

Langlais EL, Lefebvre J, Maheux-Lacroix S, Bujold E, Fortier M, Bouchard C.

*J Obstet Gynaecol Can.* 2017 Mar 22. pii: S1701-2163(16)39061-2. doi: 10.1016/j.jogc.2016.10.011.

<https://www.ncbi.nlm.nih.gov/pubmed/28342741>

**OBJECTIVE:** To assess the efficacy of conjugated equine estrogen cream in reducing dyspareunia associated with secondary provoked vestibulodynia. **METHODS:** We conducted a randomized, double-blind, placebo-controlled trial that included women with secondary provoked vestibulodynia. Participants were randomly allocated to daily application of conjugated equine estrogen cream on the vulvar vestibule (estrogen group) or daily application of a similar placebo cream (placebo group). All patients were evaluated before and after eight weeks of treatment, using a visual analogue scale for superficial dyspareunia (primary outcome), the McGill Pain Questionnaire for superficial dyspareunia, the Female Sexual Function Index for sexual satisfaction, and vulvoscopy for vestibular erythema. **RESULTS:** The targeted recruitment for this study was 44 women, but because of funding shortfalls recruitment was limited to 20 women. These 20 participants were randomly assigned to two groups of 10. Improvement of superficial dyspareunia on the visual analogue scale was not significantly different between the two groups (estrogen group: 27% improvement vs. placebo group: 3% improvement,  $P = 0.29$ ). However, the use of conjugated equine estrogen cream was associated with a significant post-treatment improvement in superficial dyspareunia and in all three secondary outcomes ( $P < 0.05$ ), whereas this was not the case with the use of placebo. **CONCLUSION:** Daily application of conjugated equine estrogen cream to the vulvar vestibule could potentially reduce superficial dyspareunia in women with secondary provoked vestibulodynia, but a randomized trial with adequate statistical power will be required to demonstrate this.

## **Provoked Vestibulodynia: Diagnosis, Self-Reported Pain, and Presentation During Gynaecological Examinations.**

Dargie EE, Chamberlain SM, Pukall CF.

*J Obstet Gynaecol Can.* 2017 Mar;39(3):145-151. doi: 10.1016/j.jogc.2017.01.001.

<https://www.ncbi.nlm.nih.gov/pubmed/28343555>

**OBJECTIVE:** To explore factors associated with the diagnosis of provoked vestibulodynia (PVD) through (1) self-reported pain characteristics and (2) Friedrich's criteria (vestibular pain during sexual activity/gynaecological examination). We also identified cases in which incorrect diagnoses were assigned and explored group differences in gynaecological examination presentation and associations with self-reported pain. **METHODS:** Data were extracted from nine studies conducted in our research laboratory. Information obtained during a telephone interview and a standardized gynaecological examination was compiled for 106 participants with vulvar pain and 106 pain-free control participants, matched for age, hormonal contraceptive use, and parity. **RESULTS:** Cohen's kappa (0.78) indicated substantial agreement (87.3%) between the telephone interview group categorization and diagnosis after the gynaecological examination. A discriminant function analysis yielded one significant function: Friedrich's first two criteria correctly classified 84.2% of cases, accounting for 76.0% of group membership variance. Of note, those in the other genital pain group were most likely to have received an incorrect diagnosis following the telephone interview ( $P < 0.001$ ). Paired-samples *t* tests showed that those with pain reported lower pain intensity during the gynaecological examination than during intercourse ( $P < 0.001$ ) and that intercourse pain was not necessarily related to pain during the examination. However, many participants (72.8%) indicated that the pain elicited during the cotton

swab test was similar to the pain they felt with intercourse. **CONCLUSION:** These results support the use of a targeted clinical interview and the evaluation of vestibular pain during sexual activity and the gynaecological examination for diagnosing PVD. Caution should be exercised when a patient presents with genital pain symptoms other than those typically observed in PVD. Furthermore, the cotton swab test may underestimate the degree of pain regularly experienced.

### **Alpha Lipoic Acid Plus Omega-3 Fatty Acids for Vestibulodynia Associated With Painful Bladder Syndrome.**

Murina F, Graziottin A, Felice R, Gambini D.

*J Obstet Gynaecol Can.* 2017 Mar;39(3):131-137. doi: 10.1016/j.jogc.2016.12.035.

<https://www.ncbi.nlm.nih.gov/pubmed/28343553>

**OBJECTIVE:** This study assessed the effectiveness of alpha lipoic acid (ALA) plus omega-3 polyunsaturated fatty acids (n-3 PUFAs) in combination with amitriptyline therapy in patients with vestibulodynia/painful bladder syndrome (VBD/PBS). **METHODS:** Women with VBD/PBS were randomly assigned to receive amitriptyline or amitriptyline plus a commercially available preparation (ALAnerv Age; Alfa Wassermann, Bologna, Italy) containing, in 2 capsules, ALA 600 mg plus docosahexaenoic acid 250 mg and eicosapentaenoic acid 16.67 mg. Symptoms of burning and pain were assessed using a 10-cm visual analog scale and the short form of the McGill-Melzack Pain Questionnaire. **RESULTS:** Among 84 women who were randomized, the mean  $\pm$  standard deviation dose of amitriptyline was  $21.7 \pm 6.6$  mg/day, without statistical difference between the two groups. Pain, as assessed using both the pain rating index of the visual analog scale and the short-form McGill Pain Questionnaire, decreased significantly in both trial groups, with a greater effect seen with the addition of ALA and n-3 PUFAs. The addition of ALA/n-3 PUFAs to amitriptyline treatment was also associated with improvements in dyspareunia and pelvic floor muscle tone. The overall incidence of adverse events was low, and none led to treatment discontinuation. **CONCLUSIONS:** The addition of ALA/n-3 PUFAs to amitriptyline treatment in patients with VBD/PBS appears to improve outcomes and may allow for a lower dosage of amitriptyline, which may lead to fewer adverse effects.

### **Efficacy of transcranial direct-current stimulation in women with provoked vestibulodynia.**

Morin A, Léonard G, Gougeon V, Cyr MP, Waddell G, Bureau YA, Girard I, Morin M.

*Am J Obstet Gynecol.* 2017 Mar 14. pii: S0002-9378(17)30381-2. doi: 10.1016/j.ajog.2017.02.049.

<https://www.ncbi.nlm.nih.gov/pubmed/28302387>

**BACKGROUND:** Provoked vestibulodynia is a highly prevalent condition characterized by acute recurrent pain located at the vaginal entrance in response to pressure application or attempted vaginal penetration. Despite a wide variety of treatments offered to women with provoked vestibulodynia, a high proportion of women are refractory to conventional treatment. Transcranial direct-current stimulation is a noninvasive brain stimulation technique that has been shown effective for improving various chronic pain conditions. Growing evidence suggests that the central nervous system could play a key role in provoked vestibulodynia. Targeting the central nervous system could therefore be a promising treatment for women with provoked vestibulodynia. **OBJECTIVE:** The purpose of this study was to evaluate and compare the efficacy of active and sham transcranial direct-current stimulation in reducing pain intensity during intercourse in patients with provoked vestibulodynia. **STUDY DESIGN:** We conducted a triple-blind, parallel-group, randomized controlled trial. Women aged 17-45 years diagnosed with provoked vestibulodynia by a gynecologist using a validated protocol were randomized

to 10 sessions of either active transcranial direct-current stimulation (intensity = 2 mA) or 10 sessions of sham transcranial direct-current stimulation, over a 2-week period. Both active and sham transcranial direct-current stimulation were applied for 20 minutes, with the anode positioned over the primary motor cortex, and the cathode over the contralateral supraorbital area. Outcome measures were collected at baseline, 2 weeks after treatment, and at 3-month follow-up by an evaluator blinded to group assignment. The primary objective was to assess pain intensity during intercourse, using a numerical rating scale. Secondary outcomes focused on sexual function and distress, vestibular sensitivity, psychological distress, treatment satisfaction, and patient impression of change. Statistical analyses were conducted on the intention-to-treat basis, and treatment effects were evaluated using a mixed linear model for repeated measures. **RESULTS:** A total of 40 patients were randomly assigned to receive either active (n = 20) or sham (n = 20) transcranial direct-current stimulation treatments from November 2014 through February 2016. Baseline characteristics were similar between the active and sham transcranial direct-current stimulation groups. In full compliance with the study protocol, every participant followed all courses of the study treatment, including assessments at 2-week and 3-month follow-up. Pain during sexual intercourse was not significantly different between active and sham treatment groups 2 weeks after treatment (P = .84) and at follow-up (P = .09). Mean baseline and 2-week assessment pain intensity were, respectively, 6.8 (95% confidence interval, 5.9-7.7) and 5.6 (95% confidence interval, 4.7-6.5) for active transcranial direct-current stimulation (P = .03) vs 7.5 (95% confidence interval, 6.6-8.4) and 5.7 (95% confidence interval, 4.8-6.6) for sham transcranial direct-current stimulation (P = .001). Nonsignificant differences between the 2 groups were also found in their sexual function and distress after treatment (P > .20) and at follow-up (P > .10). Overall, at 2-week assessment 68% assigned to active transcranial direct-current stimulation reported being very much, much, or slightly improved compared to 65% assigned to sham transcranial direct-current stimulation (P = .82), and still comparable at follow-up: 42% vs 65%, respectively (P = .15). **CONCLUSION:** Findings suggest that active transcranial direct-current stimulation is not more effective than sham transcranial direct-current stimulation for reducing pain in women with provoked vestibulodynia. Likewise, no significant effects were found on sexual function, vestibular sensitivity, or psychological distress.

### **Self-Reported Neuropathic Pain Characteristics of Women With Provoked Vulvar Pain: A Preliminary Investigation.**

Dargie E, Gilron I, Pukall CF.

*J Sex Med.* 2017 Apr;14(4):577-591. doi: 10.1016/j.jsxm.2017.02.008. Epub 2017 Mar 18.

<https://www.ncbi.nlm.nih.gov/pubmed/28325536>

**BACKGROUND:** Provoked vestibulodynia (PVD) is a common chronic genital pain condition affecting approximately 12% of premenopausal women. Although parallels have been drawn between PVD and neuropathic pain (NP), no studies have examined self-reported NP characteristics in PVD. **AIM:** To explore pain symptoms that resemble NP reported by those with PVD and compare responses with those with an established NP condition. **METHODS:** Women with provoked vulvar pain (PVP; n = 65) completed online questionnaires designed to assess characteristics of NP. Responses were compared with those of women with post-herpetic neuralgia (PHN; n = 30). **OUTCOMES:** In addition to a range of descriptive questions, participants completed the McGill Pain Questionnaire, the Self-Complete Leeds Assessment of Neuropathic Signs and Symptoms (S-LANSS), the Neuropathic Pain Symptom Inventory (NPSI), and the Pain Quality Assessment Scale (PQAS). **RESULTS:** PVP exhibits some neuropathic characteristics, typically evoked pain (as opposed to the more constant pain of PHN) indicative of -allodynia and hyperalgesia. Specifically, women with PVP scored, on average, higher than the NP cut-off



on the S-LANSS, and there were no significant differences between women with PVP and those with PHN on some NPSI subscales. However, women with PHN reported more NP symptoms on the PQAS, S-LANSS, and other NPSI subscales. **CLINICAL IMPLICATIONS:** Validated NP questionnaires could be of particular use for health care professionals who need a more efficient way to assess symptoms of patients with PVP and should be included in future studies investigating the mechanisms and treatment of this pain. **STRENGTHS AND LIMITATIONS:** This study takes a unique approach to the examination of PVP by using multiple validated NP measures to compare pain characteristics with those of a group of participants with PHN, an established NP condition. However, it is limited by self-reported data not confirmed with clinical examination, small size of the PHN group, and the severity of the pain experienced in the PVP group. **CONCLUSION:** Women with PVP report some symptoms suggestive of NP characteristics, and future research should use NP measures in addition to physical examinations to further investigate the mechanisms that maintain this pain condition.

### **A Local Inflammatory Renin-Angiotensin System Drives Sensory Axon Sprouting in Provoked Vestibulodynia.**

Liao Z, Chakrabarty A, Mu Y, Bhattacharjee A, Goestch M, Leclair CM, Smith PG. *J Pain*. 2017 May;18(5):511-525. doi: 10.1016/j.jpain.2016.12.008. Epub 2017 Jan 3. <https://www.ncbi.nlm.nih.gov/pubmed/28062309>

Vestibulodynia is a form of provoked vulvodynia characterized by profound tenderness, hyperinnervation, and frequently inflammation within well-defined areas of the human vestibule. Previous experiments in animal models show that inflammatory hypersensitivity and hyperinnervation occur in concert with establishment of a local renin-angiotensin system (RAS). Moreover, mechanical hypersensitivity and sensory axon sprouting are prevented by blocking effects of angiotensin II on angiotensin II receptor type 2 (AT2) receptors. This case-control study assessed whether a RAS contributes to hyperinnervation observed in human vestibulodynia. Vestibular biopsies from asymptomatic controls or patients' non-tender areas showed moderate innervation and small numbers of inflammatory cells. In women with vestibulodynia, tender areas contained increased numbers of mechanoreceptive nociceptor axons, T-cells, macrophages, and B-cells, whereas mast cells were unchanged. RAS proteins were increased because of greater numbers of T cells and B cells expressing angiotensinogen, and increased renin-expressing T cells and macrophages. Chymase, which converts angiotensin I to angiotensin II, was present in constant numbers of mast cells. To determine if tender vestibular tissue generates angiotensin II that promotes axon sprouting, we conditioned culture medium with vestibular tissue. Rat sensory neurons cultured in control-conditioned medium showed normal axon outgrowth, whereas those in tender tissue-conditioned medium showed enhanced sprouting that was prevented by adding an AT2 antagonist or angiotensin II neutralizing antibody. Hypersensitivity in provoked vestibulodynia is therefore characterized by abnormal mechanonociceptor axon proliferation, which is attributable to inflammatory cell-derived angiotensin II (or a closely related peptide) acting on neuronal AT2 receptors. Accordingly, reducing inflammation or blocking AT2 represent rational strategies to mitigate this common pain syndrome. **PERSPECTIVE:** This study provides evidence that local inflammation leads to angiotensin II formation, which acts on the AT2 to induce nociceptor axon sprouting in vulvodynia. Preventing inflammation and blocking AT2 therefore present potential pharmacological strategies for reducing vestibular pain.

## **It Takes Two: Sexual Communication Patterns and the Sexual and Relational Adjustment of Couples Coping With Provoked Vestibulodynia.**

Rancourt KM, Flynn M, Bergeron S, Rosen NO.

*J Sex Med.* 2017 Mar;14(3):434-443. doi: 10.1016/j.jsxm.2017.01.009. Epub 2017 Feb 8.

<https://www.ncbi.nlm.nih.gov/pubmed/28189562>

**INTRODUCTION:** Provoked vestibulodynia (PVD) is a prevalent vulvovaginal pain condition that is associated with sexual and relational consequences for women and their partners. Greater perceived quality of sexual communication has been associated with women's lower pain during intercourse and with couples' better sexual and relational well-being. Whether couples' collaborative (e.g., expressing feelings or problem solving) and negative (e.g., withdrawing or criticizing) sexual communication patterns (SCPs) are differentially associated with couples' adjustment to PVD is unknown. **AIM:** To examine associations between collaborative and negative SCPs and women's pain and the sexual and relationship adjustment of women with PVD and their partners. **METHODS:** Women diagnosed with PVD (N = 87) and their partners completed the Sexual Communication Patterns Questionnaire and measurements of pain (women only), sexual functioning, sexual satisfaction, sexual distress, and relationship satisfaction. **MAIN OUTCOME MEASURES:** (i) Numerical rating scale of pain during intercourse, (ii) Female Sexual Function Index and International Index of Erectile Function, (iii) Global Measure of Sexual Satisfaction, (iv) Female Sexual Distress Scale-Revised, and (v) Couple Satisfaction Index. **RESULTS:** When women reported greater collaborative SCP, they also reported higher sexual and relationship satisfaction. When women reported greater negative SCP, they reported less relationship satisfaction and had partners who reported greater sexual distress. When partners reported greater collaborative SCP, they also reported higher relationship satisfaction and had female partners who were less sexually distressed. When partners reported higher negative SCP, they also reported less relationship satisfaction. There were no associations between SCP and women's or partners' sexual functioning or women's pain. **CONCLUSION:** Collaborative SCP may benefit couples' sexual and relational well-being, whereas negative SCP may impede sexual and relational adjustment to PVD. Findings provide preliminary support for the need to assess and target collaborative and negative SCPs in psychological interventions for couples affected by PVD.

## **A common pronociceptive pain modulation profile typifying subgroups of chronic pelvic pain syndromes is interrelated with enhanced clinical pain.**

Grinberg K, Granot M, Lowenstein L, Abramov L, Weissman-Fogel I.

*Pain.* 2017 Jun;158(6):1021-1029. doi: 10.1097/j.pain.0000000000000869.

Provoked vestibulodynia (PVD) and painful bladder syndrome (PBS), subgroups of chronic pelvic pain syndromes (CPPS), are considered to share common biophysiological peripheral mechanisms. In addition, indications of a pronociceptive pain profile coexisting with psychological vulnerability suggest common dysfunctional pain processing and pain modulation in these 2 subgroups of CPPS. We therefore aimed at comparing the pain profile and psychological traits of patients with PVD and PBS to see whether the pain profile contributes to intersubject variability of clinical pain symptoms. Patients with PVD (n = 18) and PBS (n = 21) were compared with healthy controls (n = 20) in their responses to (1) pain psychophysical tests applied to both referred (suprapubis) and remote (hand) body areas and (2) pain-related psychological factors (pain catastrophizing, depression, anxiety, and somatization). We found a similar pronociceptive pain profile in the 2 subgroups of CPPS—enhanced facilitation (ie, hyperalgesia in the referred body area [ $P < 0.001$ ]) and inefficient inhibition (ie, reduced conditioned pain modulation [ $P < 0.001$ ]) that were associated with both enhanced pain ratings evoked during trigger point examination



[ $P < 0.037$ ]) and higher Brief Pain Inventory ratings ( $P = 0.002$ ). The latter was also correlated with pain catastrophizing ( $r = 0.504$ ,  $P = 0.001$ ) and depression symptoms ( $r = 0.361$ ,  $P = 0.024$ ). The findings suggest common mechanisms underlying a dysfunctional nociceptive system in both PVD and PBS. The intersubject variability in the level of dysfunction and its association with disease severity recommends a personalized pain treatment that may alleviate daily pain and dysfunction in patients with CPPS.

## Physical Therapy

### **Systematic Review of the Effectiveness of Physical Therapy Modalities in Women With Provoked Vestibulodynia.**

Morin M, Carroll MS, Bergeron S.

*Sex Med Rev.* 2017 Mar 28. pii: S2050-0521(17)30012-4. doi: 10.1016/j.sxmr.2017.02.003.

<https://www.ncbi.nlm.nih.gov/pubmed/28363763>

**INTRODUCTION:** Pelvic floor muscle physical therapy is recommended in clinical guidelines for women with provoked vestibulodynia (PVD). Including isolated or combined treatment modalities, physical therapy is viewed as an effective first-line intervention, yet no systematic review concerning the effectiveness of physical therapy has been conducted. **AIM:** To systematically appraise the current literature on the effectiveness of physical therapy modalities for decreasing pain during intercourse and improving sexual function in women with PVD. **METHODS:** A systematic literature search using PubMed, Scopus, CINAHL, and PEDro was conducted until October 2016. Moreover, a manual search from reference lists of included articles was performed. Ongoing trials also were reviewed using clinicaltrials.gov and ISRCTNregistry. Randomized controlled trials, prospective and retrospective cohorts, and case reports evaluating the effect of isolated or combined physical therapy modalities in women with PVD were included in the review. **MAIN OUTCOME MEASURES:** Main outcome measures were pain during intercourse, sexual function, and patient's perceived improvement. **RESULTS:** The literature search resulted in 43 eligible studies including 7 randomized controlled trials, 20 prospective studies, 5 retrospective studies, 6 case reports, and 6 study protocols. Most studies had a high risk of bias mainly associated with the lack of a comparison group. Another common bias was related to insufficient sample size, non-validated outcomes, non-standardized intervention, and use of other ongoing treatment. The vast majority of studies showed that physical therapy modalities such as biofeedback, dilators, electrical stimulation, education, multimodal physical therapy, and multidisciplinary approaches were effective for decreasing pain during intercourse and improving sexual function. **CONCLUSION:** The positive findings for the effectiveness of physical therapy modalities in women with PVD should be investigated further in robust and well-designed randomized controlled trials.

## Dyspareunia

### **Assessment of vulvar discomfort with sexual activity among women in the United States.**

Flynn KE, Carter J, Lin L, Lindau ST, Jeffery DD, Reese JB, Schlosser BJ, Weinfurt KP.

*Am J Obstet Gynecol.* 2017 Apr;216(4):391.e1-391.e8. doi: 10.1016/j.ajog.2016.12.006. Epub 2016 Dec 14.

<https://www.ncbi.nlm.nih.gov/pubmed/27988269>

**BACKGROUND:** Multidimensional self-report measures of sexual function for women do not include the assessment of vulvar discomfort, limiting our understanding of its prevalence. In an effort to improve the measurement of patient-reported health, the National Institutes of Health funded the creation of the Patient Reported Outcomes Measurement Information System (PROMIS). This included the development of the PROMIS Sexual Function and Satisfaction measure, and version 2.0 of the Sexual Function and Satisfaction measure included 2 scales to measure vulvar discomfort with sexual activity.

**OBJECTIVES:** The objectives of the study were to describe the development of 2 self-reported measures of vulvar discomfort with sexual activity, describe the relationships between these scales and scales for lubrication and vaginal discomfort, and report the prevalence of vulvar discomfort with sexual activity in a large, nationally representative sample of US women. **STUDY DESIGN:** We followed PROMIS measure development standards, including qualitative development work with patients and clinicians and psychometric evaluation of candidate items based on item response theory, in a probability sample of 1686 English-speaking US adult women. We tested 16 candidate items on vulvar discomfort. We present descriptive statistics for these items, correlation coefficients among the vulvar and vaginal scales, and mean PROMIS scores with 95% confidence intervals separately by menopausal status for the 1046 women who reported sexual activity in the past 30 days. **RESULTS:** Based on the psychometric evaluation of the candidate items, we created 2 separate 4 item scales, one to measure labial discomfort and pain and one to measure clitoral discomfort and pain. Additional items not included in the scales assess pain quality, numbness, and bleeding. The correlations between the lubrication, vaginal discomfort, and the 2 vulvar discomfort measures ranged from 0.46 to 0.77, suggesting that these measures represent related yet distinct concepts. In our nationally representative sample, 1 in 5 US women endorsed some degree of vulvar discomfort with sexual activity in the past 30 days.

Menopausal status was associated with lower lubrication and higher vaginal discomfort but not with vulvar discomfort. **CONCLUSION:** The PROMIS Vulvar Discomfort with Sexual Activity-Labial and Vulvar Discomfort with Sexual Activity-Clitoral scales are publicly available for use in research and clinical settings. There is limited overlap between vulvar discomfort and lubrication or vaginal discomfort. The importance of measuring vulvar discomfort as part of a comprehensive assessment of sexual function is underscored by its prevalence.

### **The aetiology of chronic vulval pain and entry dyspareunia: a retrospective review of 525 cases.**

Harris V, Fischer G, Bradford JA.

*Aust N Z J Obstet Gynaecol.* 2017 Mar 13. doi: 10.1111/ajo.12613.

<https://www.ncbi.nlm.nih.gov/pubmed/28294284>

**BACKGROUND:** There are few published data about the incidence of diagnoses or treatment outcomes, for chronic vulval pain. **AIMS:** To document diagnoses and treatment outcomes in a cohort of chronic vulval pain presentations. **MATERIALS AND METHODS:** A retrospective case review of the patient

database of a private vulval clinic between January 2011 and March 2015. **RESULTS:** Five hundred and twenty-five out of 3360 patients (15.6%) met the criterion of vulval pain alone. Mean age was 47.1 years (range 17-86). Average duration of symptoms was 60 months (range 3-432). Overall, 277/525 (52.7%) patients had satisfactory responses to appropriate treatment and 90/525 (17%) had partial improvement. A dermatosis was identified in 322/525 (61.3%) patients and of these, 211/322 (65.5%) had satisfactory responses to appropriate dermatological treatment. In the remaining 203/525 (38.7%) the skin was normal. These patients were questioned around the possibility of a neuromuscular cause for their pain, including pre-existing dysfunction, trauma or previous operations involving the spine, hips or lower limbs. There were 181/203 (89%) patients considered to have a neuromuscular cause for their pain and considered suitable for physiotherapy and/or neuromodulating medications. Of these patients, 63/182 (34.6%) had satisfactory responses to this treatment. One hundred and sixty-six out of 525 (31.6%) described vulval pain only during sexual intercourse. There was no statistically significant difference between different diagnoses and responses to treatment between patients reporting dyspareunia only and those sexually active women who did not experience dyspareunia (29/525, 5.5%). **CONCLUSIONS:** The majority of this cohort with chronic vulval pain had a dermatological disease with a smaller proportion caused by neuromuscular dysfunction. Both groups are potentially treatable.

#### **Sexual pain in women: quality of sex life and marital relations.**

Ghizzani A, Orlandini C, Bernardi MG, Cevenini G, Luisi S.

*Minerva Ginecol.* 2017 Apr 4. doi: 10.23736/S0026-4784.17.04054-0.

<https://www.ncbi.nlm.nih.gov/pubmed/28381078>

Common gynecological and dermatological conditions resulting in sexual pain are seen often in gynecological practice and are easily diagnosed with visual observation and laboratory tests. The lower genital tract diseases we are referring to are: vaginitis, vaginoses, dermatoses, hypoestrogenism and endometriosis. All of them affect the vaginal mucosa with diverse mechanisms, their effects lasting for only few days or many months. Furthermore, they change the women's sense of well-being sometimes significantly and for a long period. The conditions we mentioned above are recognized promptly with basic gynecological interventions but when burning or sharp pain occurs with light pressure (as in case of penetration attempts) without physical signs we must suspect the Genitopelvic Pain Penetration Disorder. This condition was defined for the first time in the Diagnostic and Statistical Manual of Mental Disorders- 5 and its dimensions include difficulty or pain at penetration associated with fear, anxiety, and pelvic floor hypertonus. Pain is most often localized at the vulvar vestibule and described as burning, pressure, and itching. These dimensions are iconic of sexual pain associated with vulvodynia and vaginismus but are common also in fibro myalgia, a syndrome of widespread chronic pain of unknown origin; sexual pain in fibro myalgia is mostly attributed both to the joint pathology and to the lower sensitive threshold that are the pathognomonic signs of this condition. In our study we analyzed the characteristics of pain as reported for each disease to evaluate its influence on sexuality and marital relations.

## Co-morbid Disorders

### **Evaluation of vestibular biopsy features in patients affected by fibromyalgia, by vulvodynia or by their association.**

Ghizzani A, Tinacci G.

*Pathologica*. 2016 Dec;108(4):154-159.

<https://www.ncbi.nlm.nih.gov/pubmed/28195255>

**OBJECTIVE:** To evaluate the histologic features of vestibular biopsies from patients affected by fibromyalgia (FM), or vulvodynia (VD), or their association (FM-VD) in order to facilitate differential diagnosis among conditions that present sexual pain with similar clinical characteristics. **STUDY DESIGN:** Forty-four women already diagnosed with FM were recruited to evaluate the presence of sexual pain not owing to FM. Fourteen women affected by sexual pain of unknown origin who came to our department requesting treatment were also recruited. All subjects were interviewed regarding their history of pain and examined in order to exclude vaginal conditions. Sexual pain did not show the characteristics of VD in 18 FM women; in the remaining 22 women VD resulted as associated with FM. All fourteen self-referred women were diagnosed with VD. All subjects underwent a posterior vestibular biopsy at the fourchette under local anesthesia. Tissue specimens were processed for histologic examination and immunostained for S-100protein and CD34. Statistical analysis was performed with the Pearson's Chi square test. **RESULTS:** Data analysis showed a statistically significant prevalence of inflammation in the VD group. Analysis of the histologic features showed that the concomitant presence of inflammation, nerve bundles, and fibrosis (often mild) is prevalent in VD. Fibrosis is highly frequent and often moderate/severe in FM and it is rarely associated to inflammation and nerve bundles. FM-VD women show intermediate grading. **CONCLUSIONS:** Our findings show different histologic characteristics in vestibular biopsy in patients affected by Fibro Myalgia, by Vulvodynia or by their association that could be useful to facilitate the differential diagnosis between conditions of sexual pain with similar clinical characteristics.

### **Vulvar Varicosities: A Review.**

Kim AS, Greyling LA, Davis LS.

*Dermatol Surg*. 2017 Mar;43(3):351-356. doi: 10.1097/DSS.0000000000001008.

<https://www.ncbi.nlm.nih.gov/pubmed/28005626>

**BACKGROUND:** Vulvar varicosities (VV) are dilated and tortuous veins occurring within the external female genitalia. Patients may seek treatment of these varices for both medical and cosmetic purposes. In some patients, VV may be associated with a chronic pelvic pain syndrome called pelvic congestion syndrome (PCS). **OBJECTIVE:** To review the English language literature on VV in both pregnant and non-pregnant women. **MATERIALS AND METHODS:** A literature search pertaining to vulvar varicosities and PCS was performed using PubMed and Google Scholar databases. **RESULTS:** There is an overall paucity of literature discussing VV, particularly in non-pregnant women without PCS. Management options for VV include compression, sclerotherapy, embolization, and surgical ligation. Treatment can be dependent on the coexistence of pelvic or leg varicosities and may require referral to a vein specialist for advanced imaging techniques and procedures. Direct sclerotherapy to VV may not provide adequate treatment if pelvic or leg varices are also present. **CONCLUSION:** In women with persistent VV, imaging studies should be obtained before treatment to evaluate the surrounding venous anatomy of the pelvis and leg,

as the results often affect the treatment approach. Patients presenting with VV and chronic pelvic pain should be evaluated for PCS.

### **Treatment of radiation-induced cystitis and vulvodynia via a ganglion impar block using a lateral approach under computed tomography guidance: a case report.**

Lee JE, Kwak KH, Hong SW, Jung H, Chung SY, Park JM.

*Korean J Anesthesiol.* 2017 Feb;70(1):81-85. doi: 10.4097/kjae.2017.70.1.81. Epub 2017 Jan 26.

<https://www.ncbi.nlm.nih.gov/pubmed/28184272>

Adjuvant radiation therapy (RT) after colorectal cancer surgery can prevent local recurrence, but has several side effects. Precise injection of drugs into the affected areas is complicated by radiation-induced fibrosis of soft or connective tissue. A 48-year-old woman experienced severe intractable perineal pain, dysuria, urinary urgency, and frequent urination after rectal cancer surgery and adjuvant RT, and was diagnosed with radiation-induced cystitis and vulvodynia. Her symptoms persisted despite two fluoroscopy-guided ganglion impar blocks. Fluoroscopy revealed atypical needle tip positioning and radiolucent dye distribution, presumably due to radiation-induced fibrosis in the target region. We performed two computed tomography (CT)-guided ganglion impar blocks by using a lateral approach, which allowed more accurate positioning of the needle tip. Her pain visual analog score decreased from 9 to 3, and she recently resumed sexual intimacy. CT guidance is a viable alternative to fluoroscopy guidance when performing ganglion impar blocks in fibrotic areas.

## **Pudendal Neuralgia**

### **Injury to Perineal Branch of Pudendal Nerve in Women: Outcome from Resection of the Perineal Branches.**

Wan EL, Goldstein AT, Tolson H, Dellon AL.

*J Reconstr Microsurg.* 2017 Mar 4. doi: 10.1055/s-0037-1599130.

<https://www.ncbi.nlm.nih.gov/pubmed/28259114>

**Background** This study describes outcomes from a new surgical approach to treat "anterior" pudendal nerve symptoms in women by resecting the perineal branches of the pudendal nerve (PBPN). **Methods** Sixteen consecutive female patients with pain in the labia, vestibule, and perineum, who had positive diagnostic pudendal nerve blocks from 2012 through 2015, are included. The PBPN were resected and implanted into the obturator internus muscle through a paralabial incision. The mean age at surgery was 49.5 years (standard deviation [SD] = 11.6 years) and the mean body mass index was 25.7 (SD = 5.8). Out of the 16 patients, mechanisms of injury were episiotomy in 5 (31%), athletic injury in 4 (25%), vulvar vestibulectomy in 5 (31%), and falls in 2 (13%). Of these 16 patients, 4 (25%) experienced urethral symptoms. Outcome measures included Female Sexual Function Index (FSFI), Vulvar Pain Functional Questionnaire (VQ), and Numeric Pain Rating Scale (NPRS). **Results** Fourteen patients reported their condition pre- and postoperatively. Mean postoperative follow-up was 15 months. The overall FSFI, and arousal, lubrication, orgasm, satisfaction, and pain domains significantly improved ( $p < 0.05$ ). The VQ also significantly improved ( $p < 0.001$ ) in 13 (93%) of 14 patients. The NPRS score decreased on average from 8 to 3 ( $p < 0.0001$ ). All four patients with urethral symptoms were relieved of these symptoms.

**Conclusion** Resection of the PBPN with implantation of the nerve into the obturator internus muscle significantly reduced pain and improved sexual function in women who sustained injury to the PBPN.

## **Pulsed Radiofrequency Ablation of Pudendal Nerve for Treatment of a Case of Refractory Pelvic Pain.**

Petrov-Kondratov V, Chhabra A, Jones S.

*Pain Physician*. 2017 Mar;20(3):E451-E454.

<https://www.ncbi.nlm.nih.gov/pubmed/28339446>

Pudendal neuralgia (PN) is a result of pudendal nerve entrapment or injury, also called "Alcock syndrome." Pain that develops is often chronic, and at times debilitating. If conservative measures fail, invasive treatment modalities can be considered. The goal of this case report is to add to a small body of literature that a pulsed radiofrequency (PRF) ablation can be effectively used to treat PN and to show that high resolution MR neurography imaging can be used to detect pudendal neuropathy. **CASE PRESENTATION:** We present a case of a 51-year-old woman with 5 years of worsening right groin and vulva pain. Various medication trials only lead to limited improvement in pain. The first diagnostic right pudendal nerve block was done using 3 mL of 0.25% bupivacaine with 6mg of betamethasone using a transgluteal technique and a target of the right ischial spine; this procedure resulted in ~8 hours of > 50% pain relief. The patient was then referred for MR neurography of the lumbosacral plexus. This study revealed increased signal of the right pudendal nerve at the ischial spine and in the pudendal canal, findings consistent with the clinical picture of PN. Six weeks after the initial block, the patient underwent a second right transgluteal pudendal nerve block, utilizing 3 mL of 0.25% bupivacaine with 40 mg of triamcinolone acetonide; this procedure resulted in ~8 hours of 100% pain relief. Satisfied with these results the patient decided to undergo pudendal nerve PRF ablation for possible long-term relief. For this therapeutic procedure, a right transgluteal approach was again utilized. PRF ablation was performed for 240 seconds at 42° Celsius. Following this ablation the patient reported at least 6 weeks of significant (> 50%) pain relief. **DISCUSSION AND CONCLUSION:** In this paper we presented a case of successful treatment of PN with PRF ablation and detection of pudendal neuropathy on MR neurography. We believe that transgluteal PRF ablation for PN might be an effective, minimally invasive option for those patients that have failed conservative management. MR neurography employed in this case is not only helpful in confirming the diagnosis of PN but could also be useful in ruling out other causes of pelvic pain, such as genitofemoral neuropathy, endometriosis, adenomyosis, or pelvic mass lesion. To conclude, transgluteal PRF ablation can serve as a viable treatment option for mitigating symptoms of pudendal neuropathy and MR neurography is useful in confirming a clinically suspected diagnosis of PN. Key words: Pelvic pain, pudendal neuralgia, MR neurography, pulsed radiofrequency ablation, transgluteal technique, Alcock canal syndrome.

## **Lichen Sclerosus**

### **Photodynamic Therapy in the Treatment of Vulvar Lichen Sclerosus.**

Maździarz A, Osuch B, Kowalska M, Nalewczyńska A, Śpiewankiewicz B.

*Photodiagnosis Photodyn Ther*. 2017 May 16. pii: S1572-1000(17)30230-2. doi:

10.1016/j.pdpdt.2017.05.011.

<https://www.ncbi.nlm.nih.gov/pubmed/28526592>

**BACKGROUND:** Vulvar lichen sclerosus is a chronic and incurable disease that causes various unpleasant symptoms and serious consequences. **OBJECTIVE:** The purpose of the study was to assess the effectiveness of photodynamic therapy in the treatment of vulvar lichen sclerosus. **METHODS:** Participants in the study included 102 female patients aged 19-85 suffer from vulvar lichen sclerosus. The patients underwent photodynamic therapy (PDT). In the course of PDT the 5% 5- aminolevulinic acid



was used in gel form. The affected areas were irradiated with a halogenic lamp PhotoDyn 501 (590-760nm) during a 10-minute radiation treatment. The treatment was repeated weekly for 10 weeks. **RESULT:** PDT has brought about a good therapeutic effect (complete or partial clinical remission), with the 87.25% improvement rate in patients suffering from lichen sclerosus. The greatest vulvoscopic response was observed in the reduction of subepithelial ecchymoses and teleangiectasia (78.95%), and the reduction of erosions and fissures (70.97%). A partial remission of lichenification with hyperkeratosis was observed in 51.61% of cases. The least response was observed in the atrophic lesions reduction (improvement in 37.36% of cases). **CONCLUSION:** Our patients suffering from vulvar lichen sclerosus demonstrated positive responses to photodynamic therapy and the treatment was well tolerated. Photodynamic therapy used to treat lichen sclerosus yields excellent cosmetic results.

### **Rejuvenation Using Platelet-rich Plasma and Lipofilling for Vaginal Atrophy and Lichen Sclerosus.**

Kim SH, Park ES, Kim TH.

*J Menopausal Med.* 2017 Apr;23(1):63-68. doi: 10.6118/jmm.2017.23.1.63. Epub 2017 Apr 28.

<https://www.ncbi.nlm.nih.gov/pubmed/28523261>

Vaginal atrophy is a common condition among peri- and post-menopausal women. Symptoms of vaginal dryness, pruritus, irritation, loss of subcutaneous fat, sparse pubic hair and dyspareunia occur due to decreased estrogen level. Estrogen-based treatments are effective. But many patients are reluctant to be treated due to health concerns. As alternatives, we explored the efficacy of platelet-rich plasma (PRP) and lipofilling. A 67-year-old female patient with vaginal atrophy was referred to our department. Treatment using estrogen cream had failed to improve patient's symptoms. Diminished volume and aged look of genitalia were also major concerns. We treated her using lipofilling mixed with PRP. A total of 40 cc of autologous fat mixed with PRP was transferred to labia majora. Lipofilling with PRP relieved the clinical symptoms. Missing fullness and tone was corrected and the augmented volume was well maintained. White patchy lesions of lichen sclerosus on labia minora also improved. Lipofilling with PRP relieved symptoms, restored contour of the labia majora and achieved remission of lichen sclerosus on labia minora. As vulvar lesions were repaired and the aged appearance of genitalia was rejuvenated, both functional and cosmetic outcomes were satisfactory. Lipofilling with PRP can be effective for vaginal atrophy and lichen sclerosus.

### **Tubo-Ovarian Abscess in A Virginal Adolescent with Labial Agglutination Due to Lichen Sclerosus.**

Stortini B, Dural O, Kielly M, Fleming N.

*J Pediatr Adolesc Gynecol.* 2017 May 15. pii: S1083-3188(17)30005-0. doi: 10.1016/j.jpag.2017.05.004.

<https://www.ncbi.nlm.nih.gov/pubmed/28522404>

**BACKGROUND:** We describe an unusual presentation of lichen sclerosus in a post-menarchal, virginal girl. **CASE:** A 14 year-old girl first presented with acute urinary retention due to labial agglutination and developed bilateral tubo-ovarian abscesses in 10 days of the conservative management period. Abscesses were treated with antibiotherapy and percutaneous drainage; simple division of the labial agglutination and vulvar biopsies were performed with a preliminary diagnosis of lichen sclerosus. Postoperative follow up with antibiotherapy and clobetasol propionate 0.05% ointment went uneventfully. **SUMMARY AND CONCLUSION:** Lichen sclerosus should be considered in cases of labial agglutination with atypical presentations. Finally, this case reminds us that pelvic inflammatory disease and tubo-ovarian abscess must be kept in mind even in virginal adolescents, especially in the presence of obstructive lesions of the genital tract.